Building connections that last™

ASC Engineered Solutions

# Anvil®

## Pipe Fittings & Steel Nipples


ANVIL®
An ASC Engineered Solution

# BUILDING CONNECTIONS THAT LAST

For over 160 years, Anvil has worked diligently to build a strong, vibrant tradition of making connections — pipe to pipe and people to people.

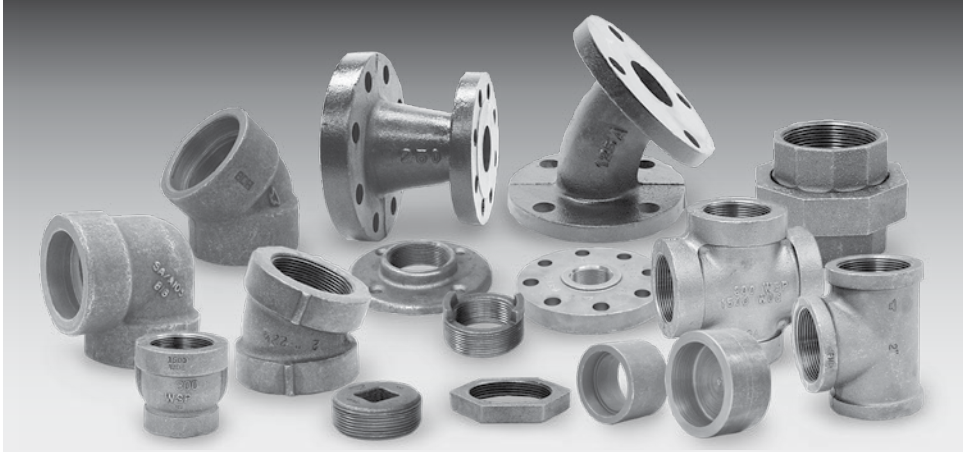
We pride ourselves in providing the finest quality pipe products and services with integrity and dedication to superior customer service at all levels.

We provide expertise and product solutions for a wide range of applications, from plumbing, mechanical, HVAC, industrial and fire protection to mining, oil and gas. Our comprehensive line of products includes: grooved pipe couplings, grooved and plain-end fittings, valves, cast and malleable iron fittings, forged steel fittings, steel pipe nipples and couplings, pipe hangers and supports, channel and strut fittings, mining and oil field fittings, along with much more.

As an additional benefit to our customers, Anvil offers a complete and comprehensive Design Services Analysis for mechanical equipment rooms, to help you determine the most effective and cost-efficient piping solutions.

Anvil is a proud member of the United States Green Building Council (USGBC). Go to the Anvil website to obtain manufacturer recycled certificates and other Green information.

At Anvil, we believe that responsive and accessible customer support is what makes the difference between simply delivering products — and delivering solutions.



# Pipe Fittings

## History

For over 160 years, Anvil has been a trusted name in piping solutions by consistently providing quality products, service, and support to the PVF industry. Our ability to provide cost-efficient piping packages that are tailored to individual markets is unmatched in the industry. From plumbing, mechanical, and fire protection, to mining, oil and gas, our innovative responses are designed to meet your specific demands.

## Products

Our manufacturing facilities produce an unrivaled package of piping products, while setting a world-wide industry standard for quality and dependability. Our ISO certified facilities use recycled materials in the manufacturing of our product as well as being a proud member of the USGBC.

## Distribution Channel

The wholesaler has always been the key to Anvil's business. Our dedication to the wholesale trade is the driving force for our services and these relationships remain a primary focus of Anvil's innovation. Our value-added services including a proprietary suite of inventory management tools signifies a strong commitment to our customers needs.

## Customer Service

Having major distribution centers located throughout North America, you can count on getting the product you need - when you need it. Customer satisfaction has always been Anvil's #1 objective. Our experienced Sales and Customer Service Teams are knowledgeable and eager to serve our customers, validating our company's motto "Building Connections that Last."

### Pipe Fitting Product Line

- Malleable Iron Pipe Fittings
  Threaded Fittings
    Class 150 (Standard)
    Class 300 (XS/XH)

- Cast Iron Pipe Fittings
  Threaded Fittings
    Class 125 (Standard)
    Class 250 (Extra Heavy)
  Flanged Fittings
    Class 125 (Standard)
  Drainage Fittings

- Small Steel Fittings
  Merchant Steel

- Pipe Nipples
  Seamless and Welded

- Pipe Couplings

- Forged Steel Pipe Fittings
  Threaded Fittings
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    Class 6000
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- Catawissa Products

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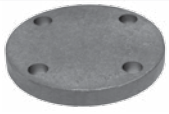

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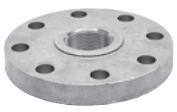

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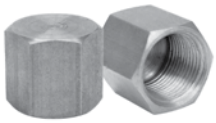

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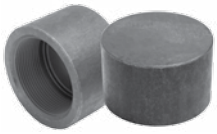

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## FORGED STEEL FITTINGS SOCKET WELD REDUCER INSERTS

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# Forged Steel *(Continued)* – Anvilets

## FORGED STEEL FITTINGS CLASS 3000 SOCKET WELD



## FORGED STEEL FITTINGS CLASS 6000 SOCKET WELD



## UNIVERSAL ELBOWLET LATERAL ANVILET



## FLAT ANVILET



## UNIVERSAL FORGED STEEL ANVILETS

# Catawissa – J.B. Smith

## CATAWISSA HAMMER UNIONS

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**Fig. 100**
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Sizes: 2" & 3"
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## J.B. SMITH

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¼" x ⅛" thru 1" x ¾"
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# J.B.S. Oil Country Products – Oil Country Fittings

## J.B.S. OIL COUNTRY PRODUCTS



## OIL COUNTRY FITTING

## Notes

## Malleable Iron Threaded Pipe Unions Pressure - Temperature Ratings

| Temperature | | Pressure | | | | | |
|---|---|---|---|---|---|---|---|
| | | Class 150 | | Class 250 | | Class 300 | |
| (°F) | *(°C)* | psi | *bar* | psi | *bar* | psi | *bar* |
| -20° to 150° | *-28.9° to 65.6°* | 300 | *20.7* | 500 | *34.5* | 600 | *41.4* |
| 200° | *93.3°* | 265 | *18.3* | 455 | *31.4* | 550 | *37.9* |
| 250° | *121.1°* | 225 | *15.5* | 405 | *27.9* | 505 | *34.8* |
| 300° | *148.9°* | 185 | *12.8* | 360 | *24.8* | 460 | *31.7* |
| 350° | *176.7°* | 150 | *10.3* | 315 | *21.7* | 415 | *28.6* |
| 400° | *204.4°* | 110 | *7.6* | 270 | *18.6* | 370 | *25.5* |
| 450° | *232.2°* | 75 | *5.2* | 225 | *15.5* | 325 | *22.4* |
| 500° | *260.0°* | – | – | 180 | *12.4* | 280 | *19.3* |
| 550° | *287.8°* | – | – | 130 | *9.0* | 230 | *15.9* |

**Note**: Unions with Copper or Copper Alloy seats are not intended for use where temperature exceeds 450°F

c UL us

FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative.

## Malleable Iron Threaded Fittings Pressure - Temperature Ratings

| Temperature | | Pressure | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Class 150 | | Class 300 | | | | | |
| | | | | Sizes ¼"–1" *(6–25 mm)* | | Sizes 1¼"–2" *(32–51 mm)* | | Sizes 2½"–3" *(64–76 mm)* | |
| (°F) | *(°C)* | psi | *bar* | psi | *bar* | psi | *bar* | psi | *bar* |
| -20° to 150° | *-28.9° to 65.6°* | 300 | *20.7* | 2,000 | *137.9* | 1,500 | *103.4* | 1,000 | *68.9* |
| 200° | *93.3* | 265 | *18.3* | 1,785 | *123.1* | 1,350 | *93.1* | 910 | *62.7* |
| 250° | *121.1* | 225 | *15.5* | 1,575 | *108.6* | 1,200 | *82.7* | 825 | *56.9* |
| 300° | *148.9* | 185 | *12.8* | 1,360 | *93.8* | 1,050 | *72.4* | 735 | *50.7* |
| 350° | *176.7* | 150 | *10.3* | 1,150 | *79.3* | 900 | *62.1* | 650 | *44.8* |
| 400° | *204.4* | – | – | 935 | *64.5* | 750 | *51.7* | 560 | *38.6* |
| 450° | *232.2* | – | – | 725 | *50.0* | 600 | *41.4* | 475 | *32.8* |
| 500° | *260.0* | – | – | 510 | *35.2* | 450 | *31.0* | 385 | *26.5* |
| 550° | *287.8* | – | – | 300 | *20.7* | 300 | *20.7* | 300 | *20.7* |

Anvil Class 150/300 Malleable Iron Fittings conform to ASME B16.3 and Unions conform to ASME B16.39.

**ALL ELBOWS & TEES ⅜" *(10 DN)* and LARGER ARE 100% GAS TESTED AT A MINIMUM OF 100 PSI. *(6.9 bar)***

## Standards and Specifications

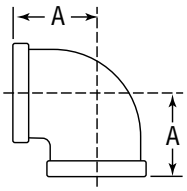
| | Dimensions | Material | Galvanizing* | Thread | Pressure Rating |
|---|---|---|---|---|---|
| **MALLEABLE IRON FITTINGS** | | | | | |
| Class 150/PN 20 | ASME B16.3 | ASTM A-197 | ASTM A-153 | ASME B1 20.1 | ASME B16.3 |
| Class 300/PN 50 | ASME B16.3 | ASTM A-197 | ASTM A-153 | ASME B1 20.1 | ASME B16.3 |
| **MALLEABLE IRON UNIONS** | | | | | |
| Class 150/PN 20 | ASME B16.39 | ASTM A-197 | ASTM A-153 | ASME B1 20.1 | ASME B16.39 |
| Class 250 | ASME B16.39 | ASTM A-197 | ASTM A-153 | ASME B1 20.1 | ASME B16.39 |
| Class 300/PN 50 | ASME B16.39 | ASTM A-197 | ASTM A-153 | ASME B1 20.1 | ASME B16.39 |

* ASTM B 633. Type I, SC 4, may be supplied as alternate zinc coating per applicable ASME B16 product standard.

# Malleable Iron

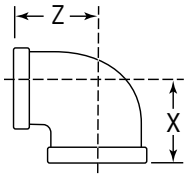
## Class 150 (Standard)

**FIGURE 1101**
**90° Elbow**




| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/8 | *6* | 11/16 | *17* | 0.06 | *0.03* | 0.06 | *0.03* |
| 1/4 | *8* | 13/16 | *22* | 0.11 | *0.05* | 0.11 | *0.05* |
| 3/8 | *10* | 15/16 | *24* | 0.17 | *0.08* | 0.17 | *0.08* |
| 1/2 | *15* | 1 1/8 | *29* | 0.30 | *0.14* | 0.30 | *0.14* |
| 3/4 | *20* | 1 5/16 | *33* | 0.45 | *0.20* | 0.45 | *0.20* |
| 1 | *25* | 1 1/2 | *38* | 0.73 | *0.33* | 0.73 | *0.33* |
| 1 1/4 | *32* | 1 3/4 | *44* | 0.97 | *0.44* | 0.97 | *0.44* |
| 1 1/2 | *40* | 1 15/16 | *49* | 1.30 | *0.59* | 1.30 | *0.59* |
| 2 | *50* | 2 1/4 | *57* | 2.06 | *0.93* | 2.06 | *0.93* |
| 2 1/2 | *65* | 2 11/16 | *68* | 3.55 | *1.61* | 3.55 | *1.61* |
| 3 | *80* | 3 1/16 | *78* | 5.46 | *2.48* | 5.46 | *2.48* |
| 3 1/2 | *90* | 3 7/16 | *87* | 7.10 | *3.22* | 7.10 | *3.22* |
| 4 | *100* | 3 13/16 | *98* | 8.95 | *4.06* | 8.95 | *4.06* |
| 5 | *125* | 4 1/2 | *114* | 13.90 | *6.30* | 13.90 | *6.30* |
| 6 | *150* | 5 1/8 | *130* | 23.00 | *10.43* | 23.00 | *10.43* |

**FIGURE 1101R**
**Reducing Elbow**



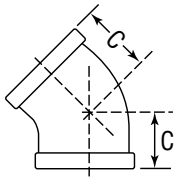

| Size | | | | X | | Z | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/4 | *8* | 1/8 | *6* | 3/4 | *19* | 3/4 | *19* | 0.10 | *0.05* | 0.10 | *0.05* |
| 3/8 | *10* | 1/8 | *6* | 13/16 | *22* | 7/8 | *22* | 0.12 | *0.05* | 0.12 | *0.05* |
| | | 1/4 | *8* | 7/8 | *22* | 15/16 | *24* | 0.14 | *0.06* | 0.14 | *0.06* |
| 1/2 | *15* | 1/4 | *8* | 1 | *25* | 1 | *25* | 0.19 | *0.09* | 0.19 | *0.09* |
| | | 3/8 | *10* | 1 1/16 | *27* | 1 1/16 | *27* | 0.22 | *0.10* | 0.22 | *0.10* |
| 3/4 | *20* | 1/4 | *8* | 1 1/8 | *29* | 1 1/8 | *29* | 0.26 | *0.12* | 0.26 | *0.12* |
| | | 3/8 | *10* | 1 1/8 | *29* | 1 1/8 | *29* | 0.29 | *0.13* | 0.29 | *0.13* |
| | | 1/2 | *15* | 1 3/16 | *30* | 1 1/4 | *32* | 0.38 | *0.17* | 0.38 | *0.17* |
| 1 | *25* | 3/8 | *10* | 1 3/16 | *30* | 1 1/4 | *32* | 0.41 | *0.19* | 0.41 | *0.19* |
| | | 1/2 | *15* | 1 1/4 | *32* | 1 3/8 | *35* | 0.46 | *0.21* | 0.46 | *0.21* |
| | | 3/4 | *20* | 1 3/8 | *35* | 1 7/16 | *37* | 0.56 | *0.25* | 0.56 | *0.25* |
| 1 1/4 | *32* | 1/2 | *15* | 1 3/8 | *35* | 1 9/16 | *40* | 0.61 | *0.28* | 0.61 | *0.28* |
| | | 3/4 | *20* | 1 7/16 | *37* | 1 5/8 | *41* | 0.71 | *0.32* | 0.71 | *0.32* |
| | | 1 | *25* | 1 9/16 | *40* | 1 11/16 | *43* | 0.87 | *0.39* | 0.87 | *0.39* |
| 1 1/2 | *40* | 3/4 | *20* | 1 1/2 | *38* | 1 3/4 | *44* | 0.83 | *0.38* | 0.83 | *0.38* |
| | | 1 | *25* | 1 5/8 | *41* | 1 13/16 | *47* | 1.02 | *0.46* | 1.02 | *0.46* |
| | | 1 1/4 | *32* | 1 13/16 | *47* | 1 7/8 | *48* | 1.17 | *0.53* | 1.17 | *0.53* |
| 2 | *50* | 3/4 | *20* | 1 5/8 | *41* | 2 | *51* | 1.30 | *0.59* | 1.30 | *0.59* |
| | | 1 | *25* | 1 3/4 | *44* | 2 | *51* | 1.35 | *0.61* | 1.35 | *0.61* |
| | | 1 1/4 | *32* | 1 7/8 | *48* | 2 1/8 | *54* | 1.53 | *0.69* | 1.53 | *0.69* |
| | | 1 1/2 | *40* | 2 | *51* | 2 1/8 | *54* | 1.75 | *0.79* | 1.75 | *0.79* |
| 2 1/2 | *65* | 1 1/2 | *40* | 2 3/16 | *56* | 2 1/2 | *64* | 2.50 | *1.13* | 2.50 | *1.13* |
| | | 2 | *50* | 2 7/16 | *62* | 2 5/8 | *67* | 2.98 | *1.35* | 2.98 | *1.35* |
| 3 | *80* | 2 | *50* | 2 9/16 | *65* | 2 15/16 | *75* | 3.75 | *1.70* | 3.75 | *1.70* |
| | | 2 1/2 | *65* | 2 13/16 | *73* | 3 | *76* | 4.30 | *1.95* | 4.30 | *1.95* |
| 4 | *100* | 3 | *80* | 3 5/16 | *84* | 3 5/8 | *92* | 7.87 | *3.57* | 7.87 | *3.57* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees 3/8" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

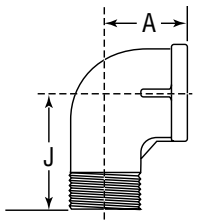
## Class 150 (Standard)

**FIGURE 1102**
**45° Elbow**




| Size | | C | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/8 | *6* | 11/16 | *17* | 0.07 | *0.03* | 0.07 | *0.03* |
| 1/4 | *8* | 3/4 | *19* | 0.11 | *0.05* | 0.11 | *0.05* |
| 3/8 | *10* | 13/16 | *22* | 0.16 | *0.07* | 0.16 | *0.07* |
| 1/2 | *15* | 7/8 | *22* | 0.22 | *0.10* | 0.22 | *0.10* |
| 3/4 | *20* | 1 | *25* | 0.37 | *0.17* | 0.37 | *0.17* |
| 1 | *25* | 1 1/8 | *29* | 0.54 | *0.24* | 0.54 | *0.24* |
| 1 1/4 | *32* | 1 5/16 | *33* | 0.86 | *0.39* | 0.86 | *0.39* |
| 1 1/2 | *40* | 1 7/16 | *37* | 1.13 | *0.51* | 1.13 | *0.51* |
| 2 | *50* | 1 11/16 | *43* | 1.79 | *0.81* | 1.79 | *0.81* |
| 2 1/2 | *65* | 1 15/16 | *49* | 3.60 | *1.63* | 3.60 | *1.63* |
| 3 | *80* | 2 3/16 | *56* | 4.48 | *2.03* | 4.48 | *2.03* |
| 4 | *100* | 2 5/8 | *67* | 7.40 | *3.36* | 7.40 | *3.36* |
| 5 | *125* | 3 1/16 | *78* | 11.46 | *5.20* | 11.46 | *5.20* |
| 6 | *150* | 3 7/16 | *87* | 19.93 | *9.04* | 19.93 | *9.04* |

**FIGURE 1103** (Straight)
**FIGURE 1103R** (Reducing)
**90° Street Elbow**




First size denotes female end.

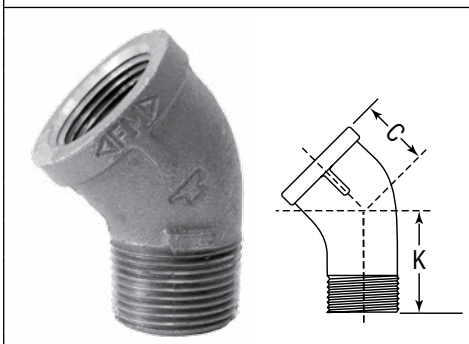
| Size | | A | | J | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/8 | *6* | 11/16 | *17* | 1 | *25* | 0.06 | *0.03* | 0.06 | *0.03* |
| 1/4 | *8* | 13/16 | *22* | 1 3/16 | *30* | 0.10 | *0.05* | 0.10 | *0.05* |
| 3/8 | *10* | 15/16 | *24* | 1 7/16 | *37* | 0.17 | *0.08* | 0.17 | *0.08* |
| 1/2 | *15* | 1 1/8 | *29* | 1 5/8 | *41* | 0.28 | *0.13* | 0.28 | *0.13* |
| 3/4 | *20* | 1 5/16 | *33* | 1 7/8 | *48* | 0.41 | *0.19* | 0.41 | *0.19* |
| 1 | *25* | 1 1/2 | *38* | 2 1/8 | *54* | 0.62 | *0.28* | 0.62 | *0.28* |
| 1 1/4 | *32* | 1 3/4 | *44* | 2 7/16 | *62* | 1.09 | *0.49* | 1.09 | *0.49* |
| 1 1/2 | *40* | 1 15/16 | *49* | 2 11/16 | *68* | 1.44 | *0.65* | 1.44 | *0.65* |
| 2 | *50* | 2 1/4 | *57* | 3 1/4 | *83* | 2.85 | *1.29* | 2.85 | *1.29* |
| 2 1/2 | *65* | 2 11/16 | *68* | 3 7/8 | *98* | 4.00 | *1.81* | 4.00 | *1.81* |
| 3 | *80* | 3 1/16 | *78* | 4 1/2 | *114* | 6.06 | *2.75* | 6.06 | *2.75* |
| 4 | *100* | 3 13/16 | *98* | 5 11/16 | *144* | 10.53 | *4.78* | 10.53 | *4.78* |
| 1/2 x 3/8 | *15 x 10* | 1 1/16 | *27* | 1 9/16 | *40* | 0.23 | *0.10* | 0.23 | *0.10* |
| 3/4 x 1/2 | *20 x 15* | 1 3/16 | *30* | 1 3/4 | *44* | 0.32 | *0.15* | 0.32 | *0.15* |
| 1 x 3/4 | *25 x 20* | 1 3/8 | *35* | 2 1/16 | *52* | 0.54 | *0.24* | 0.54 | *0.24* |
| 1 1/4 x 1 | *32 x 25* | 1 9/16 | *40* | 2 5/16 | *59* | 0.86 | *0.39* | 0.86 | *0.39* |
| 1 1/4 x 3/4 | *32 x 20* | 1 7/16 | *37* | 2 1/4 | *57* | 0.75 | *0.34* | 0.75 | *0.34* |
| 1 1/2 x 1 1/4 | *40 x 32* | 1 13/16 | *47* | 2 9/16 | *65* | 1.18 | *0.54* | 1.18 | *0.54* |
| 1 1/2 x 1 | *40 x 25* | 1 5/8 | *41* | 2 1/2 | *64* | 1.08 | *0.49* | 1.08 | *0.49* |
| 2 x 1 1/2 | *50 x 40* | 2 | *51* | 2 15/16 | *75* | 1.85 | *0.84* | 1.85 | *0.84* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees 3/8" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

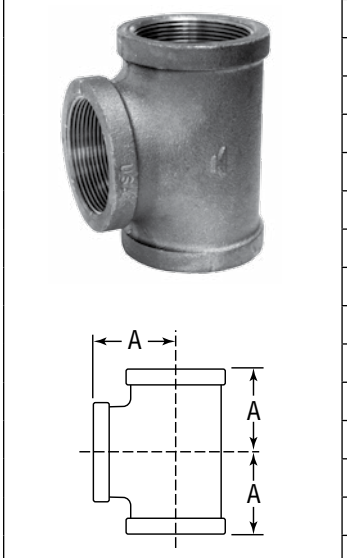
## Class 150 (Standard)

**FIGURE 1104**
**45° Street Elbow**




| Size | | C | | K | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/8 | *6* | 11/16 | *17* | 7/8 | *22* | 0.06 | *0.03* | 0.06 | *0.03* |
| 1/4 | *8* | 3/4 | *19* | 15/16 | *24* | 0.10 | *0.05* | 0.10 | *0.05* |
| 3/8 | *10* | 13/16 | *22* | 1 | *25* | 0.14 | *0.06* | 0.14 | *0.06* |
| 1/2 | *15* | 7/8 | *22* | 1 1/8 | *29* | 0.20 | *0.09* | 0.20 | *0.09* |
| 3/4 | *20* | 1 | *25* | 1 5/16 | *33* | 0.33 | *0.15* | 0.33 | *0.15* |
| 1 | *25* | 1 1/8 | *29* | 1 7/16 | *37* | 0.52 | *0.24* | 0.52 | *0.24* |
| 1 1/4 | *32* | 1 5/16 | *33* | 1 11/16 | *43* | 0.85 | *0.39* | 0.85 | *0.39* |
| 1 1/2 | *40* | 1 7/16 | *37* | 1 7/8 | *48* | 1.22 | *0.55* | 1.22 | *0.55* |
| 2 | *50* | 1 11/16 | *43* | 2 1/4 | *57* | 1.92 | *0.87* | 1.92 | *0.87* |

**FIGURE 1105**
**Straight Tee**



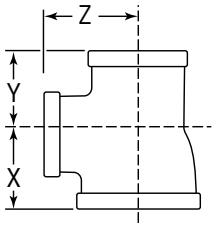

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/8 | *6* | 11/16 | *17* | 0.09 | *0.04* | 0.09 | *0.04* |
| 1/4 | *8* | 13/16 | *22* | 0.15 | *0.07* | 0.15 | *0.07* |
| 3/8 | *10* | 15/16 | *24* | 0.23 | *0.10* | 0.23 | *0.10* |
| 1/2 | *15* | 1 1/8 | *29* | 0.41 | *0.19* | 0.41 | *0.19* |
| 3/4 | *20* | 1 5/16 | *33* | 0.60 | *0.27* | 0.60 | *0.27* |
| 1 | *25* | 1 1/2 | *38* | 0.90 | *0.41* | 0.90 | *0.41* |
| 1 1/4 | *32* | 1 3/4 | *44* | 1.31 | *0.59* | 1.31 | *0.59* |
| 1 1/2 | *40* | 1 15/16 | *49* | 1.73 | *0.78* | 1.73 | *0.78* |
| 2 | *50* | 2 1/4 | *57* | 2.52 | *1.14* | 2.52 | *1.14* |
| 2 1/2 | *65* | 2 11/16 | *68* | 4.90 | *2.22* | 4.90 | *2.22* |
| 3 | *80* | 3 1/16 | *78* | 7.13 | *3.23* | 7.13 | *3.23* |
| 3 1/2 | *90* | 3 7/16 | *87* | 9.00 | *4.08* | 9.00 | *4.08* |
| 4 | *100* | 3 13/16 | *98* | 11.32 | *5.13* | 11.32 | *5.13* |
| 5 | *125* | 4 1/2 | *114* | 19.42 | *8.81* | 19.42 | *8.81* |
| 6 | *150* | 5 1/8 | *130* | 25.50 | *11.56* | 25.50 | *11.56* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees 3/8" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)

**FIGURE 1105R**
**Reducing Tee**




| Size | | | | | | X | | Y | | Z | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅛ | *6* | ⅛ | *6* | ¼ | *8* | ¾ | *19* | ¾ | *19* | ¾ | *19* | 0.12 | *0.05* | 0.12 | *0.05* |
| ¼ | *8* | ¼ | *8* | ⅛ | *6* | ¾ | *19* | ¾ | *19* | ¾ | *19* | 0.13 | *0.06* | 0.13 | *0.06* |
| | | | | ⅜ | *10* | 15⁄16 | *24* | 15⁄16 | *24* | ⅞ | *22* | 0.19 | *0.09* | 0.19 | *0.09* |
| ⅜ | *10* | ¼ | *8* | ¼ | *8* | ⅞ | *22* | 13⁄16 | *22* | 15⁄16 | *24* | 0.19 | *0.09* | 0.19 | *0.09* |
| | | | | ⅜ | *10* | 15⁄16 | *24* | 15⁄16 | *24* | 15⁄16 | *24* | 0.21 | *0.10* | 0.21 | *0.10* |
| | | ⅜ | *10* | ¼ | *8* | ⅞ | *22* | ⅞ | *22* | 15⁄16 | *24* | 0.21 | *0.10* | 0.21 | *0.10* |
| | | | | ½ | *15* | 1 1⁄16 | *27* | 1 1⁄16 | *27* | 1 1⁄16 | *27* | 0.27 | *0.12* | 0.27 | *0.12* |
| ½ | *15* | ¼ | *8* | ½ | *15* | 1 ⅛ | *29* | 1 5⁄16 | *24* | 1 ⅛ | *29* | 0.29 | *0.13* | 0.29 | *0.13* |
| | | ⅜ | *10* | ⅜ | *10* | 1 1⁄16 | *27* | 1 | *25* | 1 1⁄16 | *27* | 0.28 | *0.13* | 0.28 | *0.13* |
| | | | | ½ | *15* | 1 ⅛ | *29* | 1 1⁄16 | *27* | 1 ⅛ | *29* | 0.33 | *0.15* | 0.33 | *0.15* |
| | | ½ | *15* | ¼ | *8* | 1 | *25* | 1 | *25* | 1 | *25* | 0.27 | *0.12* | 0.27 | *0.12* |
| | | | | ⅜ | *10* | 1 1⁄16 | *27* | 1 1⁄16 | *27* | 1 1⁄16 | *27* | 0.30 | *0.14* | 0.30 | *0.14* |
| | | | | ¾ | *20* | 1 ¼ | *32* | 1 ¼ | *32* | 1 3⁄16 | *30* | 0.45 | *0.20* | 0.45 | *0.20* |
| | | | | 1 | *25* | 1 ⅜ | *35* | 1 ⅜ | *35* | 1 ¼ | *32* | 0.55 | *0.25* | 0.55 | *0.25* |
| ¾ | *20* | ¼ | *8* | ¾ | *20* | 1 5⁄16 | *33* | 1 ⅛ | *29* | 1 5⁄16 | *33* | 0.45 | *0.20* | 0.45 | *0.20* |
| | | ⅜ | *10* | ⅜ | *10* | 1 ⅛ | *29* | 15⁄16 | *24* | 1 ⅛ | *29* | 0.36 | *0.16* | – | – |
| | | | | ¾ | *20* | 1 5⁄16 | *33* | 1 ⅛ | *29* | 1 5⁄16 | *33* | 0.46 | *0.21* | 0.46 | *0.21* |
| | | ½ | *15* | ½ | *15* | 1 3⁄16 | *30* | 1 ⅛ | *29* | 1 ¼ | *32* | 0.43 | *0.20* | 0.43 | *0.20* |
| | | | | ¾ | *20* | 1 5⁄16 | *33* | 1 ¼ | *32* | 1 5⁄16 | *33* | 0.51 | *0.23* | 0.51 | *0.23* |
| | | ¾ | *20* | ¼ | *8* | 1 1⁄16 | *27* | 1 1⁄16 | *27* | 1 ⅛ | *29* | 0.38 | *0.17* | 0.38 | *0.17* |
| | | | | ⅜ | *10* | 1 ⅛ | *29* | 1 ⅛ | *29* | 1 ⅛ | *29* | 0.42 | *0.19* | 0.42 | *0.19* |
| | | | | ½ | *15* | 1 3⁄16 | *22* | 1 3⁄16 | *30* | 1 ¼ | *32* | 0.47 | *0.21* | 0.47 | *0.21* |
| | | | | 1 | *25* | 1 7⁄16 | *37* | 1 7⁄16 | *37* | 1 ⅜ | *35* | 0.62 | *0.28* | 0.62 | *0.28* |
| | | | | 1 ¼ | *32* | 1 ⅝ | *41* | 1 ⅝ | *41* | 1 7⁄16 | *37* | 0.90 | *0.41* | 0.90 | *0.41* |
| 1 | *25* | ¼ | *8* | 1 | *25* | 1 ½ | *38* | 1 5⁄16 | *33* | 1 ½ | *38* | 0.69 | *0.31* | 0.69 | *0.31* |
| | | ½ | *15* | ½ | *15* | 1 ¼ | *32* | 1 ⅛ | *29* | 1 ⅜ | *35* | 0.70 | *0.32* | 0.70 | *0.32* |
| | | | | ¾ | *20* | 1 ⅜ | *35* | 1 ¼ | *32* | 1 7⁄16 | *37* | 0.56 | *0.25* | 0.56 | *0.25* |
| | | | | 1 | *25* | 1 ½ | *38* | 1 ⅜ | *35* | 1 ½ | *38* | 0.76 | *0.34* | 0.76 | *0.34* |
| | | ¾ | *20* | ½ | *15* | 1 ¼ | *32* | 1 3⁄16 | *30* | 1 ⅜ | *35* | 0.59 | *0.27* | 0.59 | *0.27* |
| | | | | ¾ | *20* | 1 ⅜ | *35* | 1 5⁄16 | *33* | 1 7⁄16 | *37* | 0.74 | *0.34* | 0.74 | *0.34* |
| | | | | 1 | *25* | 1 ½ | *38* | 1 7⁄16 | *37* | 1 ½ | *38* | 0.78 | *0.35* | 0.78 | *0.35* |
| | | 1 | *25* | ¼ | *8* | 1 ⅛ | *29* | 1 ⅛ | *29* | 1 ¼ | *44* | 0.53 | *0.24* | 0.53 | *0.24* |
| | | | | ⅜ | *10* | 1 3⁄16 | *30* | 1 3⁄16 | *30* | 1 ¼ | *32* | 0.60 | *0.27* | 0.60 | *0.27* |
| | | | | ½ | *15* | 1 ¼ | *32* | 1 ¼ | *32* | 1 ⅜ | *35* | 0.70 | *0.32* | 0.70 | *0.32* |
| | | | | ¾ | *20* | 1 ⅜ | *35* | 1 ⅜ | *35* | 1 7⁄16 | *37* | 0.82 | *0.37* | 0.82 | *0.37* |
| | | | | 1 ¼ | *32* | 1 11⁄16 | *43* | 1 11⁄16 | *43* | 1 9⁄16 | *40* | 0.92 | *0.42* | 0.92 | *0.42* |
| | | | | 1 ½ | *40* | 1 13⁄16 | *47* | 1 13⁄16 | *46* | 1 ⅝ | *41* | 1.19 | *0.54* | 1.19 | *0.54* |
| | | | | 2 | *50* | 2 | *51* | 2 | *51* | 1 ¾ | *44* | 1.63 | *0.74* | 1.63 | *0.74* |

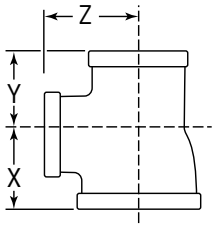
See additional sizes on following page.

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)

**FIGURE 1105R**
**Reducing Tee (Cont'd.)**




| Size | | | | | | X | | Y | | Z | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1¼ | *32* | ½ | *15* | 1 | *25* | 1 9/16 | *40* | 1 3/8 | *35* | 1 11/16 | *43* | 0.87 | *0.39* | 0.87 | *0.39* |
| | | | | 1¼ | *32* | 1¾ | *44* | 1 9/16 | *40* | 1¾ | *44* | 1.04 | *0.47* | 1.04 | *0.47* |
| | | ¾ | *20* | ¾ | *20* | 1 7/16 | *37* | 1 5/16 | *33* | 1 5/8 | *41* | 0.86 | *0.39* | 0.86 | *0.39* |
| | | | | 1 | *25* | 1 9/16 | *40* | 1 7/16 | *37* | 1 11/16 | *43* | 0.91 | *0.41* | 0.91 | *0.41* |
| | | | | 1¼ | *32* | 1¾ | *44* | 1 5/8 | *41* | 1¾ | *44* | 1.04 | *0.47* | 1.04 | *0.47* |
| | | 1 | *25* | ½ | *15* | 1⅜ | *35* | 1¼ | *32* | 1 9/16 | *40* | 0.76 | *0.34* | 0.76 | *0.34* |
| | | | | ¾ | *20* | 1 7/16 | *37* | 1⅜ | *35* | 1 5/8 | *41* | 0.87 | *0.39* | 0.87 | *0.39* |
| | | | | 1 | *25* | 1 9/16 | *40* | 1½ | *38* | 1 11/16 | *43* | 1.11 | *0.50* | 1.11 | *0.50* |
| | | | | 1¼ | *32* | 1¾ | *44* | 1 11/16 | *43* | 1¾ | *44* | 1.13 | *0.51* | 1.13 | *0.51* |
| | | 1¼ | *32* | ⅜ | *10* | 1¼ | *32* | 1¼ | *32* | 1 7/16 | *37* | 0.86 | *0.39* | 0.86 | *0.39* |
| | | | | ½ | *15* | 1⅜ | *35* | 1⅜ | *35* | 1 9/16 | *40* | 0.98 | *0.44* | 0.98 | *0.44* |
| | | | | ¾ | *20* | 1 7/16 | *37* | 1 7/16 | *37* | 1 5/8 | *41* | 1.07 | *0.49* | 1.07 | *0.49* |
| | | | | 1 | *25* | 1 9/16 | *40* | 1 9/16 | *40* | 1 11/16 | *43* | 1.18 | *0.54* | 1.18 | *0.54* |
| | | | | 1½ | *40* | 1⅞ | *48* | 1⅞ | *48* | 1 13/16 | *47* | 1.45 | *0.66* | 1.45 | *0.66* |
| | | | | 2 | *50* | 2⅛ | *54* | 2⅛ | *54* | 1⅞ | *48* | 1.70 | *0.77* | 1.70 | *0.77* |
| 1½ | *40* | ½ | *15* | 1½ | *40* | 1 15/16 | *49* | 1 11/16 | *43* | 1 15/16 | *49* | 1.33 | *0.60* | 1.33 | *0.60* |
| | | ¾ | *20* | ¾ | *20* | 1½ | *38* | 1 5/16 | *33* | 1¾ | *44* | 1.00 | *0.45* | 1.00 | *0.45* |
| | | | | 1½ | *40* | 1 15/16 | *49* | 1¾ | *44* | 1 15/16 | *49* | 1.41 | *0.64* | 1.41 | *0.64* |
| | | 1 | *25* | 1 | *25* | 1 5/8 | *41* | 1½ | *38* | 1 13/16 | *47* | 1.14 | *0.52* | 1.14 | *0.52* |
| | | | | 1¼ | *32* | 1 13/16 | *47* | 1 11/16 | *43* | 1⅞ | *48* | 1.30 | *0.59* | 1.30 | *0.59* |
| | | | | 1½ | *40* | 1 15/16 | *49* | 1 13/16 | *47* | 1 15/16 | *49* | 1.50 | *0.68* | 1.50 | *0.68* |
| | | 1¼ | *32* | ½ | *15* | 1 7/16 | *37* | 1⅜ | *35* | 1 11/16 | *43* | 1.05 | *0.48* | 1.05 | *0.48* |
| | | | | ¾ | *20* | 1½ | *38* | 1 7/16 | *37* | 1¾ | *44* | 1.08 | *0.49* | 1.08 | *0.49* |
| | | | | 1 | *25* | 1⅝ | *41* | 1 9/16 | *40* | 1 13/16 | *47* | 1.26 | *0.57* | 1.26 | *0.57* |
| | | | | 1¼ | *32* | 1 13/16 | *47* | 1¾ | *44* | 1⅞ | *48* | 1.52 | *0.69* | 1.52 | *0.69* |
| | | | | 1½ | *40* | 1 15/16 | *49* | 1⅞ | *48* | 1 15/16 | *49* | 1.50 | *0.68* | 1.50 | *0.68* |
| | | 1½ | *40* | ½ | *15* | 1 7/16 | *37* | 1 7/16 | *37* | 1 11/16 | *43* | 1.19 | *0.54* | 1.19 | *0.54* |
| | | | | ¾ | *20* | 1½ | *38* | 1½ | *38* | 1¾ | *44* | 1.60 | *0.73* | 1.60 | *0.73* |
| | | | | 1 | *25* | 1⅝ | *41* | 1⅝ | *41* | 1 13/16 | *47* | 1.45 | *0.66* | 1.45 | *0.66* |
| | | | | 1¼ | *32* | 1 13/16 | *47* | 1 13/16 | *47* | 1⅞ | *48* | 1.45 | *0.66* | 1.45 | *0.66* |
| | | | | 2 | *50* | 2 3/16 | *56* | 2 3/16 | *56* | 2 | *51* | 1.86 | *0.84* | 1.86 | *0.84* |

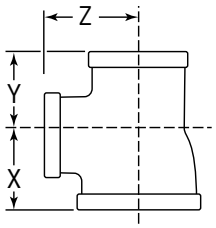
See additional sizes on previous and following page.

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees 3/8" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)

**FIGURE 1105R**
**Reducing Tee (Cont'd.)**



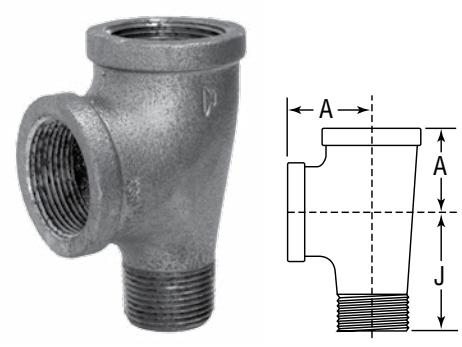

| Size | | | | | | X | | Y | | Z | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 2 | *50* | ½ | *15* | 2 | *50* | 2¼ | *57* | 1⅞ | *48* | 2¼ | *57* | 2.15 | *0.98* | 2.15 | *0.98* |
| | | ¾ | *20* | 2 | *50* | 2¼ | *57* | 1 15/16 | *49* | 2¼ | *57* | 2.00 | *0.91* | 2.00 | *0.91* |
| | | 1 | *25* | 2 | *50* | 2¼ | *57* | 2 | *51* | 2¼ | *57* | 2.14 | *0.97* | 2.14 | *0.97* |
| | | 1¼ | *32* | 1¼ | *32* | 1⅞ | *48* | 1¾ | *44* | 2⅛ | *54* | 1.72 | *0.78* | 1.72 | *0.78* |
| | | | | 1½ | *40* | 2 | *51* | 1⅞ | *48* | 2 3/16 | *56* | 1.85 | *0.84* | 1.85 | *0.84* |
| | | | | 2 | *50* | 2¼ | *57* | 2⅛ | *54* | 2¼ | *57* | 2.20 | *1.00* | 2.20 | *1.00* |
| | | 1½ | *40* | 1 | *25* | 1¾ | *44* | 1⅝ | *41* | 2 | *51* | 1.57 | *0.71* | 1.57 | *0.71* |
| | | | | 1¼ | *32* | 1⅞ | *48* | 1 13/16 | *47* | 2⅛ | *54* | 1.76 | *0.80* | 1.76 | *0.80* |
| | | | | 1½ | *40* | 2 | *51* | 1 15/16 | *49* | 2 3/16 | *56* | 1.95 | *0.88* | 1.95 | *0.88* |
| | | | | 2 | *50* | 2¼ | *57* | 2 3/16 | *56* | 2¼ | *57* | 2.24 | *1.02* | 2.24 | *1.02* |
| | | 2 | *50* | ½ | *15* | 1½ | *38* | 1½ | *38* | 1⅞ | *48* | 1.65 | *0.75* | 1.65 | *0.75* |
| | | | | ¾ | *20* | 1⅝ | *41* | 1⅝ | *41* | 2 | *51* | 1.87 | *0.85* | 1.87 | *0.85* |
| | | | | 1 | *25* | 1¾ | *44* | 1¾ | *44* | 2 | *51* | 1.76 | *0.80* | 1.76 | *0.80* |
| | | | | 1¼ | *32* | 1⅞ | *48* | 1⅞ | *48* | 2⅛ | *54* | 2.35 | *1.07* | 2.35 | *1.07* |
| | | | | 1½ | *40* | 2 | *51* | 2 | *51* | 2 3/16 | *56* | 2.55 | *1.16* | 2.55 | *1.16* |
| | | | | 2½ | *65* | 2⅝ | *67* | 2⅝ | *67* | 2⅜ | *60* | 3.50 | *1.59* | 3.50 | *1.59* |
| 2½ | *65* | 1½ | *40* | 2 | *50* | 2⅜ | *60* | 2 3/16 | *56* | 2⅝ | *67* | 3.43 | *1.56* | 3.43 | *1.56* |
| | | | | 2½ | *65* | 2 11/16 | *68* | 2½ | *64* | 2 11/16 | *68* | 3.80 | *1.72* | 3.80 | *1.72* |
| | | 2 | *50* | 2 | *50* | 2⅜ | *60* | 2¼ | *57* | 2⅝ | *67* | 3.28 | *1.49* | 3.28 | *1.49* |
| | | | | 2½ | *65* | 2 11/16 | *68* | 2⅝ | *67* | 2 11/16 | *68* | 4.10 | *1.86* | 4.10 | *1.86* |
| | | 2½ | *65* | ¾ | *20* | 1¾ | *44* | 1¾ | *44* | 2 5/16 | *59* | 2.72 | *1.23* | 2.72 | *1.23* |
| | | | | 1 | *25* | 1⅞ | *48* | 1⅞ | *48* | 2⅜ | *60* | 2.85 | *1.29* | 2.85 | *1.29* |
| | | | | 1¼ | *32* | 2 1/16 | *52* | 2 1/16 | *52* | 2 7/16 | *62* | 3.36 | *1.52* | 3.36 | *1.52* |
| | | | | 1½ | *40* | 2 3/16 | *56* | 2 3/16 | *56* | 2½ | *64* | 3.46 | *1.57* | 3.46 | *1.57* |
| | | | | 2 | *50* | 2⅜ | *60* | 2⅜ | *60* | 2⅝ | *67* | 3.65 | *1.66* | 3.65 | *1.66* |
| | | | | 3 | *80* | 3 | *76* | 3 | *76* | 2 13/16 | *73* | 5.82 | *2.64* | 5.82 | *2.64* |
| 3 | *80* | 2 | *50* | 2 | *50* | 2½ | *64* | 2¼ | *57* | 2⅞ | *73* | 4.50 | *2.04* | 4.50 | *2.04* |
| | | | | 3 | *80* | 3⅛ | *79* | 2⅞ | *73* | 3⅛ | *79* | 5.80 | *2.63* | 5.80 | *2.63* |
| | | 2½ | *65* | 2 | *50* | 2½ | *64* | 2⅜ | *60* | 2⅞ | *73* | 4.80 | *2.18* | 4.80 | *2.18* |
| | | | | 2½ | *65* | 2 13/16 | *73* | 2 11/16 | *68* | 3 | *76* | 5.80 | *2.63* | 5.80 | *2.63* |
| | | 3 | *80* | ¾ | *20* | 1⅞ | *48* | 1⅞ | *48* | 2⅝ | *67* | 4.03 | *1.83* | 4.03 | *1.83* |
| | | | | 1 | *25* | 2 | *51* | 2 | *51* | 2⅝ | *67* | 4.13 | *1.87* | 4.13 | *1.87* |
| | | | | 1¼ | *32* | 2 3/16 | *56* | 2 3/16 | *56* | 2¾ | *70* | 4.50 | *2.04* | 4.50 | *2.04* |
| | | | | 1½ | *40* | 2 5/16 | *59* | 2 5/16 | *59* | 2 13/16 | *73* | 5.18 | *2.35* | 5.18 | *2.35* |
| | | | | 2 | *50* | 2½ | *64* | 2½ | *64* | 2⅞ | *73* | 5.70 | *2.59* | 5.70 | *2.59* |
| | | | | 2½ | *65* | 2 13/16 | *73* | 2 13/16 | *73* | 3 | *76* | 6.09 | *2.76* | 6.09 | *2.76* |
| 4 | *100* | 3 | *80* | 4 | *100* | 3 13/16 | *98* | 3⅝ | *92* | 3 13/16 | *98* | 10.40 | *4.72* | 10.40 | *4.72* |
| | | 4 | *100* | 1½ | *40* | 2½ | *65* | 2½ | *65* | 3⅜ | *86* | 7.47 | *3.39* | 7.47 | *3.39* |
| | | | | 2 | *50* | 2¾ | *70* | 2¾ | *70* | 3 7/16 | *87* | 8.39 | *3.80* | 8.39 | *3.80* |
| | | | | 2½ | *65* | 3 1/16 | *78* | 3 1/16 | *78* | 3½ | *89* | 9.60 | *4.35* | 9.60 | *4.35* |
| | | | | 3 | *80* | 3 5/16 | *84* | 3 5/16 | *84* | 3⅝ | *92* | 11.02 | *5.00* | 11.02 | *5.00* |

See additional sizes on previous page.
**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)

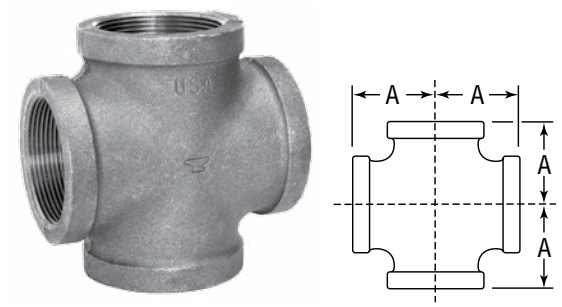
### FIGURE 1106 (Straight)
### FIGURE 1106R (Reducing)
**Street or Service Tee**




| Size NPS | Size DN | A in | A mm | J in | J mm | Unit Weight Black lbs | Black kg | Galv. lbs | Galv. kg |
|---|---|---|---|---|---|---|---|---|---|
| ¼ | 8 | 1 3/16 | 30 | 1 3/16 | 30 | 0.15 | 0.07 | 0.15 | 0.07 |
| ⅜ | 10 | 1 5/16 | 33 | 1 7/16 | 37 | 0.24 | 0.11 | 0.24 | 0.11 |
| ½ | 15 | 1⅛ | 29 | 1⅝ | 41 | 0.34 | 0.15 | 0.34 | 0.15 |
| ¾ | 20 | 1 5/16 | 33 | 1⅞ | 48 | 0.61 | 0.28 | 0.61 | 0.28 |
| 1 | 25 | 1½ | 38 | 2⅛ | 54 | 0.96 | 0.44 | 0.96 | 0.44 |
| 1¼ | 32 | 1¾ | 44 | 2 7/16 | 62 | 1.39 | 0.63 | 1.39 | 0.63 |
| 1½ | 40 | 1 15/16 | 49 | 2 11/16 | 68 | 1.93 | 0.88 | 1.93 | 0.88 |
| 2 | 50 | 2¼ | 57 | 3¼ | 83 | 3.16 | 1.43 | 3.16 | 1.43 |

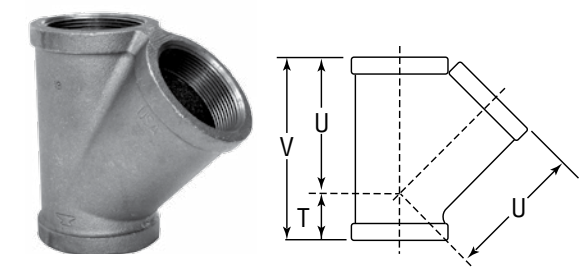
| Size female run x male run x outlet NPS | DN | Run A in | Run A mm | Run J in | Run J mm | Outlet A in | Outlet A mm | Unit Weight Black lbs | Black kg | Galv. lbs | Galv. kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1¼ x 1 x 1¼ | 32 x 25 x 32 | 1¾ | 44 | 2 5/16 | 59 | 1¾ | 44 | 1.34 | 0.61 | 1.34 | 0.61 |

### FIGURE 1107
**Cross**




| Size NPS | Size DN | A in | A mm | Unit Weight Black lbs | Black kg | Galv. lbs | Galv. kg |
|---|---|---|---|---|---|---|---|
| ⅛ | 6 | 1 1/16 | 17 | 0.12 | 0.05 | 0.12 | 0.05 |
| ¼ | 8 | 1 3/16 | 22 | 0.18 | 0.08 | 0.18 | 0.08 |
| ⅜ | 10 | 1 5/16 | 24 | 0.28 | 0.13 | 0.28 | 0.13 |
| ½ | 15 | 1⅛ | 29 | 0.42 | 0.19 | 0.42 | 0.19 |
| ¾ | 20 | 1 5/16 | 33 | 0.69 | 0.31 | 0.69 | 0.31 |
| 1 | 25 | 1½ | 38 | 1.12 | 0.51 | 1.12 | 0.51 |
| 1¼ | 32 | 1¾ | 44 | 1.44 | 0.65 | 1.44 | 0.65 |
| 1½ | 40 | 1 15/16 | 49 | 1.98 | 0.90 | 1.98 | 0.90 |
| 2 | 50 | 2¼ | 57 | 3.30 | 1.50 | 3.30 | 1.50 |
| 2½ | 65 | 2 11/16 | 68 | 5.90 | 2.68 | 5.90 | 2.68 |
| 3 | 80 | 3 1/16 | 78 | 7.94 | 3.60 | 7.94 | 3.60 |
| 4 | 100 | 3 13/16 | 98 | 13.50 | 6.12 | 13.50 | 6.12 |

### FIGURE 1108
**45° Y-Branch or Lateral**




| Size NPS | Size DN | T in | T mm | U in | U mm | V in | V mm | Unit Weight Black lbs | Black kg | Galv. lbs | Galv. kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ⅜ | 10 | ½ | 13 | 1 7/16 | 37 | 1 15/16 | 49 | 0.27 | 0.12 | 0.27 | 0.12 |
| ½ | 15 | ⅝ | 16 | 1 11/16 | 43 | 2 5/16 | 59 | 0.37 | 0.17 | 0.37 | 0.17 |
| ¾ | 20 | ¾ | 19 | 2 1/16 | 52 | 2 13/16 | 73 | 0.62 | 0.28 | 0.62 | 0.28 |
| 1 | 25 | ⅞ | 22 | 2 7/16 | 62 | 3 5/16 | 84 | 0.86 | 0.39 | 0.86 | 0.39 |
| 1¼ | 32 | 1 | 25 | 2 15/16 | 75 | 3 15/16 | 100 | 1.63 | 0.74 | 1.63 | 0.74 |
| 1½ | 40 | 1⅛ | 29 | 3¼ | 83 | 4⅜ | 111 | 2.00 | 0.91 | 2.00 | 0.91 |
| 2 | 50 | 1¼ | 32 | 3 15/16 | 100 | 5 3/16 | 132 | 3.05 | 1.38 | 3.05 | 1.38 |
| 2½ | 65 | 1½ | 38 | 4¾ | 121 | 6¼ | 159 | 5.86 | 2.66 | 5.86 | 2.66 |
| 3 | 80 | 1 11/16 | 43 | 5 9/16 | 141 | 7¼ | 184 | 9.18 | 4.16 | 9.18 | 4.16 |
| 4 | 100 | 2 | 51 | 7 | 178 | 9 | 229 | 15.70 | 7.12 | 15.70 | 7.12 |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

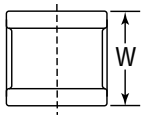
# Malleable Iron

Class 150 (Standard)

**FIGURE 1119**
**Return Bends**
**Open Pattern, R.H.**

| Size | | Center to Center | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ½ | *15* | 1½ | *38* | 0.36 | *0.16* | – | – |
| ¾ | *20* | 2 | *51* | 0.64 | *0.29* | – | – |
| 1 | *25* | 2½ | *64* | 1.10 | *0.50* | 1.10 | *0.50* |
| 1¼ | *32* | 3 | *76* | 1.77 | *0.80* | – | – |
| 1½ | *40* | 3½ | *90* | 2.55 | *1.16* | 2.55 | *1.16* |
| 2 | *50* | 4 | *102* | 4.00 | *1.81* | 4.00 | *1.81* |

**FIGURE 1121**
**Coupling**




| Size | | W | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅛* | *6* | 15⁄16 | *24* | 0.06 | *0.03* | 0.06 | *0.03* |
| ¼ | *8* | 1 1⁄16 | *27* | 0.09 | *0.04* | 0.09 | *0.04* |
| ⅜ | *10* | 1 3⁄16 | *30* | 0.13 | *0.06* | 0.13 | *0.06* |
| ½ | *15* | 1 5⁄16 | *33* | 0.20 | *0.09* | 0.20 | *0.09* |
| ¾ | *20* | 1½ | *38* | 0.30 | *0.14* | 0.30 | *0.14* |
| 1 | *25* | 1 11⁄16 | *43* | 0.48 | *0.22* | 0.48 | *0.22* |
| 1¼ | *32* | 1 15⁄16 | *49* | 0.75 | *0.34* | 0.75 | *0.34* |
| 1½ | *40* | 2⅛ | *54* | 1.00 | *0.45* | 1.00 | *0.45* |
| 2 | *50* | 2½ | *64* | 1.45 | *0.66* | 1.45 | *0.66* |
| 2½ | *65* | 2⅞ | *73* | 2.40 | *1.09* | 2.40 | *1.09* |
| 3 | *80* | 3 3⁄16 | *81* | 3.30 | *1.50* | 3.30 | *1.50* |
| 4 | *100* | 3 11⁄16 | *94* | 5.72 | *2.59* | 5.72 | *2.59* |

* Offered in steel only.

**FIGURE 1124**
**Cap**

| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| ½ | *15* | 0.12 | *0.05* | 0.12 | *0.05* |
| ¾ | *20* | 0.22 | *0.10* | 0.22 | *0.10* |
| 1 | *25* | 0.38 | *0.17* | 0.38 | *0.17* |
| 1¼ | *32* | 0.58 | *0.26* | 0.58 | *0.26* |
| 1½ | *40* | 0.73 | *0.33* | 0.73 | *0.33* |
| 2 | *50* | 1.13 | *0.51* | 1.13 | *0.51* |
| 2½ | *65* | 1.75 | *0.79* | 1.75 | *0.79* |
| 3 | *80* | 2.62 | *1.19* | 2.62 | *1.19* |
| 3½ | *90* | 3.19 | *1.45* | 3.19 | *1.45* |
| 4 | *100* | 4.54 | *2.06* | 4.54 | *2.06* |
| 5 | *125* | 6.45 | *2.93* | 6.45 | *2.93* |
| 6 | *150* | 10.00 | *4.54* | 10.00 | *4.54* |

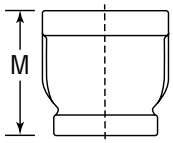
**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)



**FIGURE 1125**
**Reducer**




* Sizes 1/2 x 1/4 , 3/4 x 1/2 and 1 x 3/4 do not have bands at the reducing end.

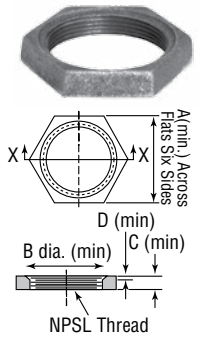
| Size | | | | M | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1/4 | *8* | 1/8 | *6* | 1 | *25* | 0.07 | *0.03* | 0.07 | *0.03* |
| 3/8 | *10* | 1/8 | *6* | 1 1/8 | *29* | 0.11 | *0.05* | 0.11 | *0.05* |
| | | 1/4 | *8* | | | 0.11 | *0.05* | 0.11 | *0.05* |
| 1/2 | *15* | 1/8 | *6* | 1 1/4 | *32* | 0.14 | *0.06* | 0.14 | *0.06* |
| | | 1/4* | *8* | | | 0.15 | *0.07* | 0.15 | *0.07* |
| | | 3/8 | *10* | | | 0.17 | *0.08* | 0.17 | *0.08* |
| 3/4 | *20* | 1/8 | *6* | 1 7/16 | *37* | 0.24 | *0.11* | 0.24 | *0.11* |
| | | 1/4 | *8* | | | 0.22 | *0.10* | 0.22 | *0.10* |
| | | 3/8 | *10* | | | 0.25 | *0.11* | 0.25 | *0.11* |
| | | 1/2* | *15* | | | 0.27 | *0.12* | 0.27 | *0.12* |
| 1 | *25* | 1/4 | *8* | 1 11/16 | *43* | 0.35 | *0.16* | 0.35 | *0.16* |
| | | 3/8 | *10* | | | 0.35 | *0.16* | 0.35 | *0.16* |
| | | 1/2 | *15* | | | 0.39 | *0.18* | 0.39 | *0.18* |
| | | 3/4* | *20* | | | 0.43 | *0.20* | 0.43 | *0.20* |
| 1 1/4 | *32* | 1/2 | *15* | 2 1/16 | *52* | 0.61 | *0.28* | 0.61 | *0.28* |
| | | 3/4 | *20* | | | 0.64 | *0.29* | 0.64 | *0.29* |
| | | 1 | *25* | | | 0.68 | *0.31* | 0.68 | *0.31* |
| 1 1/2 | *40* | 1/2 | *15* | 2 5/16 | *59* | 0.78 | *0.35* | 0.78 | *0.35* |
| | | 3/4 | *20* | | | 0.88 | *0.40* | 0.88 | *0.40* |
| | | 1 | *25* | | | 0.88 | *0.40* | 0.88 | *0.40* |
| | | 1 1/4 | *32* | | | 0.90 | *0.41* | 0.90 | *0.41* |
| 2 | *50* | 1/2 | *15* | 2 13/16 | *73* | 1.30 | *0.59* | 1.30 | *0.59* |
| | | 3/4 | *20* | | | 1.34 | *0.61* | 1.34 | *0.61* |
| | | 1 | *25* | | | 1.40 | *0.63* | 1.40 | *0.63* |
| | | 1 1/4 | *32* | | | 1.53 | *0.69* | 1.53 | *0.69* |
| | | 1 1/2 | *40* | | | 1.55 | *0.70* | 1.55 | *0.70* |
| 2 1/2 | *65* | 1 | *25* | 3 1/4 | *83* | 2.12 | *0.96* | 2.12 | *0.96* |
| | | 1 1/4 | *32* | | | 2.09 | *0.95* | 2.09 | *0.95* |
| | | 1 1/2 | *40* | | | 2.09 | *0.95* | 2.09 | *0.95* |
| | | 2 | *50* | | | 2.51 | *1.14* | 2.51 | *1.14* |
| 3 | *80* | 1 | *25* | 3 11/16 | *94* | 3.16 | *1.43* | 3.16 | *1.43* |
| | | 1 1/4 | *32* | | | 2.99 | *1.36* | 2.99 | *1.36* |
| | | 1 1/2 | *40* | | | 3.30 | *1.50* | 3.30 | *1.50* |
| | | 2 | *50* | | | 3.25 | *1.47* | 3.25 | *1.47* |
| | | 2 1/2 | *65* | | | 3.31 | *1.50* | 3.31 | *1.50* |
| 3 1/2 | *90* | 2 | *50* | 4 | *102* | 4.32 | *1.96* | 4.32 | *1.96* |
| | | 2 1/2 | *65* | | | 4.72 | *2.14* | 4.72 | *2.14* |
| | | 3 | *80* | | | 4.99 | *2.26* | 4.99 | *2.26* |
| 4 | *100* | 1 1/2 | *40* | 4 3/8 | *111* | 4.90 | *2.22* | 4.90 | *2.22* |
| | | 2 | *50* | | | 5.10 | *2.31* | 5.10 | *2.31* |
| | | 2 1/2 | *65* | | | 5.93 | *2.69* | 5.93 | *2.69* |
| | | 3 | *80* | | | 6.55 | *2.97* | 6.55 | *2.97* |
| | | 3 1/2 | *90* | | | 6.30 | *2.86* | 6.30 | *2.86* |
| 5 | *125* | 4 | *100* | 4 9/16 | *116* | 9.57 | *4.34* | 9.57 | *4.34* |
| 6 | *150* | 4 | *100* | 4 13/16 | *124* | 10.30 | *4.67* | 10.30 | *4.67* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees 3/8" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

## Class 150 (Standard)

### FIGURE 1134
**Hex Locknut**




For additional sizes larger than 2" (50 DN) see Cast Iron page 51.
Not to be used for pressure service.

| Size | | Minimum Dimensions | | | | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| • ¼ | *8* | .840 | *21* | .660 | *17* | .250 | *6* | .060 | *2* | 0.02 | *0.01* | 0.02 | *0.01* |
| • ⅜ | *10* | 1.000 | *25* | .770 | *20* | .280 | *7* | .060 | *2* | 0.04 | *0.02* | 0.04 | *0.02* |
| • ½ | *15* | 1.180 | *30* | .970 | *25* | .310 | *8* | .060 | *2* | 0.06 | *0.03* | 0.06 | *0.03* |
| ¾ | *20* | 1.430 | *36* | 1.230 | *31* | .340 | *9* | .060 | *2* | 0.08 | *0.04* | 0.08 | *0.04* |
| 1 | *25* | 1.750 | *44* | 1.500 | *38* | .380 | *10* | .060 | *2* | 0.14 | *0.06* | 0.14 | *0.06* |
| 1¼ | *32* | 2.100 | *53* | 1.860 | *47* | .420 | *11* | .060 | *2* | 0.21 | *0.10* | 0.21 | *0.10* |
| 1½ | *40* | 2.350 | *60* | 2.120 | *54* | .470 | *12* | .060 | *2* | 0.24 | *0.11* | 0.24 | *0.11* |
| 2 | *50* | 2.880 | *73* | 2.630 | *67* | .530 | *13* | .090 | *2* | 0.40 | *0.18* | 0.40 | *0.18* |

• Supplied in steel only.

### FIGURE 1190
**Floor Flange (Ductile Iron)**

Structural use only.

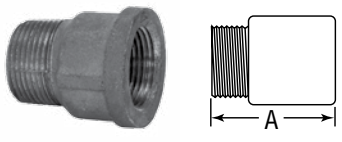
| Size | | Dia. of Flange | | Diameter of Bolt Circle | | No. of Holes | Dia. of Holes | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 2 3/16 | *56* | 1⅞ | *48* | 4 | ¼ | *6* | 0.39 | *0.18* | 0.39 | *0.18* |
| ⅜ | *10* | 3 | *76* | 2 | *51* | 4 | ¼ | *6* | 0.43 | *0.20* | 0.43 | *0.20* |
| ½ | *15* | 3½ | *89* | 2½ | *64* | 4 | ¼ | *6* | 0.56 | *0.25* | 0.56 | *0.25* |
| ¾ | *20* | 3½ | *89* | 2½ | *64* | 4 | ¼ | *6* | 0.60 | *0.27* | 0.60 | *0.27* |
| 1 | *25* | 4 | *102* | 3 | *76* | 4 | ¼ | *6* | 0.84 | *0.38* | 0.84 | *0.38* |
| 1¼ | *32* | 4 | *102* | 3 | *76* | 4 | ¼ | *6* | 0.90 | *0.41* | 0.90 | *0.41* |
| 1½ | *40* | 4½ | *114* | 3½ | *89* | 4 | 5/16 | *8* | 1.20 | *0.54* | 1.20 | *0.54* |
| 2 | *50* | 5½ | *140* | 4¼ | *108* | 4 | 5/16 | *8* | 2.03 | *0.92* | 2.03 | *0.92* |

### FIGURE 1133
**Waste Nut**

Not to be used for pressure service.

| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| ½ | *15* | 0.12 | *0.05* | – | – |
| ¾ | *20* | 0.15 | *0.07* | 0.15 | *0.07* |

### FIGURE 1138
**Extension Piece**




| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ½ | *15* | 1⅝ | *41* | 0.19 | *0.09* | 0.19 | *0.09* |
| ¾ | *20* | 1 15/16 | *49* | 0.35 | *0.16* | 0.35 | *0.16* |
| 1 | *25* | 2 1/16 | *52* | 0.48 | *0.22* | 0.48 | *0.22* |

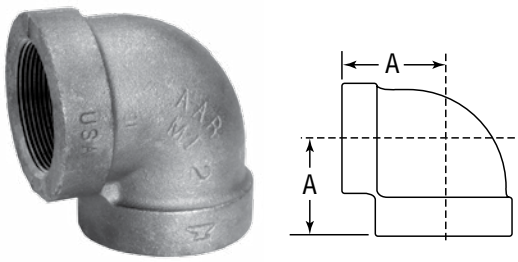
**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

Class 300 (XS / XH)

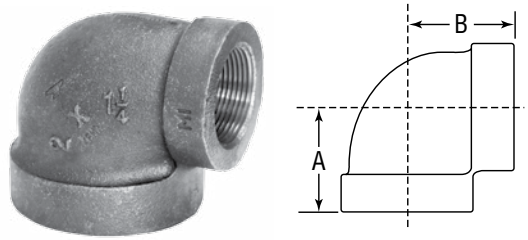


## FIGURE 1161
### 90° Elbow Straight



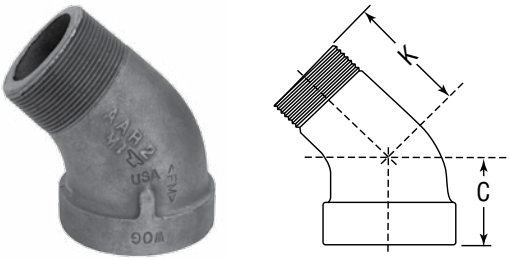

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 15⁄16 | *24* | 0.20 | *0.09* | 0.20 | *0.09* |
| ⅜ | *10* | 1 1⁄16 | *27* | 0.29 | *0.13* | 0.29 | *0.13* |
| ½ | *15* | 1¼ | *32* | 0.47 | *0.21* | 0.47 | *0.21* |
| ¾ | *20* | 1 7⁄16 | *37* | 0.66 | *0.30* | 0.66 | *0.30* |
| 1 | *25* | 1⅝ | *41* | 1.15 | *0.52* | 1.15 | *0.52* |
| 1¼ | *32* | 1 15⁄16 | *49* | 1.88 | *0.85* | 1.88 | *0.85* |
| 1½ | *40* | 2⅛ | *54* | 2.47 | *1.12* | 2.47 | *1.12* |
| 2 | *50* | 2½ | *64* | 3.85 | *1.75* | 3.85 | *1.75* |
| 2½ | *65* | 2 15⁄16 | *75* | 5.80 | *2.63* | 5.80 | *2.63* |
| 3 | *80* | 3⅜ | *86* | 9.95 | *4.51* | 9.95 | *4.51* |
| 4 | *100* | 4½ | *114* | 16.00 | *7.26* | 16.00 | *7.26* |

## FIGURE 1161R
### 90° Reducing Elbow




| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅜ x ¼ | *10 x 8* | 1 | *25* | 1 | *25* | 0.26 | *0.12* | – | – |
| ½ x ⅜ | *15 x 10* | 1 3⁄16 | *30* | 1 3⁄16 | *30* | 0.41 | *0.19* | – | – |
| ¾ x ½ | *20 x 15* | 1 5⁄16 | *33* | 1⅜ | *35* | 0.62 | *0.28* | 0.62 | *0.28* |
| 1 x ½ | *25 x 15* | 1 7⁄16 | *37* | 1½ | *38* | 0.87 | *0.39* | – | – |
| 1 x ¾ | *25 x 20* | 1½ | *38* | 1 9⁄16 | *40* | 1.00 | *0.45* | 1.00 | *.45* |
| 1¼ x ¾ | *32 x 20* | 1⅝ | *41* | 1¾ | *44* | 1.41 | *0.64* | – | – |
| 1¼ x 1 | *32 x 25* | 1¾ | *44* | 1⅞ | *47* | 1.60 | *0.73* | – | – |
| 1½ x 1 | *40 x 25* | 1⅞ | *47* | 2 | *51* | 1.89 | *0.86* | – | – |
| 1½ x 1¼ | *40 x 32* | 2 | *51* | 2 1⁄16 | *52* | 2.15 | *0.98* | – | – |
| 2 x 1¼ | *50 x 32* | 2⅛ | *54* | 2 5⁄16 | *59* | 3.12 | *1.41* | 3.12 | *1.41* |
| 2 x 1½ | *50 x 40* | 2¼ | *57* | 2⅜ | *60* | 3.30 | *1.50* | – | – |

## FIGURE 1160
### 45° Street Elbow



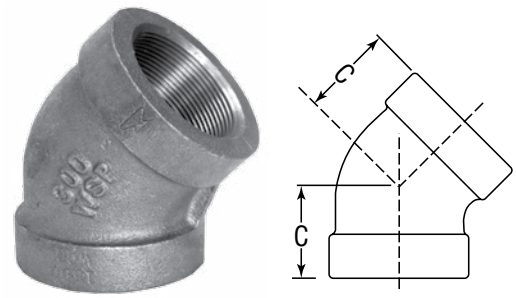

| Size | | C | | K | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | | | | | Black | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 1 | *25* | 1⅜ | *35* | 0.36 | *0.16* |
| ¾ | *20* | 1⅛ | *29* | 1 9⁄16 | *40* | 0.54 | *0.24* |
| 1 | *25* | 1 5⁄16 | *33* | 1 13⁄16 | *47* | 0.85 | *0.39* |
| 1¼ | *32* | 1½ | *38* | 2⅛ | *54* | 1.50 | *0.68* |
| 1½ | *40* | 1 11⁄16 | *43* | 2 5⁄16 | *59* | 2.06 | *0.93* |
| 2 | *50* | 2 | *51* | 2 11⁄16 | *68* | 3.34 | *1.51* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

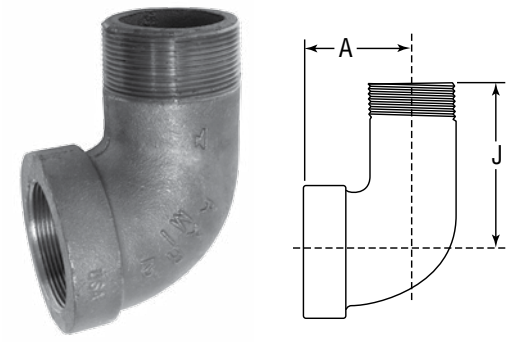
Class 300 (XS / XH)

## FIGURE 1162
45° Elbow



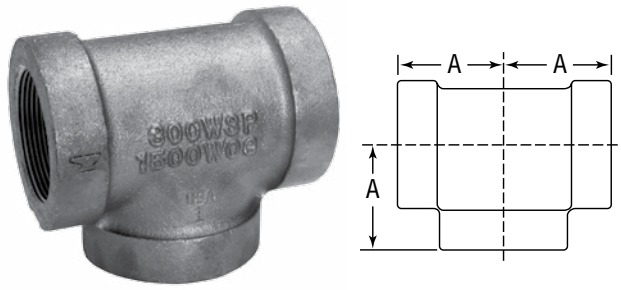

| Size | | C | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 13/16 | *22* | 0.19 | *0.09* | 0.19 | *0.09* |
| ⅜ | *10* | ⅞ | *22* | 0.28 | *0.13* | 0.28 | *0.13* |
| ½ | *15* | 1 | *25* | 0.43 | *0.20* | 0.43 | *0.20* |
| ¾ | *20* | 1⅛ | *29* | 0.66 | *0.30* | 0.66 | *0.30* |
| 1 | *25* | 1 5/16 | *33* | 1.00 | *0.45* | 1.00 | *0.45* |
| 1¼ | *32* | 1½ | *38* | 1.67 | *0.76* | 1.67 | *0.76* |
| 1½ | *40* | 1 11/16 | *43* | 2.15 | *0.98* | 2.15 | *0.98* |
| 2 | *50* | 2 | *51* | 3.40 | *1.54* | 3.40 | *1.54* |
| 2½ | *65* | 2¼ | *57* | 5.51 | *2.50* | 5.51 | *2.50* |
| 3 | *80* | 2½ | *64* | 8.10 | *3.67* | 8.10 | *3.67* |
| 4 | *100* | 2 13/16 | *73* | 13.41 | *6.08* | 13.41 | *6.08* |

## FIGURE 1170
90° Street Elbow




| Size | | A | | J | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 15/16 | *24* | 1 7/16 | *37* | 0.17 | *0.08* | 0.17 | *0.08* |
| ⅜ | *10* | 1 1/16 | *27* | 1⅝ | *41* | 0.26 | *0.12* | 0.26 | *0.12* |
| ½ | *15* | 1¼ | *32* | 2 | *51* | 0.40 | *0.18* | 0.40 | *0.18* |
| ¾ | *20* | 1 7/16 | *37* | 2 3/16 | *56* | 0.68 | *0.31* | 0.68 | *0.31* |
| 1 | *25* | 1⅝ | *41* | 2 9/16 | *65* | 1.04 | *0.47* | 1.04 | *0.47* |
| 1¼ | *32* | 1 15/16 | *49* | 2⅞ | *73* | 1.60 | *0.73* | 1.60 | *0.73* |
| 1½ | *40* | 2⅛ | *54* | 3⅛ | *79* | 2.20 | *1.00* | 2.20 | *1.00* |
| 2 | *50* | 2½ | *64* | 3 11/16 | *94* | 3.59 | *1.63* | 3.59 | *1.63* |
| 3 | *80* | 3⅜ | *86* | 5⅛ | *130* | 9.55 | *4.33* | – | – |

## FIGURE 1164
Straight Tee



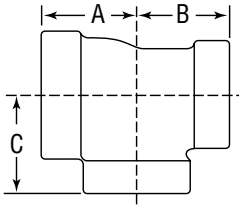

| Size | | Center to End A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 5/16 | *33* | 0.27 | *0.12* | 0.27 | *0.12* |
| ⅜ | *10* | 1 1/16 | *27* | 0.42 | *0.19* | 0.42 | *0.19* |
| ½ | *15* | 1¼ | *32* | 0.65 | *0.29* | 0.65 | *0.29* |
| ¾ | *20* | 1 7/16 | *37* | 1.07 | *0.49* | 1.07 | *0.49* |
| 1 | *25* | 1⅝ | *41* | 1.62 | *0.73* | 1.62 | *0.73* |
| 1¼ | *32* | 1 15/16 | *49* | 2.49 | *1.13* | 2.49 | *1.13* |
| 1½ | *40* | 2⅛ | *54* | 3.40 | *1.54* | 3.40 | *1.54* |
| 2 | *50* | 2½ | *64* | 5.20 | *2.36* | 5.20 | *2.36* |
| 2½ | *65* | 2 15/16 | *75* | 7.87 | *3.57* | 7.87 | *3.57* |
| 3 | *80* | 3⅜ | *86* | 12.46 | *5.65* | 12.46 | *5.65* |
| 4 | *100* | 4½ | *114* | 24.02 | *10.89* | 24.02 | *10.89* |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

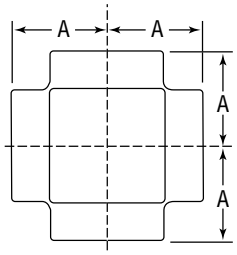
## Class 300 (XS / XH)

**FIGURE 1164R**
**Reducing Tee**




| Size | | | | | | Center to End | | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | A | | B | | C | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅜ | *10* | ⅜ | *10* | ¼ | *8* | 1 | *25* | 1 | *25* | 1 | *25* | 0.37 | *0.17* | – | – |
| ½ | *15* | ½ | *15* | ¼ | *8* | 1 1/16 | *27* | 1 1/16 | *27* | 1⅛ | *29* | 0.48 | *0.22* | – | – |
| | | | | ⅜ | *10* | 1 3/16 | *30* | 1 3/16 | *30* | 1 3/16 | *30* | 0.61 | *0.28* | – | – |
| | | | | ¾ | *20* | 1⅜ | *35* | 1⅜ | *35* | 1 5/16 | *33* | 0.80 | *0.36* | – | – |
| ¾ | *20* | ½ | *15* | ½ | *15* | 1 5/16 | *33* | 1¼ | *32* | 1⅜ | *35* | 0.78 | *0.35* | – | – |
| | | | | ¾ | *20* | 1 7/16 | *37* | 1⅜ | *35* | 1 7/16 | *37* | 0.93 | *0.42* | – | – |
| | | ¾ | *20* | ¼ | *8* | 1 3/16 | *30* | 1 3/16 | *30* | 1¼ | *32* | 0.76 | *0.34* | – | – |
| | | | | ⅜ | *10* | 1¼ | *32* | 1¼ | *32* | 1 5/16 | *33* | 0.80 | *0.36* | – | – |
| | | | | ½ | *15* | 1 5/16 | *33* | 1 5/16 | *33* | 1⅜ | *35* | 0.90 | *0.41* | 0.9 | *0.41* |
| 1 | *25* | ½ | *15* | 1 | *25* | 1 5/8 | *41* | 1½ | *38* | 1⅝ | *41* | 1.36 | *0.62* | – | – |
| | | ¾ | *20* | ¾ | *20* | 1½ | *38* | 1 7/16 | *37* | 1 9/16 | *40* | 1.27 | *0.58* | – | – |
| | | | | 1 | *25* | 1 5/8 | *41* | 1 9/16 | *40* | 1⅝ | *41* | 1.38 | *0.63* | – | – |
| | | 1 | *25* | ¼ | *8* | 1¼ | *32* | 1¼ | *32* | 1⅜ | *35* | 1.09 | *0.49* | – | – |
| | | | | ½ | *15* | 1 7/16 | *37* | 1 7/16 | *37* | 1½ | *38* | 1.26 | *0.57* | 1.26 | *0.57* |
| | | | | ¾ | *20* | 1½ | *38* | 1½ | *38* | 1 9/16 | *40* | 1.33 | *0.60* | 1.33 | *0.60* |
| 1¼ | *32* | 1 | *25* | 1 | *25* | 1¾ | *44* | 1⅝ | *41* | 1 13/16 | *47* | 1.92 | *0.87* | – | – |
| | | 1¼ | *32* | ½ | *15* | 1½ | *38* | 1½ | *38* | 1 11/16 | *43* | 1.70 | *0.77* | 1.70 | *0.77* |
| | | | | ¾ | *20* | 1⅝ | *41* | 1⅝ | *41* | 1¾ | *44* | 1.90 | *0.86* | 1.90 | *0.86* |
| | | | | 1 | *25* | 1¾ | *44* | 1¾ | *44* | 1 13/16 | *47* | 2.10 | *0.95* | 2.10 | *0.95* |
| 1½ | *40* | 1½ | *40* | ½ | *15* | 1⅝ | *41* | 1⅝ | *41* | 1 13/16 | *47* | 2.27 | *1.03* | 2.27 | *1.03* |
| | | | | ¾ | *20* | 1 11/16 | *43* | 1 11/16 | *43* | 1⅞ | *48* | 2.46 | *1.12* | 2.46 | *1.12* |
| | | | | 1 | *25* | 1 13/16 | *47* | 1 13/16 | *47* | 2 | *51* | 2.60 | *1.18* | 2.60 | *1.18* |
| | | | | 1¼ | *32* | 2 | *51* | 2 | *51* | 2 1/16 | *52* | 3.05 | *1.38* | 3.05 | *1.38* |
| 2 | *50* | 1½ | *40* | 2 | *50* | 2½ | *64* | 2⅜ | *60* | 2½ | *64* | 4.50 | *2.04* | – | – |
| | | 2 | *50* | ½ | *15* | 1¾ | *44* | 1¾ | *44* | 2 1/16 | *52* | 3.35 | *1.52* | 3.35 | *1.52* |
| | | | | ¾ | *20* | 1 13/16 | *47* | 1 13/16 | *47* | 2⅛ | *54* | 3.56 | *1.61* | 3.56 | *1.61* |
| | | | | 1 | *25* | 2 | *51* | 2 | *51* | 2¼ | *57* | 3.70 | *1.68* | 3.70 | *1.68* |
| | | | | 1¼ | *32* | 2⅛ | *54* | 2⅛ | *54* | 2 5/16 | *59* | 4.22 | *1.91* | 4.22 | *1.91* |
| | | | | 1½ | *40* | 2¼ | *57* | 2¼ | *57* | 2⅜ | *60* | 4.60 | *2.09* | 4.60 | *2.09* |
| 2½ | *65* | 2½ | *65* | 1½ | *40* | 2 7/16 | *62* | 2 7/16 | *62* | 2 5/8 | *67* | 6.35 | *2.88* | – | – |
| | | | | 2 | *50* | 2 11/16 | *68* | 2 11/16 | *68* | 2¾ | *70* | 7.60 | *3.45* | – | – |
| 3 | *80* | 3 | *80* | 2 | *50* | 2 13/16 | *73* | 2 13/16 | *73* | 3⅛ | *79* | 9.60 | *4.35* | 9.60 | *4.36* |

**FIGURE 1165**
**Cross**

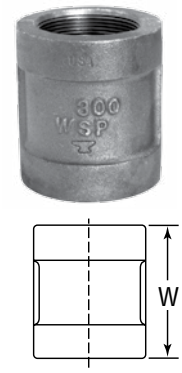


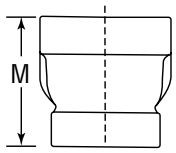

| Size | | Center to End A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ¼ | *8* | 15/16 | *24* | 0.35 | *0.16* | – | – |
| ¾ | *20* | 1 7/16 | *37* | 1.25 | *0.57* | 1.25 | *0.57* |
| 1 | *25* | 1⅝ | *41* | 1.90 | *0.86* | – | – |
| 1¼ | *32* | 1 15/16 | *49* | 3.23 | *1.46* | – | – |
| 1½ | *40* | 2⅛ | *54* | 4.20 | *1.90* | – | – |
| 2 | *50* | 2½ | *64* | 6.49 | *2.94* | – | – |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

Class 300 (XS / XH)

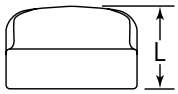
| FIGURE 1166 Coupling | Size | | End to End W | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Black | | Galv. | |
| | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
|  | ¼ | *8* | 1⅜ | *35* | 0.17 | *0.08* | 0.17 | *0.08* |
| | ⅜ | *10* | 1⅝ | *41* | 0.26 | *0.12* | 0.26 | *0.12* |
| | ½ | *15* | 1⅞ | *48* | 0.40 | *0.18* | 0.40 | *0.18* |
| | ¾ | *20* | 2⅛ | *54* | 0.65 | *0.29* | 0.65 | *0.29* |
| | 1 | *25* | 2⅜ | *60* | 0.99 | *0.45* | 0.99 | *0.45* |
| | 1¼ | *32* | 2⅞ | *73* | 1.66 | *0.75* | 1.66 | *0.75* |
| | 1½ | *40* | 2⅞ | *73* | 2.03 | *0.92* | 2.03 | *0.92* |
| | 2 | *50* | 3⅝ | *92* | 3.24 | *1.47* | 3.24 | *1.47* |
| | 2½ | *65* | 4⅛ | *105* | 5.45 | *2.47* | 5.45 | *2.47* |
| | 3 | *80* | 4⅛ | *105* | 7.30 | *3.31* | 7.30 | *3.31* |

| FIGURE 1167 Reducer | Size | | | | End to End M | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Black | | Galv. | |
| | NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
|  | ⅜ | *10* | ¼ | *8* | 1⁷⁄₁₆ | *37* | 0.21 | *0.10* | 0.21 | *0.10* |
| | ½ | *15* | ¼ | *8* | 1¹¹⁄₁₆ | *43* | 0.31 | *0.14* | 0.31 | *0.14* |
| | | | ⅜ | *10* | | | 0.34 | *0.15* | 0.34 | *0.15* |
| | ¾ | *20* | ¼ | *8* | 1¾ | *44* | 0.46 | *0.21* | – | – |
| | | | ⅜ | *10* | | | 0.47 | *0.21* | 0.47 | *0.21* |
| | | | ½ | *15* | | | 0.50 | *0.23* | 0.50 | *0.23* |
| | 1 | *25* | ¼ | *8* | 2 | *51* | 0.66 | *0.30* | 0.66 | *0.30* |
| | | | ⅜ | *10* | | | 0.71 | *0.32* | 0.71 | *0.32* |
| | | | ½ | *15* | | | 0.71 | *0.32* | 0.71 | *0.32* |
| | | | ¾ | *20* | | | 0.77 | *0.35* | 0.77 | *0.35* |
|  | 1¼ | *32* | ½ | *15* | 2⅜ | *60* | 1.12 | *0.51* | 1.12 | *0.51* |
| | | | ¾ | *20* | | | 1.16 | *0.53* | 1.16 | *0.53* |
| | | | 1 | *25* | | | 1.27 | *0.58* | 1.27 | *0.58* |
| | 1½ | *40* | ½ | *15* | 2¹¹⁄₁₆ | *68* | 1.51 | *0.68* | 1.51 | *0.68* |
| | | | ¾ | *20* | | | 1.57 | *0.71* | 1.57 | *0.71* |
| | | | 1 | *25* | | | 1.62 | *0.73* | 1.62 | *0.73* |
| | | | 1¼ | *32* | | | 1.78 | *0.81* | 1.78 | *0.81* |
| | 2 | *50* | ½ | *15* | 3³⁄₁₆ | *81* | 2.39 | *1.08* | 2.39 | *1.08* |
| | | | ¾ | *20* | | | 2.44 | *1.11* | 2.44 | *1.11* |
| | | | 1 | *25* | | | 2.54 | *1.15* | 2.54 | *1.15* |
| | | | 1¼ | *32* | | | 2.66 | *1.21* | 2.66 | *1.21* |
| | | | 1½ | *40* | | | 2.72 | *1.23* | 2.72 | *1.23* |
| | 2½ | *65* | 1½ | *40* | 3¹¹⁄₁₆ | *94* | 4.09 | *1.85* | 4.09 | *1.85* |
| | | | 2 | *50* | | | 4.32 | *1.96* | – | – |
| | 3 | *80* | 1½ | *40* | 4¹⁄₁₆ | *103* | 5.79 | *2.63* | – | – |
| | | | 2 | *50* | | | 5.83 | *2.64* | 5.83 | *2.64* |
| | | | 2½ | *65* | | | 6.45 | *2.93* | 6.45 | *2.93* |
| | 4 | *100* | 2 | *50* | 4⅜ | *111* | 9.50 | *4.31* | – | – |
| | | | 3 | *80* | | | 10.00 | *4.54* | – | – |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron

Class 300 (XS / XH)

| FIGURE 1163 Cap | Size | | Height L | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Black | | Galv. | |
| | NPS | DN | in | mm | lbs | kg | lbs | kg |
|    | ¼ | 8 | 25/32 | 20 | 0.10 | 0.05 | 0.10 | 0.05 |
| | ⅜ | 10 | 13/16 | 22 | 0.15 | 0.07 | 0.15 | 0.07 |
| | ½ | 15 | 1 | 25 | 0.23 | 0.10 | 0.23 | 0.10 |
| | ¾ | 20 | 1 1/16 | 27 | 0.35 | 0.16 | 0.35 | 0.16 |
| | 1 | 25 | 1 ¼ | 32 | 0.58 | 0.26 | 0.58 | 0.26 |
| | 1 ¼ | 32 | 1 ⅜ | 35 | 1.00 | 0.45 | 1.00 | 0.45 |
| | 1 ½ | 40 | 1 7/16 | 37 | 1.18 | 0.54 | 1.18 | 0.54 |
| | 2 | 50 | 1 11/16 | 43 | 1.94 | 0.88 | 1.94 | 0.88 |
| | 2 ½ | 65 | 2 1/16 | 52 | 3.32 | 1.51 | 3.32 | 1.51 |
| | 3 | 80 | 2 3/16 | 56 | 4.71 | 2.14 | 4.71 | 2.14 |

| FIGURE 390 Square Countersunk Plugs | Size | | Unit Weight | | | |
|---|---|---|---|---|---|---|
| | | | Black | | Galv. | |
| | NPS | DN | lbs | kg | lbs | kg |
|  | ½ | 15 | 0.05 | 0.02 | 0.05 | 0.02 |
| | ¾ | 20 | 0.11 | 0.05 | 0.11 | 0.05 |

See page 50 (Cast Iron) for other available sizes.

# All Iron Unions

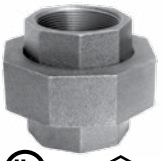
| FIGURE J-3300 All Iron Union Class 300 | Size | | End to End | | Unit Weight | |
|---|---|---|---|---|---|---|
| | | | | | Black | |
| | NPS | DN | in | mm | lbs | kg |
| FM APPROVED (Sizes: ¼" - 2")  | ¼ | 8 | 1 ⅝ | 41 | 0.27 | 0.12 |
| | ⅜ | 10 | 1 13/16 | 47 | 0.37 | 0.17 |
| | ½ | 15 | 2 ⅛ | 54 | 0.51 | 0.23 |
| | ¾ | 20 | 2 7/16 | 62 | 0.76 | 0.34 |
| | 1 | 25 | 2 ¾ | 70 | 1.20 | 0.54 |
| | 1 ¼ | 32 | 3 | 76 | 1.87 | 0.85 |
| | 1 ½ | 40 | 3 3/16 | 81 | 2.51 | 1.14 |
| | 2 | 50 | 3 ½ | 89 | 4.30 | 1.95 |
| | 2 ½ | 65 | 3 11/16 | 94 | 6.02 | 2.73 |
| | 3 | 80 | 3 15/16 | 100 | 7.96 | 3.61 |

**Note:** See page 16 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.
All Elbows & Tees ⅜" *(10 DN)* and Larger are 100% Gas Tested at a Minimum of 100 PSI. *(6.9 bar)*

# Malleable Iron Unions

Class 150; 250; 300

## BRONZE TO IRON

| Unions | Size | | End to End | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Black | | Galv. | |
| | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| **FIGURE 463**<br>■ **Class 150 Union**<br>150lb. wsp · 300lb. wog non-shock<br>  <br>c UL us LISTED FM APPROVED<br>For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative. | ⅛ | *6* | 1 5/16 | *33* | 0.15 | *0.07* | 0.15 | *0.07* |
| | ¼ | *8* | 1 13/16 | *47* | 0.48 | *0.22* | 0.48 | *0.22* |
| | ⅜ | *10* | 1 13/16 | *47* | 0.42 | *0.19* | 0.42 | *0.19* |
| | ½ | *15* | 1 15/16 | *49* | 0.42 | *0.19* | 0.42 | *0.19* |
| | ¾ | *20* | 2 1/16 | *52* | 0.60 | *0.27* | 0.60 | *0.27* |
| | ¾ x ½ | *20 x 15* | 2 1/16 | *52* | 0.55 | *0.25* | 0.55 | *0.25* |
| | 1 | *25* | 2 7/16 | *62* | 1.12 | *0.51* | 1.12 | *0.51* |
| | 1¼ | *32* | 2 5/8 | *67* | 1.74 | *0.79* | 1.74 | *0.79* |
| | 1½ | *40* | 2¾ | *70* | 2.08 | *0.94* | 2.08 | *0.94* |
| | 2 | *50* | 2 15/16 | *75* | 3.00 | *1.36* | 3.00 | *1.36* |
| | 2½ | *65* | 3⅜ | *92* | 3.60 | *1.63* | 3.60 | *1.63* |
| | 3 | *80* | 3¾ | *95* | 4.95 | *2.24* | 4.95 | *2.24* |
| **FIGURE 554**<br>■ **Class 250 Union**<br>250 lb. wsp · 500lb. wog non-shock<br>  <br>c UL us LISTED FM APPROVED<br>For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative. | ⅛ | *6* | 1 5/16 | *33* | 0.14 | *0.06* | – | – |
| | ¼ | *8* | 1 13/16 | *47* | 0.48 | *0.22* | 0.48 | *0.22* |
| | ⅜ | *10* | 1 13/16 | *47* | 0.42 | *0.19* | 0.42 | *0.19* |
| | ½ | *15* | 2 1/16 | *52* | 0.64 | *0.29* | 0.64 | *0.29* |
| | ¾ | *20* | 2¼ | *57* | 1.00 | *0.45* | 1.00 | *0.45* |
| | 1 | *25* | 2 9/16 | *65* | 1.56 | *0.71* | 1.56 | *0.71* |
| | 1¼ | *32* | 2¾ | *70* | 2.30 | *1.04* | 2.30 | *1.04* |
| | 1½ | *40* | 3 | *76* | 2.74 | *1.24* | 2.74 | *1.24* |
| | 2 | *50* | 3⅜ | *86* | 4.34 | *1.97* | 4.34 | *1.97* |
| | 2½ | *65* | 3⅞ | *98* | 5.30 | *2.40* | 5.30 | *2.40* |
| | 3 | *80* | 4¼ | *108* | 7.60 | *3.45* | 7.60 | *3.45* |
| | 4 | *100* | 4⅞ | *124* | 17.50 | *7.94* | 17.50 | *7.94* |
| **FIGURE 459**<br>■ **Class 300 Union**<br>300lb. wsp · 600lb. wog non-shock<br>  <br>c UL us LISTED FM APPROVED<br>For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative. | ⅛ | *6* | 1 5/16 | *33* | 0.14 | *0.06* | 0.14 | *0.06* |
| | ¼ | *8* | 1 13/16 | *47* | 0.48 | *0.22* | 0.48 | *0.22* |
| | ⅜ | *10* | 1 13/16 | *47* | 0.42 | *0.19* | 0.42 | *0.19* |
| | ½ | *15* | 2 1/16 | *52* | 0.64 | *0.29* | 0.64 | *0.29* |
| | ¾ | *20* | 2¼ | *57* | 1.00 | *0.45* | 1.00 | *0.45* |
| | 1 | *25* | 2 9/16 | *65* | 1.56 | *0.71* | 1.56 | *0.71* |
| | 1¼ | *32* | 2¾ | *70* | 2.30 | *1.04* | 2.30 | *1.04* |
| | 1½ | *40* | 3 | *76* | 2.74 | *1.24* | 2.74 | *1.24* |
| | 2 | *50* | 3⅜ | *86* | 4.34 | *1.97* | 4.34 | *1.97* |
| | 2½ | *65* | 3⅞ | *98* | 5.05 | *2.29* | 5.05 | *2.29* |
| | 3 | *80* | 4¼ | *108* | 7.66 | *3.47* | 7.66 | *3.47* |
| | 4 | *100* | 4⅞ | *124* | 17.70 | *8.03* | 17.70 | *8.03* |
| **FIGURE 551**<br>■ **Class 300 Union male & female**<br>300lb. wsp · 600lb. wog non-shock<br>  <br>FM APPROVED | ½ | *15* | 3 | *76* | 0.62 | *0.28* | – | – |
| | ¾ | *20* | 3 3/16 | *81* | 0.92 | *0.42* | – | – |
| | 1 | *25* | 3⅝ | *92* | 1.54 | *0.70* | – | – |
| | 1½ | *40* | 4¼ | *108* | 2.60 | *1.18* | – | – |
| | 2 | *50* | 4⅝ | *117* | 4.21 | *1.91* | – | – |

■ Pressure & Temperature rates shown on page 16.

- Anvil Malleable Iron Unions conform to ASME B 16.39.
- Dimensions conform to ASME B 16.39 for Class 150, 250 & 300 Unions.

wsp=working steam pressure wog=water, oil, gas

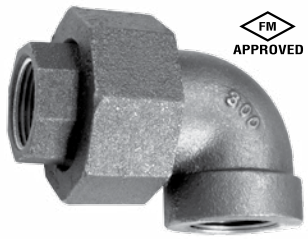
# Malleable Iron Unions

Class 150; 250; 300



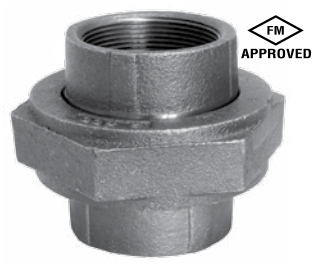
## BRONZE TO IRON

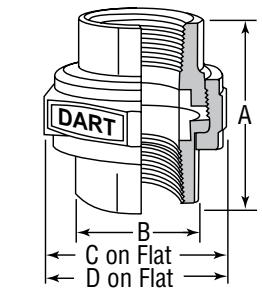
**FIGURE 552**
**Class 300 90° Elbow**
**Female Union 300lb. wsp**




| Size | | Center to End | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | Elbow | | Union | | Black | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅜ | *10* | 1 1/16 | *27* | 2 1/16 | *52* | 0.51 | *0.23* |
| ½ | *15* | 1¼ | *32* | 2 5/16 | *59* | 0.79 | *0.36* |
| ¾ | *20* | 1 7/16 | *37* | 2¾ | *70* | 1.24 | *0.56* |
| 1 | *25* | 1⅝ | *41* | 3 | *76* | 1.88 | *0.85* |

**FIGURE 832**
**Dart Union Bronze to Bronze Seat Union**




| Size | | A | | B | | C | | D | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅜ | *10* | 1¾ | *44* | 15/16 | *24* | 1½ | *38* | 1¾ | *44* | 0.41 | *0.19* | 0.43 | *0.20* |
| ½ | *15* | 2⅛ | *54* | 1⅛ | *29* | 1 3/16 | *30* | 2 | *51* | 0.58 | *0.26* | 0.61 | *0.28* |
| ¾ | *20* | 2 5/16 | *59* | 1⅜ | *35* | 2 3/16 | *56* | 2½ | *64* | 0.82 | *0.37* | 0.86 | *0.39* |
| 1 | *25* | 2⅝ | *67* | 1 11/16 | *43* | 2 9/16 | *65* | 3 | *76* | 1.31 | *0.59* | 1.36 | *0.62* |
| 1¼ | *32* | 2 13/16 | *73* | 2 1/16 | *52* | 3 1/16 | *78* | 3½ | *89* | 1.90 | *0.86* | 2.00 | *0.91* |
| 1½ | *40* | 3 | *76* | 2 3/16 | *56* | 3⅜ | *86* | 4 | *102* | 2.32 | *1.05* | 2.43 | *1.10* |
| 2 | *50* | 3⅝ | *92* | 2⅞ | *73* | 4 1/16 | *103* | 4⅝ | *117* | 4.00 | *1.81* | 4.20 | *1.90* |

- Meets ASME B16.39 The standard union for most installations
  3/8 – 2 NPS *(10 – 50 DN)* – 300lb *(136 kg)* steam working pressure at 450°F.
  3/8 – 2 NPS *(10 – 50 DN)* – 600lb *(272 kg)* cold water, gas, or oil pressure - non-shock.
- Bronze Seat, on both sides of the joint. Resists corrosion.
- True bearing surfaces, unlike ordinary union seats.
- Bodies and nuts are high test air-refined malleable iron - generally superior to mild steel in most services.
- Can be repeatedly installed and removed.
- Straight way through. No cored parts to hold liquid or sediment.
- Extra heavy shoulder on swivel end and in the nut to stand pipe strains, vibration, and wrench abuse.
- Bronze Seat Ball Joint, with extra wide seating surfaces.

# Malleable Hex and Face Bushing

**FIGURE 383**
**Hex Bushing**

Outside Hex
Type A

Inside Hex
Type B

See page 48-49 (Cast Iron) for other available sizes.

| Size | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Black | | Galv. | |
| NPS | *DN* | Hex Type | NPS | *DN* | lbs | *kg* | lbs | *kg* |
| ¾ | *10* | A | ⅛ | *6* | 0.12 | *0.05* | 0.12 | *0.05* |
| | | A | ¼ | *8* | 0.14 | *0.06* | 0.14 | *0.06* |
| | | A | ⅜ | *10* | 0.11 | *0.05* | 0.11 | *0.05* |
| | | A | ½ | *15* | 0.09 | *0.04* | 0.09 | *0.04* |
| 1 | *25* | B | ⅛ | *6* | 0.24 | *0.11* | 0.24 | *0.11* |
| | | B | ¼ | *8* | 0.18 | *0.08* | 0.18 | *0.08* |
| | | B | ⅜ | *10* | 0.18 | *0.08* | 0.18 | *0.08* |
| | | A | ½ | *15* | 0.20 | *0.09* | 0.20 | *0.09* |
| | | A | ¾ | *20* | 0.16 | *0.07* | 0.16 | *0.07* |
| 1¼ | *32* | B | ¼ | *8* | 0.33 | *0.15* | 0.33 | *0.15* |
| | | B | ⅜ | *10* | 0.27 | *0.12* | 0.27 | *0.12* |
| | | B | ½ | *15* | 0.34 | *0.15* | 0.34 | *0.15* |
| | | A | ¾ | *20* | 0.39 | *0.18* | 0.39 | *0.18* |
| | | A | 1 | *25* | 0.30 | *0.14* | 0.30 | *0.14* |
| 1½ | *40* | A | 1¼ | *32* | 0.30 | *0.14* | 0.30 | *0.14* |
| 2 | *50* | A | 1½ | *40* | 0.64 | *0.29* | 0.64 | *0.29* |
| 2½ | *65* | A | 2 | *50* | 1.02 | *0.46* | 1.02 | *0.46* |

**FIGURE 385**
**Face Bushing**

See page 49 (Cast Iron) for other available sizes.

| Size | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | lbs | *kg* | lbs | *kg* |
| ¾ | *20* | ⅜ | *10* | 0.08 | *0.04* | – | – |
| | | ½ | *15* | 0.06 | *0.03* | 0.06 | *0.03* |
| 1 | *25* | ½ | *15* | 0.16 | *0.07* | 0.16 | *0.07* |
| | | ¾ | *20* | 0.10 | *0.05* | 0.10 | *0.05* |
| 1¼ | *32* | ½ | *15* | 0.30 | *0.14* | – | – |
| | | ¾ | *20* | 0.27 | *0.12* | – | – |
| | | 1 | *25* | 0.19 | *0.09* | 0.19 | *0.09* |
| 1½ | *40* | ½ | *15* | 0.40 | *0.18* | – | – |
| | | ¾ | *20* | 0.39 | *0.18* | – | – |
| | | 1 | *25* | 0.33 | *0.15* | – | – |
| | | 1¼ | *32* | 0.16 | *0.07* | 0.16 | *0.07* |
| 2 | *50* | 1 | *25* | 0.65 | *0.29* | 0.65 | *0.29* |
| | | 1¼ | *32* | 0.53 | *0.24* | 0.53 | *0.24* |
| | | 1½ | *40* | 0.40 | *0.18* | 0.40 | *0.18* |
| 2½ | *65* | 1¼ | *32* | 1.10 | *0.50* | – | – |
| | | 2 | *50* | 0.40 | *0.18* | 0.40 | *0.18* |
| 3 | *80* | 2½ | *65* | 0.99 | *0.45* | – | – |

**Note:** Hexagon head or octagon head bushings 2½ NPS *(65 DN)* and smaller reducing one size may be made of malleable iron, ductile iron or steel. Other sizes may be made of cast iron, ductile iron, malleable iron or steel. Face bushings 2½ NPS *(65 DN)* and smaller may be made of malleable iron, ductile iron or steel. Face bushings 3NPS *(80 DN)* and larger reducing one size may be made of malleable iron, ductile iron or steel. Face bushings 3NPS *(80 DN)* and larger reducing two sizes or more may be made of cast or malleable iron, ductile iron, or steel. According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

Anvil standard and extra heavy cast iron threaded fittings are manufactured in accordance with ASME B16.4. Plugs and bushings are manufactured in accordance with ASME B16.14.

**NOTE:** Figure 367 Concentric Reducers do not meet the overall length requirement of ASME B16.4. All other dimensions are in compliance.

c UL us

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For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative.

**Cast Iron Threaded Fittings**
**Pressure - Temperature Ratings**

| Temperature | | Pressure | | | |
|---|---|---|---|---|---|
| | | Class 125 | | Class 250 | |
| (°F) | *(°C)* | psi | *bar* | psi | *bar* |
| -20° to 150° | *-28.9 to 65.6* | 175 | *12.1* | 400 | *27.6* |
| 200° | *93.3* | 165 | *11.4* | 370 | *25.5* |
| 250° | *121.1* | 150 | *10.3* | 340 | *23.4* |
| 300° | *148.9* | 140 | *9.7* | 310 | *21.4* |
| 350° | *176.7* | 125 | *8.6* | 300 | *20.7* |
| 400° | *204.4* | – | – | 250 | *17.2* |

**Standards and Specifications**

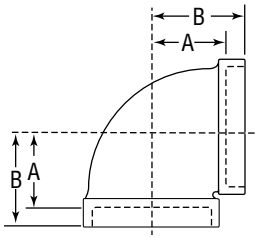
| | Dimensions | Material | Galvanizing* | Thread | Pressure Rating |
|---|---|---|---|---|---|
| **CAST IRON THREADED FITTINGS** | | | | | |
| Class 125 | ASME B16.4 | ASTM A-126 (A) | ASTM A-153 | ASME B1.20.1 | ASME B16.4 |
| Class 250 | ASME B16.4 | ASTM A-126 (A) | ASTM A-153 | ASME B1.20.1 | ASME B16.4 |
| **CAST IRON PLUGS AND BUSHINGS** | | | | | |
| | ASME B16.14 | ASTM A- 126 (A) | ASTM A-153 | ASME B1.20.1 | ASME B16.14 |

* ASTM B 633. Type I, SC 4, may be supplied as alternate zinc coating per applicable ASME B16 product standard.

# Cast Iron Threaded Fittings

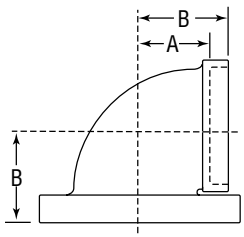
Class 125 (Standard)

**FIGURE 351**
**90° Elbow**




| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/4 | *8* | 1/2 | *13* | 13/16 | *22* | 0.16 | *0.07* |
| 3/8 | *10* | 9/16 | *14* | 15/16 | *24* | 0.25 | *0.11* |
| 1/2 | *15* | 11/16 | *17* | 1 1/8 | *29* | 0.40 | *0.18* |
| 3/4 | *20* | 13/16 | *22* | 1 15/16 | *33* | 0.60 | *0.27* |
| 1 | *25* | 15/16 | *24* | 1 1/2 | *38* | 0.92 | *0.42* |
| 1 1/4 | *32* | 1 1/8 | *29* | 1 3/4 | *44* | 1.44 | *0.65* |
| 1 1/2 | *40* | 1 5/16 | *33* | 1 15/16 | *49* | 1.95 | *0.88* |
| 2 | *50* | 1 9/16 | *40* | 2 1/4 | *57* | 3.13 | *1.42* |
| 2 1/2 | *65* | 1 13/16 | *47* | 2 11/16 | *68* | 4.94 | *2.24* |
| 3 | *80* | 2 3/16 | *56* | 3 1/8 | *79* | 7.21 | *3.27* |
| 3 1/2 | *90* | 2 7/16 | *62* | 3 7/16 | *87* | 9.67 | *4.39* |
| 4 | *100* | 2 11/16 | *68* | 3 13/16 | *98* | 12.17 | *5.52* |
| 5 | *125* | 3 5/16 | *84* | 4 1/2 | *114* | 21.46 | *9.73* |
| 6 | *150* | 3 7/8 | *98* | 5 1/8 | *130* | 31.33 | *14.21* |
| 8 | *200* | 5 3/16 | *132* | 6 9/16 | *167* | 64.56 | *29.28* |

**FIGURE 371**
**90° Elbow,**
**Flange & Screw**




| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 1/2 | *65* | 1 13/16 | *47* | 2 11/16 | *68* | 10.22 | *4.63* |
| 3 | *80* | 2 3/16 | *56* | 3 1/8 | *79* | 13.25 | *6.01* |
| 4 | *100* | 2 11/16 | *68* | 3 13/16 | *98* | 21.56 | *9.78* |
| 6 | *150* | 3 7/8 | *98* | 5 1/8 | *130* | 40.50 | *18.37* |

tNominal Pipe Sizes of 4" *(100 DN)* and larger have two holes tapped for stud or tap bolts.

**Note:** See page 35 for pressure-temperature ratings.

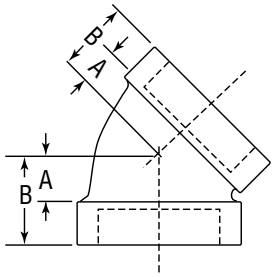
# Cast Iron Threaded Fittings

## Class 125 (Standard)

**FIGURE 356 (Straight)**
**FIGURE 356R (Reducing)**
**45° Elbow**

**FIGURE 356 (Straight)**

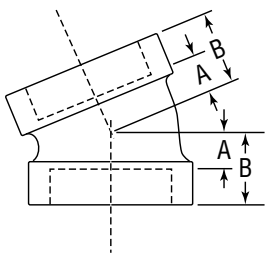
**Figure 356R (Reducing)**




| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | lbs | kg |
| 1/4 | 8 | 7/16 | 11 | 3/4 | 19 | 0.16 | 0.07 |
| 3/8 | 10 | 7/16 | 11 | 13/16 | 22 | 0.23 | 0.10 |
| 1/2 | 15 | 7/16 | 11 | 7/8 | 22 | 0.37 | 0.17 |
| 3/4 | 20 | 1/2 | 13 | 1 | 25 | 0.55 | 0.25 |
| 1 | 25 | 9/16 | 14 | 1 1/8 | 29 | 0.83 | 0.38 |
| 1 1/4 | 32 | 5/8 | 16 | 1 1/4 | 32 | 1.33 | 0.60 |
| 1 1/2 | 40 | 13/16 | 22 | 1 7/16 | 37 | 1.79 | 0.81 |
| 2 | 50 | 1 | 25 | 1 11/16 | 43 | 2.89 | 1.31 |
| 2 1/2 | 65 | 1 1/16 | 27 | 1 15/16 | 49 | 4.29 | 1.95 |
| 3 | 80 | 1 3/16 | 30 | 2 3/16 | 56 | 6.44 | 2.92 |
| 3 1/2 | 90 | 1 3/8 | 35 | 2 3/8 | 60 | 8.42 | 3.82 |
| 4 | 100 | 1 9/16 | 40 | 2 5/8 | 67 | 10.64 | 4.83 |
| 6 | 150 | 2 3/16 | 56 | 3 7/16 | 87 | 26.02 | 11.80 |
| 8 | 200 | 2 7/8 | 73 | 4 1/4 | 108 | 50.17 | 22.75 |

| Size | | A | | B | | C | | D | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| 1 x 1/2 | 25 x 15 | 1/2 | 15 | 7/8 | 22 | 1 1/16 | 27 | 1 5/16 | 33 | 0.95 | 0.43 |

**FIGURE 356A**
**22 1/2° Elbow**



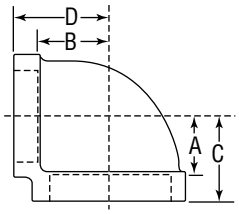

| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | lbs | kg |
| 3/4 | 20 | 3/8 | 10 | 7/8 | 22 | 0.52 | 0.24 |
| 1 | 25 | 7/16 | 11 | 1 | 25 | 0.80 | 0.36 |
| 1 1/4 | 32 | 1/2 | 13 | 1 1/8 | 29 | 1.40 | 0.63 |
| 1 1/2 | 40 | 5/8 | 16 | 1 1/4 | 32 | 1.64 | 0.74 |
| 2 | 50 | 3/4 | 19 | 1 7/16 | 37 | 2.50 | 1.13 |
| 2 1/2 | 65 | 3/4 | 19 | 1 5/8 | 41 | 3.95 | 1.79 |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 352**
**90° Elbow, Reducing**



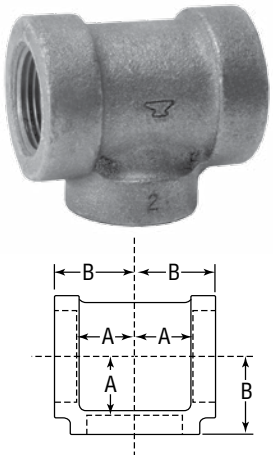

| Size | | | | A | | B | | C | | D | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/2 | *15* | 1/4 | *8* | 5/8 | *16* | 3/4 | *19* | 1 1/16 | *27* | 1 1/16 | *27* | 0.40 | *0.18* |
| | | 3/8 | *10* | 5/8 | *16* | 11/16 | *17* | 1 1/16 | *27* | 1 1/16 | *27* | 0.34 | *0.15* |
| 3/4 | *20* | 1/2 | *15* | 11/16 | *17* | 13/16 | *22* | 1 1/4 | *32* | 1 1/4 | *32* | 0.51 | *0.23* |
| 1 | *25* | 1/2 | *15* | 11/16 | *17* | 15/16 | *24* | 1 3/8 | *35* | 1 3/8 | *35* | 0.67 | *0.30* |
| | | 3/4 | *20* | 13/16 | *22* | 15/16 | *24* | 1 7/16 | *37* | 1 7/16 | *37* | 0.76 | *0.34* |
| 1 1/4 | *32* | 1/2 | *15* | 11/16 | *17* | 1 1/16 | *27* | 1 1/2 | *38* | 1 1/2 | *38* | 1.07 | *0.49* |
| | | 3/4 | *20* | 13/16 | *22* | 1 1/8 | *29* | 1 5/8 | *41* | 1 5/8 | *41* | 1.02 | *0.46* |
| | | 1 | *25* | 15/16 | *24* | 1 1/8 | *29* | 1 11/16 | *43* | 1 11/16 | *43* | 1.21 | *0.55* |
| 1 1/2 | *40* | 1/2 | *15* | 3/4 | *19* | 1 1/4 | *32* | 1 5/8 | *41* | 1 5/8 | *41* | 1.53 | *0.69* |
| | | 3/4 | *20* | 7/8 | *22* | 1 5/16 | *33* | 1 13/16 | *47* | 1 13/16 | *47* | 1.55 | *0.70* |
| | | 1 | *25* | 1 | *25* | 1 1/4 | *32* | 1 13/16 | *47* | 1 13/16 | *47* | 1.44 | *0.65* |
| | | 1 1/4 | *32* | 1 3/16 | *30* | 1 1/4 | *32* | 1 7/8 | *48* | 1 7/8 | *48* | 1.74 | *0.79* |
| 2 | *50* | 1/2 | *15* | 1 3/16 | *30* | 1 7/16 | *37* | 1 3/8 | *35* | 1 3/8 | *35* | 2.22 | *1.01* |
| | | 3/4 | *20* | 1 5/16 | *33* | 1 1/2 | *38* | 2 | *51* | 2 | *51* | 2.20 | *1.00* |
| | | 1 | *25* | 1 1/16 | *27* | 1 7/16 | *37* | 2 | *51* | 2 | *51* | 2.08 | *0.94* |
| | | 1 1/4 | *32* | 1 3/16 | *30* | 1 7/16 | *37* | 2 1/16 | *52* | 2 1/16 | *52* | 2.33 | *1.06* |
| | | 1 1/2 | *40* | 1 5/16 | *33* | 1 1/2 | *38* | 2 1/8 | *54* | 2 1/8 | *54* | 2.59 | *1.17* |
| 2 1/2 | *65* | 1 | *25* | 1 | *25* | 1 3/4 | *44* | 2 5/16 | *59* | 2 5/16 | *59* | 2.93 | *1.33* |
| | | 1 1/4 | *32* | 1 3/16 | *30* | 1 3/4 | *44* | 2 3/8 | *60* | 2 3/8 | *60* | 3.41 | *1.55* |
| | | 1 1/2 | *40* | 1 5/16 | *33* | 1 13/16 | *47* | 2 7/16 | *62* | 2 7/16 | *62* | 3.68 | *1.67* |
| | | 2 | *50* | 1 9/16 | *40* | 1 7/8 | *48* | 2 9/16 | *65* | 2 9/16 | *65* | 4.01 | *1.82* |
| 3 | *80* | 1 1/4 | *32* | 1 5/8 | *41* | 2 5/16 | *59* | 2 15/16 | *75* | 2 15/16 | *75* | 5.98 | *2.71* |
| | | 1 1/2 | *40* | 1 5/8 | *41* | 2 5/16 | *59* | 2 15/16 | *75* | 2 15/16 | *75* | 5.65 | *2.56* |
| | | 2 | *50* | 1 5/8 | *41* | 2 1/4 | *57* | 2 15/16 | *75* | 2 15/16 | *75* | 5.25 | *2.38* |
| | | 2 1/2 | *65* | 1 7/8 | *48* | 2 3/16 | *56* | 3 1/16 | *78* | 3 1/16 | *78* | 6.44 | *2.92* |
| 4 | *100* | 2 | *50* | 2 3/16 | *56* | 2 15/16 | *75* | 3 5/8 | *92* | 3 5/8 | *92* | 11.89 | *5.39* |
| | | 2 1/2 | *65* | 2 3/16 | *56* | 2 3/4 | *70* | 3 5/8 | *92* | 3 5/8 | *92* | 11.27 | *5.11* |
| | | 3 | *80* | 2 3/16 | *56* | 2 11/16 | *68* | 3 5/8 | *92* | 3 5/8 | *92* | 10.63 | *4.82* |
| 5 | *125* | 4 | *100* | 2 13/16 | *73* | 3 5/16 | *84* | 4 3/8 | *111* | 4 3/8 | *111* | 16.47 | *7.47* |
| 6 | *150* | 3 | *80* | 2 5/16 | *59* | 3 13/16 | *98* | 4 13/16 | *124* | 4 13/16 | *124* | 19.43 | *8.81* |
| | | 4 | *100* | 2 13/16 | *73* | 3 7/8 | *98* | 4 15/16 | *125* | 4 15/16 | *125* | 23.53 | *10.67* |
| | | 5 | *125* | 3 3/8 | *86* | 3 13/16 | *98* | 5 | *127* | 5 | *127* | 26.66 | *12.09* |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

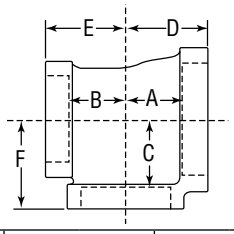
Class 125 (Standard)

**FIGURE 358**
**Tee**




| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/4 | *8* | 1/2 | *13* | 13/16 | *22* | 0.22 | *0.10* |
| 3/8 | *10* | 5/8 | *16* | 1 | *25* | 0.35 | *0.16* |
| 1/2 | *15* | 11/16 | *17* | 1 1/8 | *29* | 0.56 | *0.25* |
| 3/4 | *20* | 13/16 | *22* | 1 5/16 | *33* | 0.84 | *0.38* |
| 1 | *25* | 15/16 | *24* | 1 1/2 | *38* | 1.25 | *0.57* |
| 1 1/4 | *32* | 1 1/8 | *29* | 1 3/4 | *44* | 2.03 | *0.92* |
| 1 1/2 | *40* | 1 5/16 | *33* | 1 15/16 | *49* | 2.70 | *1.22* |
| 2 | *50* | 1 9/16 | *40* | 2 1/4 | *57* | 4.23 | *1.92* |
| 2 1/2 | *65* | 1 13/16 | *47* | 2 11/16 | *68* | 6.67 | *3.02* |
| 3 | *80* | 2 3/16 | *56* | 3 1/8 | *79* | 10.00 | *4.54* |
| 3 1/2 | *90* | 2 7/16 | *62* | 3 7/16 | *87* | 13.29 | *6.03* |
| 4 | *100* | 2 11/16 | *68* | 3 3/4 | *95* | 16.33 | *7.41* |
| 5 | *125* | 3 5/16 | *84* | 4 1/2 | *114* | 27.33 | *12.39* |
| 6 | *150* | 3 7/8 | *98* | 5 1/8 | *130* | 40.85 | *18.53* |
| 8 | *200* | 5 3/16 | *132* | 6 9/16 | *167* | 79.00 | *35.83* |

**FIGURE 359**
**Tee Reducing**




| Size | | | | | | A | | B | | C | | D | | E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/2 | *15* | 1/2 | *15* | 1/4 | *8* | 1 1/16 | *17* | 11/16 | *17* | 13/16 | *22* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/8 | *29* | 0.57 | *0.26* |
| | | | | 3/8 | *10* | 1 1/16 | *17* | 11/16 | *17* | 3/4 | *19* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/8 | *29* | 0.57 | *0.26* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 11/16 | *17* | 1 1/4 | *32* | 1 1/4 | *32* | 13/16 | *22* | 0.68 | *0.31* |
| | | | | 1 | *25* | 1 | *25* | 1 | *25* | 13/16 | *22* | 1 7/16 | *37* | 1 7/16 | *37* | 1 3/8 | *35* | 1.00 | *0.45* |
| 3/4 | *20* | 1/2 | *15* | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 13/16 | *22* | 13/16 | *22* | 1 1/8 | *29* | 1 1/4 | *32* | 0.64 | *0.29* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 13/16 | *22* | 15/16 | *24* | 1 1/4 | *32* | 15/16 | *24* | 0.75 | *0.34* |
| | | 3/4 | *20* | 1/4 | *8* | 9/16 | *14* | 9/16 | *14* | 7/8 | *22* | 11/16 | *17* | 11/16 | *17* | 13/16 | *22* | 0.62 | *0.28* |
| | | | | 3/8 | *10* | 1 1/16 | *17* | 11/16 | *17* | 15/16 | *24* | 13/16 | *22* | 13/16 | *22* | 1 1/4 | *32* | 0.75 | *0.34* |
| | | | | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 13/16 | *22* | 13/16 | *22* | 13/16 | *22* | 1 1/4 | *32* | 0.76 | *0.34* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 13/16 | *22* | 1 7/16 | *37* | 1 7/16 | *37* | 1 3/8 | *35* | 0.99 | *0.45* |
| 1 | *25* | 1/4 | *8* | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 1 1/4 | *32* | 1 1/2 | *38* | 1.08 | *0.49* |
| | | 1/2 | *15* | 1/2 | *15* | 1 1/16 | *17* | 3/4 | *19* | 15/16 | *24* | 1 1/4 | *32* | 13/16 | *22* | 1 3/8 | *35* | 0.90 | *0.41* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 15/16 | *24* | 1 3/8 | *35* | 1 1/4 | *32* | 1 7/16 | *37* | 0.91 | *0.41* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 1 3/8 | *35* | 1 1/2 | *38* | 1.08 | *0.49* |
| | | 3/4 | *20* | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 15/16 | *24* | 1 1/4 | *32* | 13/16 | *22* | 1 3/8 | *35* | 0.89 | *0.40* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 15/16 | *24* | 1 3/8 | *35* | 15/16 | *24* | 1 7/16 | *37* | 1.00 | *0.45* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 1 7/16 | *37* | 1 1/2 | *38* | 1.13 | *0.51* |
| | | 1 | *25* | 1/4 | *8* | 1 1/16 | *17* | 11/16 | *17* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/4 | *32* | 1 3/8 | *35* | 1.01 | *0.46* |
| | | | | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 15/16 | *24* | 1 1/4 | *32* | 1 1/4 | *32* | 1 3/8 | *35* | 1.01 | *0.46* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 15/16 | *24* | 1 3/8 | *35* | 1 3/8 | *35* | 1 7/16 | *37* | 1.11 | *0.50* |
| | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 15/16 | *24* | 1 11/16 | *43* | 1 11/16 | *43* | 1 9/16 | *40* | 1.49 | *0.68* |
| | | | | 1 1/2 | *40* | 1 1/4 | *32* | 1 1/4 | *32* | 1 | *25* | 1 13/16 | *47* | 1 13/16 | *47* | 1 5/8 | *41* | 1.84 | *0.83* |
| | | | | 2 | *50* | 1 7/16 | *37* | 1 7/16 | *37* | 1 | *25* | 2 | *50* | 2 | *50* | 1 3/4 | *44* | 2.70 | *1.22* |

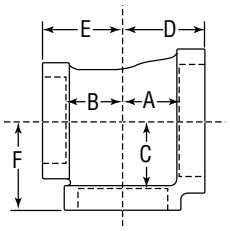
**Note:** See page 35 for pressure-temperature ratings.

Continued on next page.

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 359**
**Tee Reducing**



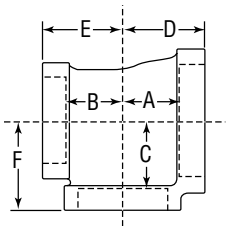

| Size | | | | | | A | | B | | C | | D | | E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1¼ | *32* | 1/2 | *15* | 1/2 | *15* | 1 3/16 | *22* | 13/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 15/16 | *24* | 1 5/8 | *41* | 1.00 | *0.45* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 1 1/8 | *29* | 1 9/16 | *40* | 1 3/8 | *35* | 1 11/16 | *43* | 1.38 | *0.63* |
| | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/8 | *29* | 1 3/4 | *44* | 1 9/16 | *40* | 1 3/4 | *44* | 1.64 | *0.74* |
| | | 3/4 | *20* | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 15/16 | *24* | 1 5/8 | *41* | 1.27 | *0.58* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 1 1/8 | *29* | 1 9/16 | *40* | 1 7/16 | *37* | 1 11/16 | *43* | 1.43 | *0.65* |
| | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/8 | *29* | 1 3/4 | *44* | 1 5/8 | *41* | 1 3/4 | *44* | 1.73 | *0.78* |
| | | 1 | *25* | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 1 1/8 | *29* | 15/16 | *24* | 1 1/4 | *32* | 1 9/16 | *40* | 1.27 | *0.58* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 1 3/8 | *35* | 1 5/8 | *41* | 1.36 | *0.62* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 1 1/8 | *29* | 1 9/16 | *40* | 1 9/16 | *40* | 1 11/16 | *43* | 1.53 | *0.69* |
| | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 1/8 | *29* | 1 3/4 | *44* | 1 11/16 | *43* | 1 3/4 | *44* | 1.79 | *0.81* |
| | | | | 1 1/2 | *40* | 1 1/4 | *32* | 1 1/4 | *32* | 13/16 | *22* | 1 7/8 | *48* | 1 13/16 | *47* | 1 13/16 | *47* | 2.07 | *0.94* |
| | | | | 2 | *50* | 1 7/16 | *37* | 1 7/16 | *37* | 13/16 | *22* | 2 1/16 | *52* | 2 | *50* | 1 7/8 | *48* | 2.66 | *1.21* |
| | | 1 1/4 | *32* | 1/2 | *15* | 1 1/16 | *17* | 11/16 | *17* | 1 1/8 | *29* | 15/16 | *24* | 15/16 | *24* | 1 9/16 | *40* | 1.47 | *0.67* |
| | | | | 3/4 | *20* | 1 3/16 | *22* | 13/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/16 | *37* | 1 5/8 | *41* | 1.57 | *0.71* |
| | | | | 1 | *25* | 1 5/16 | *24* | 15/16 | *24* | 1 1/8 | *29* | 1 9/16 | *40* | 1 9/16 | *40* | 1 11/16 | *43* | 1.73 | *0.78* |
| | | | | 1 1/2 | *40* | 1 1/4 | *32* | 1 1/4 | *32* | 13/16 | *22* | 1 7/8 | *48* | 1 7/8 | *48* | 1 13/16 | *47* | 2.29 | *1.04* |
| | | | | 2 | *50* | 1 7/16 | *37* | 1 7/16 | *37* | 13/16 | *22* | 2 1/16 | *52* | 2 1/16 | *52* | 1 7/8 | *48* | 2.81 | *1.27* |
| 1½ | *40* | 1/2 | *15* | 1 1/4 | *32* | 13/16 | *22* | 1 1/8 | *29* | 1 1/4 | *32* | 1 13/16 | *47* | 1 9/16 | *40* | 1 7/8 | *48* | 1.93 | *0.88* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 15/16 | *24* | 1 15/16 | *49* | 1 11/16 | *43* | 1 15/16 | *49* | 2.14 | *0.97* |
| | | 3/4 | *20* | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 15/16 | *24* | 1 15/16 | *49* | 1 3/4 | *44* | 1 15/16 | *49* | 2.18 | *0.99* |
| | | 1 | *25* | 1/2 | *15* | 13/16 | *22* | 3/4 | *19* | 1 1/4 | *32* | 1 7/16 | *37* | 15/16 | *24* | 1 11/16 | *43* | 1.75 | *0.79* |
| | | | | 3/4 | *20* | 7/8 | *22* | 13/16 | *22* | 1 1/4 | *32* | 1 1/2 | *38* | 1 3/8 | *35* | 1 3/4 | *44* | 1.70 | *0.77* |
| | | | | 1 | *25* | 1 | *25* | 15/16 | *24* | 1 1/4 | *32* | 1 5/8 | *41* | 1 1/2 | *38* | 1 13/16 | *47* | 1.72 | *0.78* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 1 1/8 | *29* | 1 1/4 | *32* | 1 13/16 | *47* | 1 11/16 | *43* | 1 7/8 | *48* | 2.08 | *0.94* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 15/16 | *24* | 1 15/16 | *49* | 1 13/16 | *47* | 1 15/16 | *49* | 2.29 | *1.04* |
| | | | | 2 | *50* | 1 1/2 | *38* | 1 7/16 | *37* | 15/16 | *24* | 2 1/8 | *54* | 2 | *50* | 2 | *51* | 2.91 | *1.32* |
| | | 1 1/4 | *32* | 1/2 | *15* | 13/16 | *22* | 11/16 | *17* | 1 1/4 | *32* | 1 7/16 | *37* | 15/16 | *24* | 1 11/16 | *43* | 1.67 | *0.76* |
| | | | | 3/4 | *20* | 7/8 | *22* | 13/16 | *22* | 1 1/4 | *32* | 1 1/2 | *38* | 1 7/16 | *37* | 1 3/4 | *44* | 1.79 | *0.81* |
| | | | | 1 | *25* | 1 | *25* | 15/16 | *24* | 1 1/4 | *32* | 1 5/8 | *41* | 1 9/16 | *40* | 1 13/16 | *47* | 1.97 | *0.89* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 1 1/8 | *29* | 1 1/4 | *32* | 1 13/16 | *47* | 1 3/4 | *44* | 17/8 | *48* | 2.28 | *1.03* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 15/16 | *24* | 1 15/16 | *49* | 1 7/8 | *48* | 1 15/16 | *49* | 2.50 | *1.13* |
| | | | | 2 | *50* | 1 1/2 | *38* | 1 7/16 | *37* | 15/16 | *24* | 2 1/8 | *54* | 2 1/16 | *52* | 2 | *51* | 3.07 | *1.39* |
| | | 1 1/2 | *40* | 1/2 | *15* | 13/16 | *22* | 13/16 | *22* | 1 1/4 | *32* | 1 7/16 | *37* | 1 7/16 | *37* | 1 11/16 | *43* | 1.84 | *0.83* |
| | | | | 3/4 | *20* | 7/8 | *22* | 7/8 | *22* | 1 1/4 | *32* | 1 1/2 | *38* | 1 1/2 | *38* | 1 3/4 | *44* | 1.95 | *0.88* |
| | | | | 1 | *25* | 1 | *25* | 1 | *25* | 1 1/4 | *32* | 1 5/8 | *41* | 1 5/8 | *41* | 1 13/16 | *47* | 2.13 | *0.97* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 13/16 | *22* | 1 1/4 | *32* | 1 13/16 | *47* | 1 13/16 | *47* | 1 7/8 | *48* | 2.44 | *1.11* |
| | | | | 2 | *50* | 1 1/2 | *38* | 1 1/2 | *38* | 15/16 | *24* | 2 1/8 | *54* | 2 1/8 | *54* | 2 | *51* | 3.23 | *1.46* |
| | | | | 2 1/2 | *65* | 1 13/16 | *47* | 1 13/16 | *47* | 15/16 | *24* | 2 7/16 | *62* | 2 7/16 | *62* | 2 3/16 | *56* | 4.15 | *1.88* |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

## Class 125 (Standard)

**FIGURE 359**
**Tee Reducing**




| Size | | | | | | A | | B | | C | | D | | E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 | *50* | 1/2 | *15* | 1 1/2 | *40* | 15/16 | *24* | 1 3/8 | *35* | 1 1/2 | *38* | 2 | *51* | 1 13/16 | *47* | 2 1/8 | *54* | 2.95 | *1.34* |
| | | | | 2 | *50* | 1 9/16 | *40* | 1 7/16 | *37* | 1 9/16 | *40* | 2 1/4 | *57* | 1 7/8 | *48* | 2 1/4 | *57* | 3.30 | *1.50* |
| | | 3/4 | *20* | 1 1/4 | *32* | 1 3/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/8 | *48* | 1 3/4 | *44* | 2 1/16 | *52* | 2.50 | *1.13* |
| | | | | 1 1/2 | *40* | 1 5/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 2 | *51* | 1 13/16 | *47* | 2 1/8 | *54* | 3.40 | *1.54* |
| | | | | 2 | *50* | 1 9/16 | *40* | 1 7/16 | *37* | 1 9/16 | *40* | 2 1/4 | *57* | 1 15/16 | *49* | 2 1/4 | *57* | 3.31 | *1.50* |
| | | 1 | *25* | 1 | *25* | 11/16 | *17* | 11/16 | *17* | 1 7/16 | *37* | 1 3/4 | *44* | 1 5/8 | *41* | 2 | *51* | 2.70 | *1.22* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 1 1/8 | *29* | 1 1/2 | *38* | 1 7/8 | *48* | 1 3/4 | *44* | 2 1/16 | *52* | 2.94 | *1.33* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 1 1/2 | *38* | 2 | *51* | 1 13/16 | *47* | 2 1/8 | *54* | 2.85 | *1.29* |
| | | | | 2 | *50* | 1 9/16 | *40* | 1 7/16 | *37* | 1 9/16 | *40* | 2 1/4 | *57* | 2 | *51* | 2 1/4 | *57* | 3.46 | *1.57* |
| | | | | 2 1/2 | *65* | 1 7/8 | *48* | 1 13/16 | *47* | 1 9/16 | *40* | 2 9/16 | *65* | 2 3/8 | *60* | 2 7/16 | *62* | 4.88 | *2.21* |
| | | 1 1/4 | *32* | 1/2 | *15* | 11/16 | *17* | 1 | *25* | 1 7/16 | *37* | 1 3/4 | *44* | 1 5/8 | *41* | 2 | *51* | 2.48 | *1.12* |
| | | | | 3/4 | *20* | 7/8 | *22* | 7/8 | *22* | 1 7/16 | *37* | 1 9/16 | *40* | 1 1/2 | *38* | 1 15/16 | *49* | 2.50 | *1.13* |
| | | | | 1 | *25* | 11/16 | *17* | 1 | *25* | 1 7/16 | *37* | 1 3/4 | *44* | 1 5/8 | *41* | 2 | *51* | 2.73 | *1.24* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/8 | *48* | 1 3/4 | *44* | 2 1/16 | *52* | 2.90 | *1.32* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 1 1/4 | *32* | 1 1/2 | *38* | 2 | *51* | 1 7/8 | *48* | 2 1/8 | *54* | 3.13 | *1.42* |
| | | | | 2 | *50* | 1 9/16 | *40* | 1 7/16 | *37* | 1 9/16 | *40* | 2 1/4 | *57* | 2 1/16 | *52* | 2 1/4 | *57* | 3.71 | *1.68* |
| | | | | 2 1/2 | *65* | 1 7/8 | *48* | 1 3/4 | *44* | 1 9/16 | *40* | 2 9/16 | *65* | 2 3/8 | *60* | 2 7/16 | *62* | 4.54 | *2.06* |
| | | 1 1/2 | *40* | 1/2 | *15* | 13/16 | *22* | 13/16 | *22* | 1 7/16 | *37* | 1 1/2 | *38* | 1 7/16 | *37* | 1 7/8 | *48* | 2.34 | *1.06* |
| | | | | 3/4 | *20* | 7/8 | *22* | 7/8 | *22* | 1 7/16 | *37* | 1 9/16 | *40* | 1 1/2 | *38* | 1 15/16 | *49* | 2.46 | *1.12* |
| | | | | 1 | *25* | 11/16 | *17* | 1 | *25* | 1 7/16 | *37* | 1 3/4 | *44* | 1 5/8 | *41* | 2 | *51* | 2.66 | *1.21* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 13/16 | *22* | 1 7/16 | *37* | 1 7/8 | *48* | 1 13/16 | *47* | 2 1/16 | *52* | 2.98 | *1.35* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 2 | *51* | 1 15/16 | *49* | 2 1/8 | *54* | 3.24 | *1.47* |
| | | | | 2 | *50* | 1 9/16 | *40* | 1 1/2 | *38* | 1 9/16 | *40* | 2 1/4 | *57* | 2 1/8 | *54* | 2 1/4 | *57* | 3.70 | *1.68* |
| | | | | 2 1/2 | *65* | 1 7/8 | *48* | 1 15/16 | *49* | 1 9/16 | *40* | 2 9/16 | *65* | 2 9/16 | *65* | 2 7/16 | *62* | 5.46 | *2.48* |
| | | 2 | *50* | 1/2 | *15* | 13/16 | *22* | 13/16 | *22* | 1 7/16 | *37* | 1 1/2 | *38* | 1 1/2 | *38* | 1 7/8 | *48* | 2.74 | *1.24* |
| | | | | 3/4 | *20* | 7/8 | *22* | 7/8 | *22* | 1 7/16 | *37* | 1 9/16 | *40* | 1 9/16 | *40* | 1 15/16 | *49* | 2.86 | *1.30* |
| | | | | 1 | *25* | 11/16 | *17* | 11/16 | *17* | 1 7/16 | *37* | 1 3/4 | *44* | 1 3/4 | *44* | 2 | *51* | 3.05 | *1.38* |
| | | | | 1 1/4 | *32* | 13/16 | *22* | 13/16 | *22* | 1 7/16 | *37* | 1 7/8 | *48* | 1 7/8 | *48* | 2 1/16 | *52* | 3.38 | *1.53* |
| | | | | 1 1/2 | *40* | 15/16 | *24* | 15/16 | *24* | 1 1/2 | *38* | 2 | *51* | 2 | *51* | 2 1/8 | *54* | 3.59 | *1.63* |
| | | | | 2 1/2 | *65* | 1 7/8 | *48* | 1 7/8 | *48* | 1 9/16 | *40* | 2 9/16 | *65* | 2 9/16 | *65* | 2 7/16 | *62* | 5.17 | *2.34* |
| | | | | 3 | *100* | 3 | *76* | 3 | *76* | 2 7/16 | *62* | 3 11/16 | *94* | 3 11/16 | *94* | 3 1/2 | *89* | 7.87 | *3.57* |

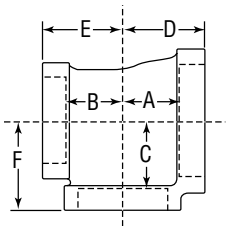
Continued on next page.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 359**
**Tee Reducing**



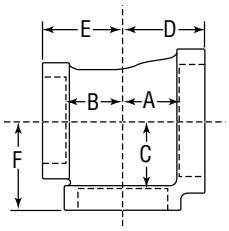

| Size | | | | | | A | | B | | C | | D | | E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | NPS | DN | NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| 2½ | 65 | ½ | 15 | 2½ | 65 | 1 13/16 | 47 | 1 13/16 | 47 | 1 13/16 | 47 | 2 11/16 | 68 | 2 1/4 | 57 | 2 11/16 | 68 | 5.20 | 2.36 |
| | | ¾ | 20 | 2½ | 65 | 1 13/16 | 47 | 1 3/4 | 44 | 1 13/16 | 47 | 2 11/16 | 68 | 2 1/4 | 57 | 2 11/16 | 68 | 5.10 | 2.31 |
| | | 1 | 25 | 2 | 50 | 1 9/16 | 40 | 1 9/16 | 40 | 1 7/8 | 48 | 2 7/16 | 62 | 2 1/8 | 54 | 2 9/16 | 65 | 5.03 | 2.28 |
| | | | | 2½ | 65 | 1 13/16 | 47 | 1 3/4 | 44 | 1 13/16 | 47 | 2 11/16 | 68 | 2 5/16 | 59 | 2 11/16 | 68 | 5.36 | 2.43 |
| | | 1¼ | 32 | 2 | 50 | 1 9/16 | 40 | 1 1/2 | 38 | 1 7/8 | 48 | 2 7/16 | 62 | 2 1/8 | 54 | 2 9/16 | 65 | 4.96 | 2.25 |
| | | | | 2½ | 65 | 1 13/16 | 47 | 1 3/4 | 44 | 1 13/16 | 47 | 2 11/16 | 68 | 2 3/8 | 60 | 2 11/16 | 68 | 5.40 | 2.45 |
| | | 1½ | 40 | 1½ | 40 | 15/16 | 24 | 15/16 | 22 | 1 13/16 | 47 | 2 3/16 | 56 | 1 15/16 | 49 | 2 7/16 | 62 | 4.23 | 1.92 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 1/2 | 38 | 1 7/8 | 48 | 2 7/16 | 62 | 2 1/8 | 54 | 2 9/16 | 65 | 4.85 | 2.20 |
| | | | | 2½ | 65 | 1 13/16 | 47 | 1 13/16 | 47 | 1 13/16 | 47 | 2 11/16 | 68 | 2 7/16 | 62 | 2 11/16 | 68 | 4.85 | 2.20 |
| | | 2 | 50 | ½ | 15 | 3/4 | 19 | 13/16 | 22 | 1 3/4 | 44 | 1 11/16 | 43 | 1 1/2 | 38 | 2 3/16 | 56 | 5.82 | 2.64 |
| | | | | ¾ | 20 | 7/8 | 22 | 7/8 | 22 | 1 3/4 | 44 | 1 3/4 | 44 | 1 9/16 | 40 | 2 1/4 | 57 | 3.62 | 1.64 |
| | | | | 1 | 25 | 1 | 25 | 11/16 | 17 | 1 3/4 | 44 | 1 15/16 | 49 | 1 3/4 | 44 | 2 5/16 | 59 | 3.92 | 1.78 |
| | | | | 1¼ | 32 | 13/16 | 22 | 13/16 | 22 | 1 3/4 | 44 | 2 1/16 | 52 | 1 7/8 | 48 | 2 3/8 | 60 | 4.26 | 1.93 |
| | | | | 1½ | 40 | 15/16 | 24 | 15/16 | 24 | 1 13/16 | 47 | 2 3/16 | 56 | 2 | 51 | 2 7/16 | 62 | 4.42 | 2.00 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 9/16 | 40 | 1 7/8 | 48 | 2 7/16 | 62 | 2 1/4 | 57 | 2 9/16 | 65 | 5.17 | 2.34 |
| | | | | 2½ | 65 | 1 13/16 | 47 | 1 7/8 | 48 | 1 13/16 | 47 | 2 11/16 | 68 | 2 9/16 | 65 | 2 11/16 | 68 | 6.00 | 2.72 |
| | | | | 3 | 80 | 2 1/16 | 52 | 2 1/8 | 54 | 1 7/8 | 48 | 3 | 80 | 2 7/8 | 73 | 2 13/16 | 73 | 7.35 | 3.33 |
| | | 2½ | 65 | ½ | 15 | 3/4 | 19 | 3/4 | 19 | 1 3/4 | 44 | 1 11/16 | 43 | 1 11/16 | 43 | 2 3/16 | 56 | 4.00 | 1.81 |
| | | | | ¾ | 20 | 7/8 | 22 | 7/8 | 22 | 1 3/4 | 44 | 1 3/4 | 44 | 1 3/4 | 44 | 2 1/4 | 57 | 4.29 | 1.95 |
| | | | | 1 | 25 | 1 | 25 | 1 | 25 | 1 3/4 | 44 | 1 15/16 | 49 | 1 15/16 | 49 | 2 5/16 | 59 | 4.48 | 2.03 |
| | | | | 1¼ | 32 | 13/16 | 22 | 13/16 | 22 | 1 3/4 | 44 | 2 1/16 | 52 | 2 1/16 | 52 | 2 3/8 | 60 | 4.83 | 2.19 |
| | | | | 1½ | 40 | 15/16 | 24 | 15/16 | 24 | 1 13/16 | 47 | 2 3/16 | 56 | 2 3/16 | 56 | 2 7/16 | 62 | 5.14 | 2.33 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 9/16 | 40 | 1 7/8 | 48 | 2 7/16 | 62 | 2 7/16 | 62 | 2 9/16 | 65 | 5.88 | 2.67 |
| | | | | 3 | 80 | 2 1/16 | 52 | 2 1/16 | 52 | 1 7/8 | 48 | 3 | 80 | 3 | 80 | 2 13/16 | 73 | 8.09 | 3.67 |
| | | | | 4 | 100 | 2 3/4 | 70 | 2 13/16 | 73 | 2 7/16 | 62 | 3 11/16 | 94 | 3 11/16 | 94 | 3 1/2 | 89 | 14.03 | 6.36 |
| 3 | 80 | ¾ | 20 | 3 | 80 | 2 1/8 | 54 | 2 1/8 | 54 | 2 1/8 | 54 | 3 1/8 | 79 | 2 11/16 | 68 | 3 1/8 | 79 | 8.25 | 3.74 |
| | | 1 | 25 | 3 | 80 | 2 1/8 | 54 | 2 1/8 | 54 | 2 1/8 | 54 | 3 1/8 | 79 | 2 11/16 | 68 | 3 1/8 | 79 | 8.30 | 3.76 |
| | | 1¼ | 32 | 3 | 80 | 2 1/8 | 54 | 2 1/8 | 54 | 2 1/8 | 54 | 3 1/8 | 79 | 2 13/16 | 73 | 3 1/8 | 79 | 8.46 | 3.84 |
| | | 1½ | 40 | 3 | 80 | 2 1/8 | 54 | 2 3/16 | 56 | 2 1/8 | 54 | 3 1/8 | 79 | 2 13/16 | 73 | 3 1/8 | 79 | 8.13 | 3.69 |
| | | 2 | 50 | 1½ | 40 | 1 3/8 | 35 | 1 1/2 | 38 | 2 3/16 | 56 | 2 5/16 | 59 | 2 3/16 | 56 | 2 13/16 | 73 | 6.83 | 3.10 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 9/16 | 40 | 2 3/16 | 56 | 2 9/16 | 65 | 2 1/4 | 57 | 2 15/16 | 75 | 7.29 | 3.31 |
| | | | | 2½ | 65 | 1 7/8 | 48 | 1 15/16 | 49 | 2 1/8 | 54 | 2 13/16 | 73 | 2 9/16 | 65 | 3 1/16 | 78 | 7.10 | 3.22 |
| | | | | 3 | 80 | 2 1/8 | 54 | 2 3/16 | 56 | 2 1/8 | 54 | 3 1/8 | 79 | 2 15/16 | 75 | 3 1/8 | 79 | 8.79 | 3.99 |
| | | 2½ | 65 | 1 | 25 | 1 | 25 | 15/16 | 24 | 2 1/8 | 54 | 2 1/16 | 52 | 1 15/16 | 49 | 2 11/16 | 68 | 5.51 | 2.50 |
| | | | | 1¼ | 32 | 1 1/4 | 32 | 13/16 | 22 | 2 1/8 | 54 | 2 3/16 | 56 | 2 1/16 | 52 | 2 3/4 | 70 | 5.92 | 2.68 |
| | | | | 1½ | 40 | 1 3/8 | 35 | 15/16 | 24 | 2 3/16 | 56 | 2 5/16 | 59 | 2 3/16 | 56 | 2 13/16 | 73 | 6.23 | 2.83 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 1/2 | 38 | 2 3/16 | 56 | 2 9/16 | 65 | 2 7/16 | 62 | 2 15/16 | 75 | 6.81 | 3.09 |
| | | | | 2½ | 65 | 1 7/8 | 48 | 1 13/16 | 47 | 2 1/8 | 54 | 2 13/16 | 73 | 2 11/16 | 68 | 3 1/16 | 78 | 7.66 | 3.47 |
| | | | | 3 | 80 | 2 1/8 | 54 | 2 1/8 | 54 | 2 1/8 | 54 | 3 1/8 | 79 | 3 1/16 | 78 | 3 1/8 | 79 | 9.13 | 4.14 |
| | | 3 | 80 | ½ | 15 | 15/16 | 24 | 15/16 | 24 | 2 3/16 | 56 | 1 7/8 | 48 | 1 7/8 | 48 | 2 5/8 | 67 | 6.08 | 2.76 |
| | | | | ¾ | 20 | 15/16 | 24 | 15/16 | 24 | 2 1/8 | 54 | 1 7/8 | 48 | 1 7/8 | 48 | 2 5/8 | 67 | 6.06 | 2.75 |
| | | | | 1 | 25 | 1 | 25 | 1 | 25 | 2 1/8 | 54 | 2 1/16 | 52 | 2 1/16 | 52 | 2 11/16 | 68 | 6.27 | 2.84 |
| | | | | 1¼ | 32 | 1 1/4 | 32 | 1 1/4 | 32 | 2 1/8 | 54 | 2 3/16 | 56 | 2 3/16 | 56 | 2 3/4 | 70 | 6.75 | 3.06 |
| | | | | 1½ | 40 | 1 3/8 | 35 | 1 3/8 | 35 | 2 3/16 | 56 | 2 5/16 | 59 | 2 5/16 | 59 | 2 15/16 | 75 | 7.10 | 3.22 |
| | | | | 2 | 50 | 1 9/16 | 40 | 1 9/16 | 40 | 2 3/16 | 56 | 2 9/16 | 65 | 2 9/16 | 65 | 2 7/8 | 73 | 7.75 | 3.51 |
| | | | | 2½ | 65 | 1 7/8 | 48 | 1 7/8 | 48 | 2 1/8 | 54 | 2 13/16 | 73 | 2 13/16 | 73 | 3 1/16 | 78 | 8.92 | 4.05 |
| | | | | 4 | 100 | 2 11/16 | 68 | 2 11/16 | 68 | 2 7/16 | 62 | 3 11/16 | 94 | 3 11/16 | 94 | 3 1/2 | 89 | 12.80 | 5.80 |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

## Class 125 (Standard)

**FIGURE 359**
**Tee Reducing**



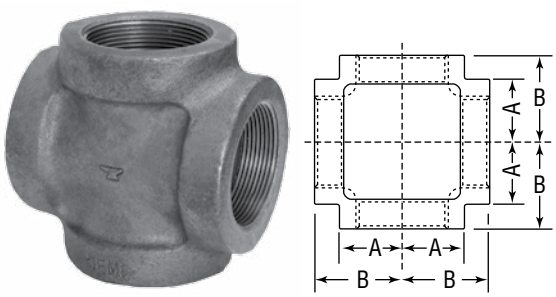

| Size | | | | | | A | | B | | C | | D | | E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 3 1/2 | *90* | 3 1/2 | *90* | 1 1/2 | *40* | 1 3/8 | *35* | 1 3/8 | *35* | 2 7/16 | *62* | 2 3/8 | *60* | 2 3/8 | *60* | 3 1/16 | *78* | 8.87 | *4.02* |
| | | | | 2 | *50* | 1 5/8 | *41* | 1 5/8 | *41* | 2 7/16 | *62* | 2 5/8 | *67* | 2 5/8 | *67* | 3 3/16 | *81* | 9.94 | *4.51* |
| 4 | *100* | 1 | *25* | 4 | *100* | 2 3/4 | *70* | 2 15/16 | *75* | 2 3/4 | *70* | 3 3/4 | *95* | 3 1/2 | *89* | 3 3/4 | *95* | 13.52 | *6.13* |
| | | 1 1/2 | *40* | 4 | *100* | 2 3/4 | *70* | 2 7/8 | *73* | 2 3/4 | *70* | 3 3/4 | *95* | 3 1/2 | *89* | 3 3/4 | *95* | 13.47 | *6.11* |
| | | 2 | *50* | 2 | *50* | 1 11/16 | *43* | 1 7/8 | *48* | 2 3/4 | *70* | 2 11/16 | *68* | 2 9/16 | *65* | 3 1/2 | *89* | 11.34 | *5.14* |
| | | | | 4 | *100* | 2 3/4 | *70* | 2 3/4 | *70* | 2 3/4 | *70* | 3 3/4 | *95* | 3 1/2 | *89* | 3 3/4 | *95* | 13.89 | *6.30* |
| | | 2 1/2 | *65* | 2 1/2 | *65* | 1 7/8 | *48* | 1 13/16 | *47* | 2 5/8 | *67* | 2 15/16 | *75* | 2 13/16 | *73* | 3 9/16 | *90* | 11.78 | *5.34* |
| | | | | 4 | *100* | 2 3/4 | *70* | 2 3/4 | *70* | 2 3/4 | *70* | 3 3/4 | *95* | 3 5/8 | *92* | 3 3/4 | *95* | 15.75 | *7.14* |
| | | 3 | *80* | 2 1/2 | *65* | 1 7/8 | *48* | 1 7/8 | *48* | 2 5/8 | *67* | 2 15/16 | *75* | 2 13/16 | *73* | 3 9/16 | *90* | 11.25 | *5.10* |
| | | | | 3 | *80* | 2 1/4 | *57* | 2 1/8 | *54* | 2 11/16 | *68* | 3 1/4 | *83* | 3 1/8 | *79* | 3 5/8 | *92* | 12.50 | *5.67* |
| | | | | 4 | *100* | 2 3/4 | *70* | 2 11/16 | *68* | 2 3/4 | *70* | 3 3/4 | *95* | 3 5/8 | *92* | 3 3/4 | *95* | 15.04 | *6.82* |
| | | 4 | *100* | 1 | *25* | 13/16 | *22* | 13/16 | *22* | 2 3/4 | *70* | 2 5/16 | *59* | 2 5/16 | *59* | 3 5/16 | *84* | 10.40 | *4.72* |
| | | | | 1 1/4 | *32* | 15/16 | *24* | 15/16 | *24* | 2 5/8 | *67* | 2 5/16 | *59* | 2 5/16 | *59* | 3 5/16 | *84* | 10.38 | *4.71* |
| | | | | 1 1/2 | *40* | 1 7/16 | *37* | 1 7/16 | *37* | 2 11/16 | *68* | 2 7/16 | *62* | 2 7/16 | *62* | 3 5/16 | *84* | 10.75 | *4.88* |
| | | | | 2 | *50* | 1 11/16 | *43* | 1 11/16 | *43* | 2 3/4 | *70* | 2 11/16 | *68* | 2 11/16 | *68* | 3 1/2 | *89* | 11.63 | *5.27* |
| | | | | 2 1/2 | *65* | 2 | *51* | 2 | *51* | 2 5/8 | *67* | 2 15/16 | *75* | 2 15/16 | *75* | 3 9/16 | *90* | 12.85 | *5.83* |
| | | | | 3 | *80* | 2 1/4 | *57* | 2 1/4 | *57* | 2 11/16 | *68* | 3 1/4 | *83* | 3 1/4 | *83* | 3 5/8 | *92* | 14.12 | *6.40* |
| | | | | 5 | *125* | 3 3/8 | *86* | 3 3/8 | *86* | 2 13/16 | *73* | 4 3/8 | *111* | 4 3/8 | *111* | 4 | *102* | 20.88 | *9.47* |
| | | | | 6 | *150* | 3 7/8 | *98* | 3 7/8 | *98* | 2 7/8 | *73* | 4 15/16 | *125* | 4 15/16 | *125* | 4 1/16 | *103* | 26.36 | *11.95* |
| 5 | *125* | 5 | *125* | 2 | *50* | 1 3/4 | *44* | 1 3/4 | *44* | 3 7/16 | *87* | 2 15/16 | *75* | 2 15/16 | *75* | 4 1/8 | *105* | 17.43 | *7.90* |
| | | | | 3 | *80* | 2 5/16 | *59* | 2 5/16 | *59* | 3 1/4 | *83* | 3 1/2 | *89* | 3 1/2 | *89* | 4 1/4 | *108* | 20.00 | *9.07* |
| | | | | 4 | *100* | 2 13/16 | *71* | 2 13/16 | *71* | 3 3/8 | *86* | 4 | *102* | 4 | *102* | 4 3/8 | *111* | 23.83 | *10.81* |
| 6 | *150* | 4 | | 4 | *100* | 2 7/8 | *73* | 2 13/16 | *71* | 3 7/8 | *98* | 4 1/16 | *103* | 4 | *102* | 4 15/16 | *125* | 30.00 | *13.61* |
| | | 6 | *150* | 2 1/2 | *65* | 2 | *51* | 2 | *51* | 3 13/16 | *97* | 3 1/4 | *83* | 3 1/4 | *83* | 4 3/4 | *121* | 25.67 | *11.64* |
| | | | | 3 | *80* | 2 3/8 | *60* | 2 3/8 | *60* | 3 13/16 | *97* | 3 9/16 | *90* | 3 9/16 | *90* | 4 13/16 | *122* | 27.46 | *12.45* |
| | | | | 4 | *100* | 2 7/8 | *73* | 2 7/8 | *73* | 3 7/8 | *98* | 4 1/16 | *103* | 4 1/16 | *103* | 4 15/16 | *125* | 32.44 | *14.71* |
| | | | | 5 | *125* | 3 3/8 | *86* | 3 3/8 | *86* | 3 13/16 | *97* | 4 5/8 | *117* | 4 5/8 | *117* | 5 | *127* | 37.00 | *16.78* |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

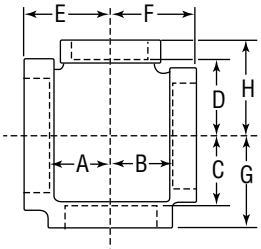
Class 125 (Standard)

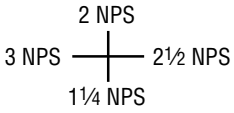
**FIGURE 360**
**Cross**



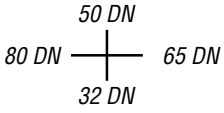

| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/2 | *15* | 9/16 | *14* | 13/16 | *22* | 2.80 | *1.27* |
| 3/4 | *20* | 13/16 | *22* | 1 5/16 | *33* | 1.03 | *0.47* |
| 1 | *25* | 15/16 | *24* | 1 1/2 | *38* | 1.59 | *0.72* |
| 1 1/4 | *32* | 1 1/8 | *29* | 1 3/4 | *44* | 2.42 | *1.10* |
| 1 1/2 | *40* | 1 5/16 | *33* | 1 15/16 | *49* | 3.21 | *1.46* |
| 2 | *50* | 1 9/16 | *40* | 2 1/4 | *57* | 5.28 | *2.39* |
| 2 1/2 | *65* | 1 13/16 | *47* | 2 11/16 | *68* | 8.07 | *3.66* |
| 3 | *80* | 2 3/16 | *56* | 3 1/8 | *79* | 11.84 | *5.37* |
| 4 | *100* | 2 3/4 | *70* | 3 13/16 | *98* | 19.63 | *8.90* |

**FIGURE 361**
**Cross Reducing**




Read as:
3 x 2½ x 2 x 1¼



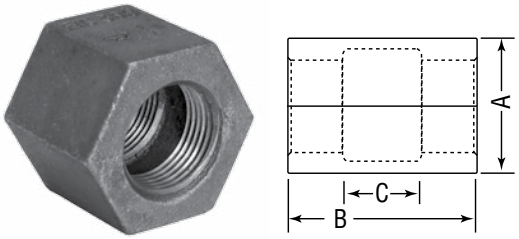

Read as:
80 x 65 x 50 x 32

| Size | | | | | | | | A | | B | | C | | D | | E, F | | G, H | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *NPS* | *DN* | *NPS* | *DN* | *NPS* | *DN* | *NPS* | *DN* | *in* | *mm* | *in* | *mm* | *in* | *mm* | *in* | *mm* | *in* | *mm* | *in* | *mm* | *lbs* | *kg* |
| 1 | *25* | 1 | *25* | 3/4 | *20* | 3/4 | *20* | 13/16 | *22* | 13/16 | *22* | 15/16 | *24* | 15/16 | *24* | 1 3/8 | *35* | 1 7/16 | *37* | 1.30 | *0.59* |
| 1 1/4 | *32* | 1 1/4 | *32* | 1 | *25* | 1 | *25* | 15/16 | *24* | 15/16 | *24* | 1 1/8 | *29* | 1 1/8 | *29* | 1 9/16 | *40* | 1 11/16 | *43* | 2.04 | *0.93* |
| 1 1/2 | *40* | 1 | *25* | 1 | *25* | 1 | *25* | 1 | *25* | 1 1/8 | *29* | 1 1/4 | *32* | 1 1/4 | *32* | 1 5/8 | *41* | 1 13/16 | *47* | 2.74 | *1.24* |
| | | 1 1/4 | *32* | 1 | *25* | 1 | *25* | 1 | *25* | 1 | *25* | 1 1/4 | *32* | 1 1/4 | *32* | 1 5/8 | *41* | 1 13/16 | *47* | 2.67 | *1.21* |
| | | 1 1/2 | *40* | 1 | *25* | 1 | *25* | 1 | *25* | 1 | *25* | 1 1/4 | *32* | 1 1/4 | *32* | 1 5/8 | *41* | 1 13/16 | *47* | 2.51 | *1.14* |
| | | | | 1 1/4 | *32* | 1 | *25* | 1 1/8 | *29* | 1 1/8 | *29* | 13/16 | *22* | 15/16 | *24* | 1 13/16 | *47* | 1 7/8 | *48* | 3.90 | *1.77* |
| | | | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 3/8 | *35* | 1 3/8 | *35* | 1 13/16 | *47* | 1 7/8 | *48* | 3.95 | *1.79* |
| 2 | *50* | 1 1/2 | *40* | 1 | *25* | 1 | *25* | 11/16 | *17* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/16 | *37* | 1 3/4 | *44* | 2 | *51* | 3.57 | *1.62* |
| | | | | 1 1/4 | *32* | 1 | *25* | 1 1/8 | *29* | 13/16 | *22* | 1 1/2 | *38* | 1 7/16 | *37* | 1 7/8 | *48* | 2 1/8 | *54* | 4.25 | *1.93* |
| | | | | | | 1 1/4 | *32* | 13/16 | *22* | 13/16 | *22* | 1 1/2 | *38* | 1 1/2 | *38* | 1 7/8 | *48* | 2 1/16 | *52* | 4.18 | *1.90* |
| | | 2 | *50* | 1 | *25* | 1 | *25* | 11/16 | *17* | 11/16 | *17* | 1 7/16 | *37* | 1 7/16 | *37* | 1 3/4 | *44* | 2 | *51* | 3.22 | *1.46* |
| | | | | 1 1/4 | *32* | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/16 | *37* | 1 7/8 | *48* | 2 1/8 | *54* | 4.00 | *1.81* |
| | | | | 1 1/2 | *40* | 1 1/2 | *40* | 1 1/4 | *32* | 1 1/4 | *32* | 1 7/16 | *37* | 1 7/16 | *37* | 2 | *51* | 2 1/8 | *54* | 4.08 | *1.85* |
| 2 1/2 | *65* | 2 | *50* | 1 | *25* | 1 | *25* | 1 | *25* | 11/16 | *17* | 1 13/16 | *47* | 1 13/16 | *47* | 1 15/16 | *49* | 2 5/16 | *59* | 5.11 | *2.32* |
| | | | | 1 1/2 | *40* | 1 1/2 | *40* | 1 1/4 | *32* | 15/16 | *24* | 1 7/8 | *48* | 1 7/8 | *48* | 2 3/16 | *56* | 2 7/16 | *62* | 6.13 | *2.78* |
| | | | | 2 | *50* | 2 | *50* | 1 1/2 | *38* | 1 3/4 | *44* | 1 7/8 | *48* | 1 7/8 | *48* | 2 7/16 | *62* | 2 9/16 | *65* | 7.23 | *3.28* |
| | | 2 1/2 | *65* | 1 1/4 | *32* | 1 | *25* | 13/16 | *22* | 13/16 | *22* | 1 3/4 | *44* | 1 13/16 | *47* | 2 1/16 | *52* | 2 3/8 | *60* | 5.39 | *2.44* |
| | | | | | | 1 1/4 | *32* | 1 1/8 | *29* | 1 1/8 | *29* | 1 13/16 | *47* | 1 13/16 | *47* | 2 1/16 | *52* | 2 3/8 | *60* | 5.26 | *2.39* |
| | | | | 1 1/2 | *40* | 1 1/2 | *40* | 1 1/4 | *32* | 1 1/4 | *32* | 1 7/8 | *48* | 1 7/8 | *48* | 2 3/16 | *56* | 2 7/16 | *62* | 5.68 | *2.58* |
| | | | | 2 | *50* | 2 | *50* | 1 9/16 | *40* | 1 9/16 | *40* | 1 15/16 | *49* | 1 15/16 | *49* | 2 7/16 | *62* | 2 9/16 | *65* | 6.82 | *3.09* |
| 3 | *80* | 3 | *80* | 1 1/2 | *40* | 1 1/2 | *40* | 1 3/8 | *35* | 1 3/8 | *35* | 2 3/16 | *56* | 2 3/16 | *56* | 2 5/16 | *59* | 2 13/16 | *73* | 7.91 | *3.59* |
| | | | | 2 | *50* | 2 | *50* | 1 5/8 | *41* | 1 5/8 | *41* | 2 3/16 | *56* | 2 3/16 | *56* | 2 9/16 | *65* | 2 15/16 | *75* | 8.85 | *4.01* |
| 4 | *100* | 4 | *100* | 2 | *50* | 2 | *50* | 2 | *50* | 2 | *50* | 2 11/16 | *68* | 2 11/16 | *68* | 2 3/4 | *70* | 3 7/16 | *87* | 12.00 | *5.44* |

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 366**
**Screwed Hex Coupling**




| Size | | Across Flats A | | B | | C | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1 | *25* | $1^{15}/_{16}$ | *49* | $1^{11}/_{16}$ | *43* | $^{9}/_{16}$ | *14* | 0.82 | *0.37* |

**FIGURE 487**
**Flanged Union Gasket Type**

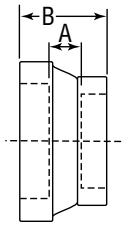
Assembled with gaskets

| Size | | Diam. of Flanges | | No. of Bolts | Unit Weight Black | | Unit Weight Galv. | |
|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | – | lbs | *kg* | lbs | *kg* |
| $^{1}/_{2}$ | *15* | $2^{15}/_{16}$ | *75* | 3 | 1.75 | *0.79* | 1.75 | *0.79* |
| $^{3}/_{4}$ | *20* | 3 | *76* | 3 | 2.00 | *0.91* | 2.00 | *0.91* |
| 1 | *25* | $3^{1}/_{4}$ | *83* | 3 | 2.25 | *1.02* | 2.25 | *1.02* |
| $1^{1}/_{4}$ | *32* | $4^{3}/_{16}$ | *106* | 4 | 4.75 | *2.15* | 4.75 | *2.15* |
| $1^{1}/_{2}$ | *40* | $4^{3}/_{8}$ | *111* | 4 | 5.00 | *2.27* | 5.00 | *2.27* |
| 2 | *50* | 5 | *127* | 4 | 6.50 | *2.95* | 6.50 | *2.95* |
| $2^{1}/_{2}$ | *65* | $5^{5}/_{8}$ | *143* | 4 | 8.50 | *3.85* | 8.50 | *3.85* |
| 3 | *80* | $6^{3}/_{8}$ | *162* | 4 | 11.00 | *4.99* | 11.00 | *4.99* |
| $3^{1}/_{2}$ | *90* | $6^{7}/_{8}$ | *175* | 4 | 12.75 | *5.78* | – | – |
| 4 | *100* | $7^{11}/_{16}$ | *195* | 5 | 18.00 | *8.16* | 18.00 | *8.16* |
| 5 | *125* | $8^{15}/_{16}$ | *227* | 5 | 22.00 | *9.98* | – | – |
| 6 | *150* | $10^{1}/_{4}$ | *260* | 6 | 30.00 | *13.61* | 30.00 | *13.61* |
| 8 | *200* | $12^{15}/_{16}$ | *329* | 8 | 51.00 | *23.13* | 51.00 | *23.13* |

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 367**
**Concentric Reducer**




| Size | | | | A | | B* | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 3/4 | *20* | 1/2 | *15* | 5/8 | *16* | 1 9/16 | *40* | 0.40 | *0.18* |
| 1 | *25* | 1/2 (Hex) | *15* | 11/16 | *17* | 1 11/16 | *43* | 0.54 | *0.24* |
| | | 3/4 (Hex) | *20* | 7/16 | *11* | 1 1/2 | *38* | 0.63 | *0.29* |
| 1 1/4 | *32* | 1/2 | *15* | 9/16 | *14* | 1 5/8 | *41* | 0.84 | *0.38* |
| | | 3/4 | *20* | 1 | *25* | 2 1/8 | *54* | 0.90 | *0.41* |
| | | 1 | *25* | 15/16 | *24* | 2 1/8 | *54* | 1.07 | *0.49* |
| 1 1/2 | *40* | 1/2 | *15* | 1/2 | *13* | 1 5/8 | *41* | 1.00 | *0.45* |
| | | 3/4 | *20* | 1/2 | *13* | 1 5/8 | *41* | 1.20 | *0.54* |
| | | 1 | *25* | 1/2 | *13* | 1 3/4 | *44* | 1.50 | *0.68* |
| | | 1 1/4 | *32* | 1 | *25* | 2 1/4 | *57* | 1.45 | *0.66* |
| 2 | *50* | 1/2 | *15* | 5/8 | *16* | 2 | *51* | 2.00 | *0.91* |
| | | 3/4 | *20* | 3/4 | *19* | 2 | *51* | 1.90 | *0.86* |
| | | 1 | *25* | 3/4 | *19* | 2 | *51* | 1.83 | *0.83* |
| | | 1 1/4 | *32* | 13/16 | *22* | 2 1/8 | *54* | 1.78 | *0.81* |
| | | 1 1/2 | *40* | 7/8 | *22* | 2 3/16 | *56* | 1.98 | *0.90* |
| 2 1/2 | *65* | 1 1/2 | *40* | 3/4 | *19* | 2 | *51* | 3.10 | *1.41* |
| | | 2 | *50* | 1 | *25* | 2 9/16 | *65* | 2.98 | *1.35* |
| 3 | *80* | 3/4 | *20* | 15/16 | *24* | 2 1/2 | *64* | 4.31 | *1.95* |
| | | 2 | *50* | 1 1/16 | *27* | 2 3/4 | *70* | 3.96 | *1.80* |
| | | 2 1/2 | *65* | 15/16 | *24* | 2 13/16 | *73* | 4.40 | *2.00* |
| 4 | *100* | 2 | *50* | 1 3/16 | *30* | 2 15/16 | *75* | 6.50 | *2.95* |
| | | 2 1/2 | *65* | 1 3/16 | *30* | 3 1/8 | *79* | 7.78 | *3.53* |
| | | 3 | *80* | 1 1/16 | *27* | 3 1/8 | *79* | 7.01 | *3.18* |
| 5 | *125* | 4 | *100* | 1 1/16 | *27* | 3 5/16 | *84* | 10.48 | *4.75* |
| 6 | *150* | 4 | *100* | 1 1/8 | *29* | 3 7/16 | *87* | 13.83 | *6.27* |
| | | 5 | *125* | 1 1/8 | *29* | 3 9/16 | *90* | 15.53 | *7.04* |
| 8 | *200* | 6 | *150* | 1 1/4 | *32* | 3 7/8 | *98* | 29.10 | *13.20* |

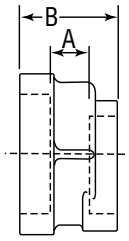
* Dimension "B" does not conform to ASME standard.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 368**
**Eccentric Reducer**




| Size | | | | A | | B* | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 3/4 | *20* | 1/2 | *15* | 9/16 | *14* | 1 1/2 | *38* | 0.45 | *0.20* |
| 1 | *25* | 1/2 | *15* | 1/2 | *13* | 1 7/16 | *37* | 0.57 | *0.26* |
| | | 3/4 | *20* | 7/16 | *11* | 1 1/2 | *38* | 0.61 | *0.28* |
| 1 1/4 | *32* | 1/2 | *15* | 9/16 | *14* | 1 5/8 | *41* | 1.00 | *0.45* |
| | | 3/4 | *20* | 1/2 | *13* | 1 5/8 | *41* | 0.90 | *0.41* |
| | | 1 | *25* | 1/2 | *13* | 1 11/16 | *43* | 1.00 | *0.45* |
| 1 1/2 | *40* | 1/2 | *15* | 11/16 | *17* | 1 3/4 | *44* | 1.11 | *0.50* |
| | | 3/4 | *20* | 9/16 | *14* | 1 11/16 | *43* | 1.17 | *0.53* |
| | | 1 | *25* | 9/16 | *14* | 1 3/4 | *44* | 1.21 | *0.55* |
| | | 1 1/4 | *32* | 5/8 | *16* | 1 7/8 | *48* | 1.26 | *0.57* |
| 2 | *50* | 1/2 | *15* | 3/4 | *19* | 1 15/16 | *49* | 1.80 | *0.82* |
| | | 3/4 | *20* | 3/4 | *19* | 2 | *51* | 1.83 | *0.83* |
| | | 1 | *25* | 11/16 | *17* | 2 1/16 | *52* | 1.86 | *0.84* |
| | | 1 1/4 | *32* | 13/16 | *22* | 2 1/8 | *54* | 1.87 | *0.85* |
| | | 1 1/2 | *40* | 7/8 | *22* | 2 3/16 | *56* | 1.93 | *0.88* |
| 2 1/2 | *65* | 1 | *25* | 13/16 | *22* | 2 1/4 | *57* | 2.74 | *1.24* |
| | | 1 1/4 | *32* | 7/8 | *22* | 2 3/8 | *60* | 2.80 | *1.27* |
| | | 1 1/2 | *40* | 7/8 | *22* | 2 3/8 | *60* | 2.94 | *1.33* |
| | | 2 | *50* | 1 | *25* | 2 9/16 | *65* | 2.95 | *1.34* |
| 3 | *80* | 1 | *25* | 7/8 | *22* | 2 7/16 | *62* | 3.95 | *1.79* |
| | | 1 1/4 | *32* | 15/16 | *24* | 2 9/16 | *65* | 3.80 | *1.72* |
| | | 1 1/2 | *40* | 15/16 | *24* | 2 9/16 | *65* | 4.16 | *1.89* |
| | | 2 | *50* | 1 1/16 | *27* | 2 3/4 | *70* | 4.61 | *2.09* |
| | | 2 1/2 | *65* | 15/16 | *24* | 2 13/16 | *73* | 4.80 | *2.18* |
| 4 | *100* | 1 1/4 | *32* | 1 1/16 | *27* | 2 3/4 | *70* | 6.58 | *2.98* |
| | | 1 1/2 | *40* | 1 1/8 | *29* | 2 13/16 | *73* | 6.61 | *3.00* |
| | | 2 | *50* | 1 3/16 | *30* | 2 15/16 | *75* | 6.91 | *3.13* |
| | | 2 1/2 | *65* | 1 1/8 | *29* | 3 1/16 | *78* | 7.26 | *3.29* |
| | | 3 | *80* | 1 1/16 | *27* | 3 1/8 | *79* | 7.64 | *3.46* |
| 5 | *125* | 3 | *80* | 1 1/16 | *27* | 3 1/4 | *83* | 11.44 | *5.19* |
| | | 4 | *100* | 1 1/16 | *27* | 3 5/16 | *84* | 11.19 | *5.07* |
| 6 | *150* | 3 | *80* | 1 1/16 | *27* | 3 5/16 | *84* | 14.66 | *6.65* |
| | | 4 | *100* | 1 1/8 | *29* | 3 7/16 | *87* | 15.36 | *6.97* |

* Dimension "B" does not conform to ASME standard.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 383**
**Hex Bushing**

Outside Hex
Type A

Inside Hex
Type B

See page 34 (Malleable Iron) for other available sizes.

| Size | | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | Hex Type | All Cast Iron | NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | A | C | 1/4 | *8* | 0.47 | *0.21* | 0.47 | *0.21* |
| | | B | C | 3/8 | *10* | 0.47 | *0.21* | 0.47 | *0.21* |
| | | B | C | 1/2 | *15* | 0.42 | *0.19* | 0.42 | *0.19* |
| | | B | C | 3/4 | *20* | 0.47 | *0.21* | 0.47 | *0.21* |
| | | A | C | 1 | *25* | 0.50 | *0.23* | 0.50 | *0.23* |
| 2 | *50* | A | C | 1/4 | *8* | 0.75 | *0.34* | 0.75 | *0.34* |
| | | A | C | 3/8 | *10* | 0.75 | *0.34* | 0.75 | *0.34* |
| | | B | C | 1/2 | *15* | 0.70 | *0.32* | 0.70 | *0.32* |
| | | B | C | 3/4 | *20* | 0.71 | *0.32* | 0.71 | *0.32* |
| | | B | C | 1 | *25* | 0.73 | *0.33* | 0.73 | *0.33* |
| | | A | C | 1 1/4 | *32* | 0.81 | *0.37* | 0.81 | *0.37* |
| 2 1/2 | *65* | B | C | 1/2 | *15* | 1.28 | *0.58* | 1.28 | *0.58* |
| | | B | C | 3/4 | *20* | 1.25 | *0.57* | 1.25 | *0.57* |
| | | B | C | 1 | *25* | 1.16 | *0.53* | 1.16 | *0.53* |
| | | B | C | 1 1/4 | *32* | 1.24 | *0.56* | 1.24 | *0.56* |
| | | B | C | 1 1/2 | *40* | 1.29 | *0.59* | 1.29 | *0.59* |
| 3 | *80* | B | C | 1/2 | *15* | 1.93 | *0.88* | 1.93 | *0.88* |
| | | B | C | 3/4 | *20* | 1.92 | *0.87* | 1.92 | *0.87* |
| | | B | C | 1 | *25* | 1.90 | *0.86* | 1.90 | *0.86* |
| | | B | C | 1 1/4 | *32* | 1.77 | *0.80* | 1.77 | *0.80* |
| | | B | C | 1 1/2 | *40* | 1.79 | *0.81* | 1.79 | *0.81* |
| | | A | C | 2 | *50* | 1.90 | *0.86* | 1.90 | *0.86* |
| | | A | C | 2 1/2 | *65* | 1.63 | *0.74* | 1.63 | *0.74* |
| 3 1/2 | *80* | B | C | 1 | *25* | 2.42 | *1.10* | 2.42 | *1.10* |
| | | B | C | 1 1/4 | *32* | 2.56 | *1.16* | 2.56 | *1.16* |
| | | B | C | 1 1/2 | *40* | 2.65 | *1.20* | 2.65 | *1.20* |
| | | B | C | 2 | *50* | 2.54 | *1.15* | 2.54 | *1.15* |
| | | A | C | 2 1/2 | *65* | 3.23 | *1.46* | 3.23 | *1.46* |
| | | A | C | 3 | *80* | 1.96 | *0.89* | 1.96 | *0.89* |

Continued on next page.

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

Continued from previous page.

**FIGURE 383**
**Hex Bushing**

Outside Hex
Type A

Inside Hex
Type B

See page 34 (Malleable Iron) for other available sizes.

| Size | | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | Hex Type | All Cast Iron | NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 4 | *100* | B | C | 1 | *25* | 3.59 | *1.63* | 3.59 | *1.63* |
| | | B | C | 1¼ | *32* | 3.54 | *1.61* | 3.54 | *1.61* |
| | | B | C | 1½ | *40* | 3.44 | *1.56* | 3.44 | *1.56* |
| | | B | C | 2 | *50* | 3.11 | *1.41* | 3.11 | *1.41* |
| | | B | C | 2½ | *65* | 3.29 | *1.49* | 3.29 | *1.49* |
| | | A | C | 3 | *80* | 3.15 | *1.43* | 3.15 | *1.43* |
| | | A | C | 3½ | *90* | 2.50 | *1.13* | 2.50 | *1.13* |
| 5 | *125* | B | C | 2 | *50* | 5.12 | *2.32* | 5.12 | *2.32* |
| | | B | C | 2½ | *65* | 4.87 | *2.21* | 4.87 | *2.21* |
| | | B | C | 3 | *80* | 4.83 | *2.19* | 4.83 | *2.19* |
| | | A | C | 3½ | *90* | 4.00 | *1.81* | – | – |
| | | A | C | 4 | *100* | 3.94 | *1.79* | 3.94 | *1.79* |
| 6 | *150* | B | C | 2 | *50* | 8.00 | *3.63* | 8.00 | *3.63* |
| | | B | C | 2½ | *65* | 7.72 | *3.50* | – | – |
| | | B | C | 3 | *80* | 7.75 | *3.51* | 7.75 | *3.51* |
| | | B | C | 4 | *100* | 6.83 | *3.10* | 6.83 | *3.10* |
| | | A | C | 5 | *125* | 5.24 | *2.38* | 5.24 | *2.38* |
| 8 | *200* | B | C | 3 | *80* | 15.50 | *7.03* | – | – |
| | | B | C | 4 | *100* | 13.93 | *6.32* | – | – |
| | | B | C | 5 | *125* | 13.65 | *6.19* | – | – |
| | | A | C | 6 | *150* | 13.19 | *5.98* | 13.19 | *5.98* |
| 10 | *250* | B | C | 6 | *150* | 24.50 | *11.11* | – | – |
| | | A | C | 8 | *200* | 22.00 | *9.98* | – | – |

**FIGURE 385**
**Face Bushing**

See page 34 (Malleable Iron) for other available sizes.

| Size | | | | Unit Weight | |
|---|---|---|---|---|---|
| | | | | Black | |
| NPS | *DN* | NPS | *DN* | lbs | *kg* |
| 3 | *80* | 2 | *50* | 13.30 | *6.03* |
| 4 | *100* | 2½ | *65* | 2.55 | *1.16* |
| | | 3 | *80* | 19.20 | *8.71* |

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

Class 125 (Standard)

## FIGURE 387
**Square Head Plugs, Cored**

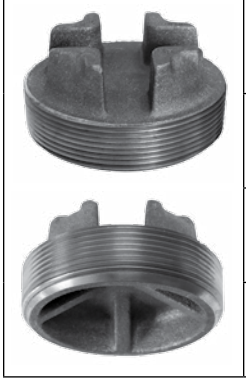
| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 3/4* | *20* | 0.13 | *0.06* | 0.13 | *0.06* |
| 1 | *25* | 0.25 | *0.11* | 0.25 | *0.11* |
| 1 1/4 | *32* | 0.39 | *0.18* | 0.39 | *0.18* |
| 1 1/2 | *40* | 0.50 | *0.23* | 0.50 | *0.23* |
| 2 | *50* | 0.82 | *0.37* | 0.82 | *0.37* |
| 2 1/2 | *65* | 1.32 | *0.60* | 1.32 | *0.60* |
| 3 | *80* | 1.87 | *0.85* | 1.87 | *0.85* |
| 3 1/2 | *90* | 2.50 | *1.13* | 2.50 | *1.13* |
| 4 | *100* | 4.00 | *1.81* | 4.00 | *1.81* |

* Zinc Plated

## FIGURE 388
**Square Head Plugs, Solid**

| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 1/2 | *15* | 0.10 | *0.05* | 0.10 | *0.05* |
| 3/4 | *20* | 0.17 | *0.08* | 0.17 | *0.08* |
| 1 | *25* | 0.32 | *0.15* | 0.32 | *0.15* |
| 1 1/4 | *32* | 0.53 | *0.24* | 0.53 | *0.24* |
| 1 1/2 | *40* | 0.76 | *0.34* | 0.76 | *0.34* |
| 2 | *50* | 1.23 | *0.56* | 1.23 | *0.56* |
| 2 1/2 | *65* | 2.00 | *0.91* | 2.00 | *0.91* |
| 3 | *80* | 3.18 | *1.44* | 3.18 | *1.44* |
| 3 1/2 | *90* | 4.38 | *1.99* | – | – |

## FIGURE 389
**Bar Plugs, Cored**



| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 4 | *100* | 3.82 | *1.73* | 3.82 | *1.73* |
| 5 | *125* | 6.50 | *2.95* | 6.50 | *2.95* |
| 6 | *150* | 9.94 | *4.51* | 9.94 | *4.51* |
| 8 | *200* | 20.26 | *9.19* | 20.26 | *9.19* |

## FIGURE 380
**Bar Plugs, Solid**

| Size | | Unit Weight | |
|---|---|---|---|
| | | Black | |
| NPS | *DN* | lbs | *kg* |
| 4 | *100* | 5.68 | *2.58* |
| 5 | *125* | 9.60 | *4.35* |
| 6 | *150* | 14.78 | *6.70* |

## FIGURE 390
**Countersunk Plugs**

| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 1 | *25* | 0.20 | *0.09* | 0.20 | *0.09* |
| 1 1/4 | *32* | 0.32 | *0.15* | 0.32 | *0.15* |
| 1 1/2 | *40* | 0.47 | *0.21* | 0.47 | *0.21* |
| 2 | *50* | 0.84 | *0.38* | 0.84 | *0.38* |
| 2 1/2 | *65* | 1.40 | *0.63* | – | – |
| 3 | *80* | 2.25 | *1.02* | – | – |
| 3 1/2 | *90* | 3.02 | *1.37* | – | – |
| 4 | *100* | 3.76 | *1.71* | – | – |

See page 31 (Malleable Iron) for other available sizes.

## FIGURE 381
**Cap**

| Size | | Unit Weight | | | |
|---|---|---|---|---|---|
| | | Black | | Galv. | |
| NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 2 1/2 | *65* | 2.55 | *1.16* | – | – |
| 3 | *80* | 4.10 | *1.86* | – | – |
| 4 | *100* | 6.40 | *2.90* | – | – |
| 5 | *125* | 10.70 | *4.85* | – | – |
| 6 | *150* | 14.20 | *6.44* | 14.20 | *6.44* |
| 8 | *200* | 27.23 | *12.35* | 27.23 | *12.35* |

According to specifications, hex bushings and cored plugs should be used with 150# malleable iron and 125# cast iron. Solid plugs and face bushings are recommended for use with 250# and 300# fittings.

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

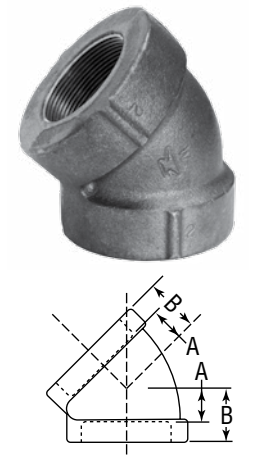
Class 125 (Standard)

| FIGURE 370 Locknut | Size | | Minimum Dimensions | | | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | | B | | C | | D | | Black | |
| | NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
|  | 2 1/2 | 65 | 3.500 | 89 | 3.180 | 81 | .590 | 15 | 0.90 | 2 | 1.13 | 0.51 |
| | 3 | 80 | 4.270 | 108 | 3.840 | 98 | .670 | 17 | 0.90 | 2 | 1.60 | 0.73 |
| For nominal sizes smaller than 2½" (65 DN) see Malleable Iron page 26. | 4 | 100 | 5.380 | 137 | 5.000 | 127 | .800 | 20 | .130 | 3 | 1.10 | 0.50 |

# Cast Iron Threaded Fittings

Class 250 (Extra Heavy)

| FIGURE 421 90° Elbow | Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|
| | NPS | DN | in | mm | in | mm | lbs | kg |
|  | 1/4 | 8 | 5/8 | 16 | 15/16 | 24 | 0.37 | 0.17 |
| | 1/2 | 15 | 13/16 | 22 | 1 1/4 | 32 | 0.75 | 0.34 |
| | 3/4 | 20 | 15/16 | 24 | 1 7/16 | 37 | 1.13 | 0.51 |
| | 1 | 25 | 1 1/16 | 27 | 1 5/8 | 41 | 1.79 | 0.81 |
| | 1 1/4 | 32 | 1 5/16 | 33 | 1 15/16 | 49 | 3.00 | 1.36 |
| | 1 1/2 | 40 | 1 1/2 | 38 | 2 1/8 | 54 | 4.05 | 1.84 |
| | 2 | 50 | 1 13/16 | 47 | 2 1/2 | 64 | 6.76 | 3.07 |
| | 2 1/2 | 65 | 2 | 51 | 2 15/16 | 75 | 10.56 | 4.79 |
| | 3 | 80 | 2 3/8 | 60 | 3 3/8 | 86 | 15.25 | 6.92 |

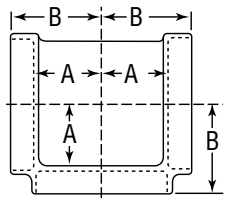
| FIGURE 424 45° Elbow | Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|
| | NPS | DN | in | mm | in | mm | lbs | kg |
|  | 1/2 | 15 | 9/16 | 14 | 1 | 25 | 0.66 | 0.30 |
| | 3/4 | 20 | 5/8 | 16 | 1 1/8 | 29 | 1.04 | 0.47 |
| | 1 | 25 | 3/4 | 19 | 1 5/16 | 33 | 1.56 | 0.71 |
| | 1 1/4 | 32 | 7/8 | 22 | 1 1/2 | 38 | 2.70 | 1.22 |
| | 1 1/2 | 40 | 1 1/16 | 27 | 1 11/16 | 43 | 3.55 | 1.61 |
| | 2 | 50 | 1 5/16 | 33 | 2 | 51 | 6.07 | 2.75 |
| | 2 1/2 | 65 | 1 5/16 | 33 | 2 1/4 | 57 | 9.79 | 4.44 |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

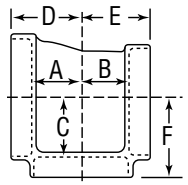
Class 250 (Extra Heavy)

**FIGURE 425**
**Tee**




| Size | | A | | B | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 1/4 | *8* | 5/8 | *16* | 15/16 | *24* | 0.47 | *0.21* |
| 3/8 | *10* | 11/16 | *17* | 1 1/16 | *27* | 0.70 | *0.32* |
| 1/2 | *15* | 3/4 | *19* | 1 1/4 | *32* | 1.20 | *0.54* |
| 3/4 | *20* | 7/8 | *22* | 1 7/16 | *37* | 1.57 | *0.71* |
| 1 | *25* | 1 | *25* | 1 5/8 | *41* | 2.43 | *1.10* |
| 1 1/4 | *32* | 1 3/16 | *30* | 1 15/16 | *49* | 3.94 | *1.79* |
| 1 1/2 | *40* | 1 7/16 | *37* | 2 1/8 | *54* | 5.31 | *2.41* |
| 2 | *50* | 1 3/4 | *44* | 2 1/2 | *64* | 9.01 | *4.09* |
| 2 1/2 | *65* | 1 15/16 | *49* | 2 15/16 | *75* | 14.23 | *6.45* |
| 3 | *80* | 2 5/16 | *59* | 3 3/8 | *86* | 20.95 | *9.50* |
| 4 | *100* | 2 15/16 | *75* | 4 1/8 | *105* | 33.98 | *15.41* |

**FIGURE 426**
**Reducing Tee**




| Size | | | | | | A, B | | C | | D, E | | F | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 3/4 | *20* | 3/4 | *20* | 1/2 | *15* | 3/4 | *19* | 7/8 | *22* | 1 5/16 | *33* | 1 3/8 | *35* | 1.37 | *0.62* |
| 1 | *25* | 1 | *25* | 1/2 | *15* | 3/4 | *19* | 1 | *25* | 1 3/8 | *35* | 1 1/2 | *38* | 2.03 | *0.92* |
| | | | | 3/4 | *20* | 7/8 | *22* | 1 | *25* | 1 1/2 | *38* | 1 9/16 | *40* | 2.19 | *0.99* |
| 1 1/4 | *32* | 1 1/4 | *32* | 3/4 | *20* | 15/16 | *24* | 1 1/8 | *29* | 1 5/8 | *41* | 1 11/16 | *43* | 3.21 | *1.46* |
| | | | | 1 | *25* | 1 1/16 | *27* | 1 3/16 | *30* | 1 3/4 | *44* | 1 13/16 | *47* | 3.49 | *1.58* |
| 1 1/2 | *40* | 1 1/2 | *40* | 3/4 | *20* | 1 | *25* | 1 1/4 | *32* | 1 11/16 | *43* | 1 7/8 | *48* | 4.02 | *1.82* |
| | | | | 1 | *25* | 1 1/8 | *29* | 1 5/16 | *33* | 1 13/16 | *47* | 1 15/16 | *49* | 4.26 | *1.93* |
| | | | | 1 1/4 | *32* | 1 5/16 | *33* | 1 3/8 | *35* | 2 | *51* | 2 1/16 | *52* | 4.98 | *2.26* |
| 2 | *50* | 2 | *50* | 3/4 | *20* | 1 1/8 | *29* | 1 7/16 | *37* | 1 7/8 | *48* | 2 | *51* | 6.24 | *2.83* |
| | | | | 1 | *25* | 1 1/4 | *32* | 1 1/2 | *38* | 2 | *51* | 2 1/8 | *54* | 6.57 | *2.98* |
| | | | | 1 1/4 | *32* | 1 3/8 | *35* | 1 9/16 | *40* | 2 3/16 | *56* | 2 1/4 | *57* | 7.11 | *3.22* |
| | | | | 1 1/2 | *40* | 1 1/2 | *38* | 1 5/8 | *41* | 2 5/16 | *59* | 2 5/16 | *59* | 7.69 | *3.49* |

**Note:** See page 35 for pressure-temperature ratings.

# Cast Iron Drainage Fittings

Anvil drainage fittings have sufficient sweep to allow free unobstructed flow. They are made with a shoulder of the same diameter as the inside of the pipe, in accordance with ASME B16.12, Type 1. Thus, continuous passage is created when the pipe is screwed to the shoulder, leaving no place for solid matter to collect and clog in the pipe.

Coated drainage fittings are available upon special order request with hot dip galvanized finish (see listed sizes).

Drainage fittings with 90° bends are normally provided tapped with pitch of 1/4 inch to the foot in accordance with ASME B16.12.

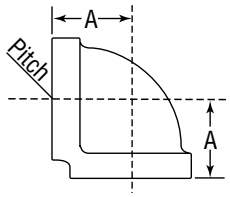
NOTE: UNPITCHED 90° fittings are POA only.

| Standards and Specifications | | | | |
|---|---|---|---|---|
| **Dimensions** | **Material** | **Galvanizing*** | **Thread** | **Pressure Rating** |
| **CAST IRON DRAINAGE THREADED FITTINGS** | | | | |
| ASME B16.12, Type 1 | ASTM A-126 (A) | ASTM A-153 | ASME B1.20.1 | ASME B16.12 |

* ASTM B 633. Type I, SC 4, may be supplied as alternate zinc coating per applicable ASME B16 product standard.

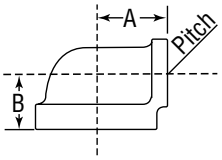
# Cast Iron Drainage Fittings

## FIGURE 701*
90° Short Turn Elbow



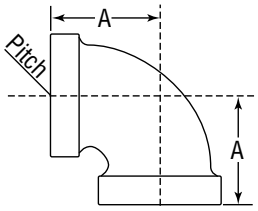

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 1 15/16 | *49* | 1.91 | *0.87* | 1.91 | *0.87* |
| 2 | *50* | 2 1/4 | *57* | 3.04 | *1.38* | 3.04 | *1.38* |
| 3 | *80* | 3 1/16 | *78* | 7.09 | *3.22* | 7.09 | *3.22* |
| 4 | *100* | 3 13/16 | *98* | 13.69 | *6.21* | 13.69 | *6.21* |

## FIGURE 701R*
90° Reducing Short Turn Elbow



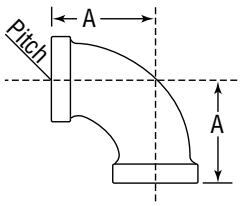

| Size | | | | A | | B | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Black | |
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 1 1/4 | *32* | 1 7/8 | *48* | 1 11/16 | *43* | 1.69 | *0.77* |
| 2 | *50* | 1 1/2 | *40* | 2 1/8 | *54* | 2 | *51* | 2.49 | *1.13* |

## FIGURE 702*
90° Long Turn Elbow



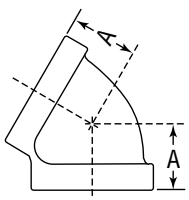

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 2 1/2 | *64* | 2.24 | *1.02* | 2.24 | *1.02* |
| 2 | *50* | 3 1/16 | *78* | 3.61 | *1.64* | 3.61 | *1.64* |
| 3 | *80* | 4 1/4 | *108* | 9.04 | *4.10* | – | – |
| 4 | *100* | 5 3/16 | *132* | 16.40 | *7.44* | – | – |

## FIGURE 702A*
90° Extra Long Turn Elbow




| Size | | A | | Unit Weight | |
|---|---|---|---|---|---|
| | | | | Black | |
| NPS | *DN* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 3 1/2 | *90* | 2.62 | *1.19* |
| 2 | *50* | 4 | *100* | 4.54 | *2.06* |

## FIGURE 703
60° Short Turn Elbow



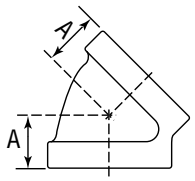

| Size | | A | | Unit Weight | |
|---|---|---|---|---|---|
| | | | | Black | |
| NPS | *DN* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 1 3/4 | *44* | 2.34 | *1.06* |

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Drainage Fittings

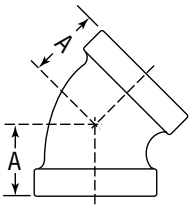


## FIGURE 705
### 45° Short Turn Elbow



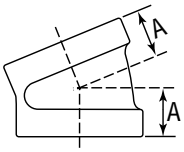

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 1 7/16 | *37* | 1.71 | *0.78* | 1.71 | *0.78* |
| 2 | *50* | 1 11/16 | *43* | 2.79 | *1.27* | 2.79 | *1.27* |
| 3 | *80* | 2 3/16 | *56* | 6.31 | *2.86* | 6.31 | *2.86* |
| 4 | *100* | 2 5/8 | *67* | 11.44 | *5.19* | 11.44 | *5.19* |

## FIGURE 706
### 45° Long Turn Elbow



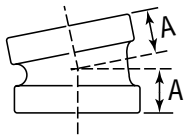

| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 1 7/8 | *48* | 2.1 | *0.97* | 2.14 | *0.97* |

## FIGURE 707
### 22 1/2° Elbow




| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 1 1/4 | *32* | 1.65 | *0.75* | 1.65 | *0.75* |
| 2 | *50* | 1 7/16 | *37* | 3.08 | *1.40* | 3.08 | *1.40* |

## FIGURE 708
### 11 1/4° Elbow

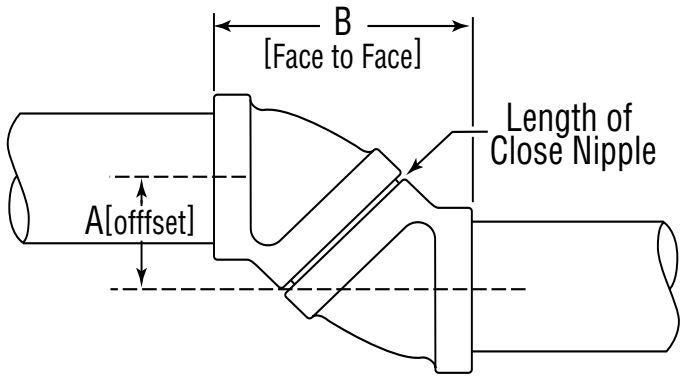



| Size | | A | | Unit Weight | |
|---|---|---|---|---|---|
| | | | | Black | |
| NPS | *DN* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 1 1/4 | *32* | 1.81 | *0.82* |
| 2 | *50* | 1 3/8 | *35* | 2.69 | *1.22* |

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Drainage Fittings

**SHORTEST OFFSET AND FACE TO FACE WITH USE OF CLOSE NIPPLE**




| Size | | Length Close Nipple | | 60° Short Figure 703 | | | | 45° Short Figure 705 | | | | 45° Long Figure 706 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | | B | | A | | B | | A | | B | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* |
| 1 1/2 | *40* | 1 3/4 | *44* | 3 1/2 | *89* | 5 1/2 | *140* | 2 3/8 | *60* | 5 1/4 | *133* | 3 | *76* | 6 3/4 | *171* |
| 2 | *50* | 2 | *51* | 4 1/8 | *105* | 6 1/2 | *165* | 2 13/16 | *73* | 6 3/16 | *157* | 3 5/8 | *92* | 8 1/8 | *206* |
| 3 | *80* | 2 5/8 | *67* | 5 9/16 | *141* | 9 | *229* | 3 9/16 | *90* | 7 15/16 | *202* | 4 5/8 | *117* | 10 1/2 | *267* |
| 4 | *100* | 2 7/8 | *73* | 6 1/2 | *165* | 10 1/2 | *267* | 4 1/4 | *108* | 9 1/2 | *241* | 5 1/2 | *140* | 12 1/2 | *318* |

| Size | | Length Close Nipple | | 22 1/2° Figure 707 | | | | 11 1/4° Figure 708 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | | B | | A | | B | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* |
| 1 1/2 | *40* | 1 3/4 | *44* | 1 1/8 | *29* | 5 1/4 | *133* | 5/8 | *16* | 5 7/16 | *138* |
| 2 | *50* | 2 | *51* | 1 3/8 | *35* | 6 1/8 | *156* | 1 1/16 | *17* | 6 1/16 | *154* |
| 3 | *80* | 2 5/8 | *67* | 1 13/16 | *47* | 8 5/16 | *211* | 7/8 | *22* | 7 7/8 | *200* |
| 4 | *100* | 2 7/8 | *73* | 2 1/16 | *52* | 9 9/16 | *243* | 15/16 | *24* | 8 5/8 | *219* |

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Drainage Fittings



## FIGURE 718*
### 90° Street Elbow


| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 3 | 76 | 1 7/8 | 48 | 2.05 | 0.93 | 2.05 | 0.93 |
| 2 | 50 | 3 1/4 | 83 | 2 3/16 | 56 | 3.10 | 1.41 | 3.10 | 1.41 |

## FIGURE 719
### 45° Street Elbow


| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 2 | 51 | 1 1/4 | 32 | 1.64 | 0.74 | 1.64 | 0.74 |
| 2 | 50 | 2 1/4 | 57 | 1 11/16 | 43 | 2.67 | 1.21 | 2.67 | 1.21 |

## FIGURE 722*
### Tee


| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 3 7/8 | 98 | 1 15/16 | 49 | 2.59 | 1.17 | 2.59 | 1.17 |
| 2 | 50 | 4 1/2 | 114 | 2 1/4 | 57 | 4.66 | 2.11 | 4.66 | 2.11 |

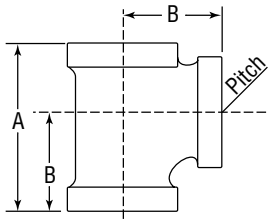
## FIGURE 723*
### Reducing Tee


| Size | | | | | | A | | B | | Unit Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Black |
| NPS | DN | NPS | DN | NPS | DN | in | mm | in | mm | lbs | kg |
| 2 | 50 | 2 | 50 | 1 1/2 | 40 | 4 1/16 | 103 | 2 3/16 | 56 | 3.77 | 1.71 |

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

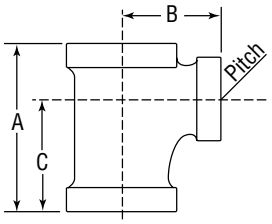
# Cast Iron Drainage Fittings

## FIGURE 726*
90° Short Turn
Y-Branch Tee Pattern



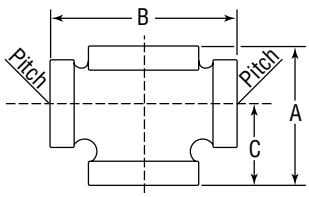

| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 4 1/4 | 108 | 2 1/2 | 64 | 3.09 | 1.40 | 3.09 | 1.40 |
| 2 | 50 | 5 3/16 | 132 | 3 1/16 | 78 | 5.08 | 2.30 | 5.08 | 2.30 |
| 3 | 80 | 7 1/4 | 184 | 4 1/4 | 108 | 11.77 | 5.34 | 11.77 | 5.34 |
| 4 | 100 | 8 3/4 | 222 | 5 3/16 | 132 | 21.25 | 9.64 | 21.25 | 9.64 |

## FIGURE 727*
90°Reducing Short Turn
Y-Branch Tee Pattern



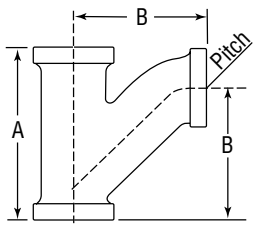

| Size | | A | | B | | C | | Unit Weight |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Black |
| NPS | DN | in | mm | in | mm | in | mm | lbs kg |
| 2 x 2 x 1 1/2 | 50 x 50 x 40 | 4 5/8 | 117 | 2 15/16 | 75 | 2 11/16 | 68 | 4.16 1.89 |
| 2 x 1 1/2 x 1 1/2 | 50 x 40 x 40 | 4 5/8 | 117 | 2 15/16 | 75 | 2 11/16 | 68 | 4.33 1.96 |

## FIGURE 729*
Reducing Double Short Turn Tee




| Size | | A | | B | | C | | Unit Weight |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Black |
| NPS | DN | in | mm | in | mm | in | mm | lbs kg |
| 2 x 1 1/2 | 50 x 40 | 4 5/8 | 117 | 5 7/8 | 149 | 2 11/16 | 68 | 5.82 2.64 |

## FIGURE 730*
90° Long Turn
Y-Branch Tee Pattern



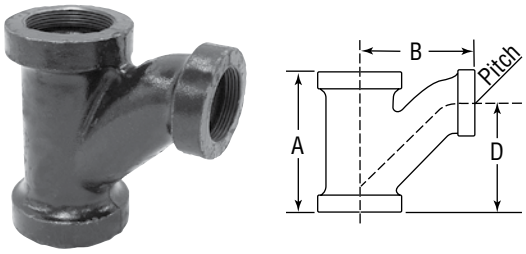

| Size | | A | | B | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 5 3/8 | 137 | 4 1/8 | 105 | 4.43 | 2.01 | – | – |
| 2 | 50 | 7 | 178 | 5 1/4 | 133 | 6.69 | 3.03 | 6.69 | 3.03 |

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Drainage Fittings

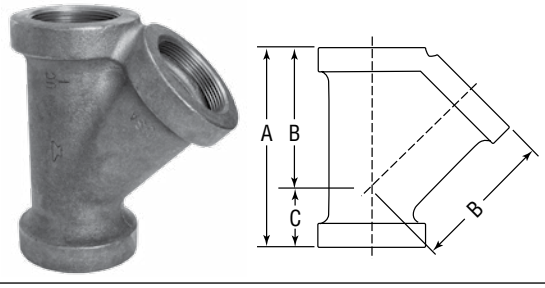


## FIGURE 731*
**90° Reducing Long Turn Y-Branch Tee Pattern**



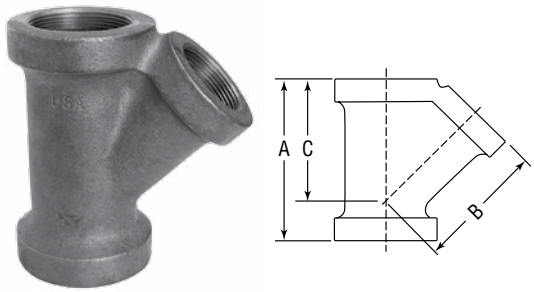

| Size | | A | | B | | D | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 x 2 x 1 1/2 | *50 x 50 x 40* | 5 3/4 | *146* | 4 3/8 | *111* | 4 7/16 | *113* | 5.23 | *2.37* |

## FIGURE 734
**45° Y-Branch**



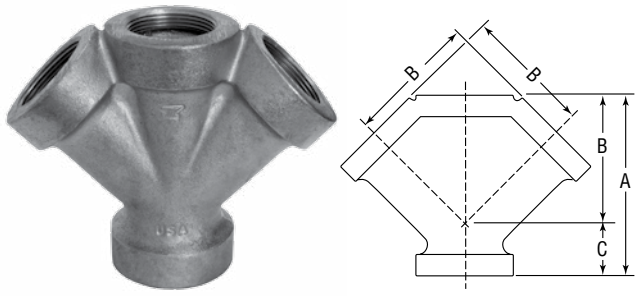

| Size | | A | | B | | C | | Unit Weight Black | | Unit Weight Galv. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 5 1/2 | *140* | 3 5/8 | *92* | 1 7/8 | *48* | 4.03 | *1.83* | 4.03 | *1.83* |
| 2 | *50* | 6 1/2 | *165* | 4 3/8 | *111* | 2 1/8 | *54* | 5.56 | *2.52* | 5.56 | *2.52* |
| 3 | *80* | 9 | *229* | 6 3/16 | *157* | 2 13/16 | *71* | 12.00 | *5.44* | 12.00 | *5.44* |
| 4 | *100* | 10 7/8 | *276* | 7 11/16 | *195* | 3 3/16 | *81* | 24.51 | *11.12* | 24.51 | *11.12* |

## FIGURE 735
**45°Reducing Y-Branch**




| Size | | A | | B | | C | | Unit Weight Black | | Unit Weight Galv. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 2 x 2 x 1 1/2 | *50 x 50 x 40* | 5 7/8 | *149* | 4 1/8 | *105* | 4 1/16 | *103* | 4.83 | *2.19* | 4.83 | *2.19* |
| 4 x 4 x 3 | *100 x 100 x 80* | 9 1/4 | *235* | 7 3/16 | *183* | 6 7/8 | *175* | 20.63 | *9.36* | – | – |

## FIGURE 736
**45° Double Y-Branch**




| Size | | A | | B | | C | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 5 1/2 | *140* | 3 5/8 | *92* | 1 7/8 | *48* | 5.09 | *2.31* |

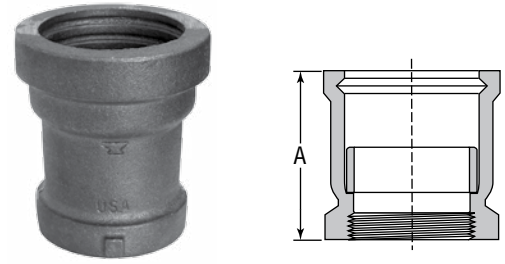
*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Drainage Fittings

## FIGURE 753
### Coupling


| Size | | A | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|
| | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 3 3/8 | *86* | 1.75 | *0.79* | 1.75 | *0.79* |

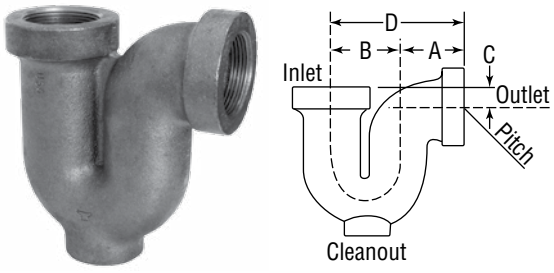
## FIGURE 744
### Tucker Connection




| Size | | A | | Unit Weight | |
|---|---|---|---|---|---|
| | | | | Black | |
| NPS | *DN* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 4 | *102* | 4.04 | *1.83* |
| 2 | *50* | 4 1/2 | *114* | 5.40 | *2.45* |
| 4 | *100* | 7 | *178* | 20.00 | *9.07* |

4" size *(100 DN)* is only furnished with a loose ring upon request.

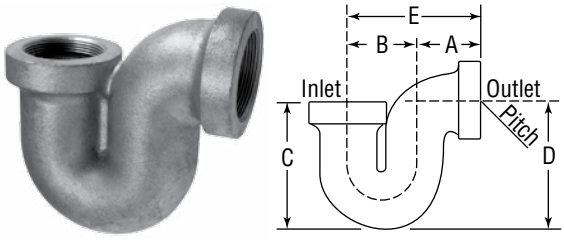
## FIGURE 752*
### P-Trap




| Size | | A | | B | | C | | D | | Clean Out | Water Seal | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | NPT | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 2 1/8 | *54* | 2 1/4 | *57* | 7/8 | *22* | 4 3/8 | *111* | 1 | 2 | *51* | 4.69 | *2.13* | 4.69 | *2.13* |
| 3 | *80* | 3 3/8 | *86* | 3 3/4 | *95* | 1 3/16 | *30* | 7 1/8 | *181* | 1 1/4 | 2 1/2 | *64* | 16.87 | *7.65* | 16.87 | *7.65* |

Cleanout plug not included. Outlets tapped, pitched .25"/Ft. *(21mm/meter).*

## FIGURE 754*
### Bath P-Trap




| Size | | A | | B | | C | | D | | E | | Water Seal | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Black | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 1 1/2 | *40* | 2 1/8 | *54* | 2 3/8 | *60* | 4 3/8 | *111* | 4 5/8 | *117* | 4 1/2 | *114* | 2 | *51* | 3.87 | *1.76* |
| 2 | *50* | 2 1/2 | *64* | 2 13/16 | *73* | 5 5/16 | *135* | 5 5/16 | *135* | 5 5/16 | *135* | 2 | *51* | 6.25 | *2.83* |

Outlets tapped, pitched .25"/Ft. *(21mm/meter).*

*Inlets tapped, pitched .25" *(6mm)* to the foot. Inlets of reducing fittings are always the smallest openings.

# Cast Iron Flanged Fittings and Flanges

Class 125 (Standard) and Class 250 (Extra Heavy)

c UL us FM APPROVED

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil Sales Representative.

## Specifications

All Cast Iron Flanged Fittings and Flanges in sizes listed are made to ASME and are marked 125 or 250 for pipe sizes 12 NPS *(300 DN)* and smaller. Unless otherwise specified, cast iron flanges and fittings are drilled and faced in accordance with ASME B 16.1.

## Coatings

Flanged fittings and flanges are available in both black painted and galvanized. Consult an Anvil Representative for available sizes.

## Sizes

Size of all flanged fittings and flanges scheduled indicates nominal pipe diameter of ports. Standard reducing elbows carry the same dimensions center-to-face as regular elbows of largest straight size.

## Ordering

To order reducing companion flanges, specify threaded or reduced size first, then the outside diameter of flange wanted. For instance, if a reducing flange is required to connect a 5-inch pipe to an 8-inch flanged valve or fitting having a 13 1/2 inch O.D. flange, order: 5 x 13 1/2 inch standard reducing flange.

## Dimensions

Bolt holes for bolts smaller than 1 3/4 inches *(44mm)* in diameter are drilled 1/8 inch larger than the bolt diameter; 1 3/4 inch *(44mm)* and larger bolts have holes drilled 1/4 inch *(6mm)* larger than bolt diameter. Bolt holes straddle the center line. Bolt holes are spot faced on order only.

## Tolerances

An inspection limit of plus or minus 1/32 inch *(1mm)* shall be allowed on all center to contact surface dimensions for sizes up to and including 10 NPS *(250 DN)*; plus or minus 1/16 inch *(1.5mm)* on sizes larger than 10 NPS *(250 DN)*. Inspection limit of plus or minus 1/16 inch *(1.5mm)* shall be allowed on all contact surface to contact surface dimensions for sizes up to and including 10 NPS *(250 DN)*; plus or minus 1/8 inch *(3mm)* on sizes larger than 10 NPS *(250 DN)*. The largest opening in the fitting governs the tolerance to be applied to all openings.

**Cast Iron Flanged Fittings and Cast Iron Flanges**

| Temperature | | Pressure* Class 125 1"–12" | | Pressure* Class 250 1"–12" | |
|---|---|---|---|---|---|
| (°F) | *(°C)* | psi | *bar* | psi | *bar* |
| -20° to 150° | *-28.9° to 65.6°* | 200 | *13.8* | 500 | *34.5* |
| 200° | *93.3°* | 190 | *13.1* | 460 | *31.7* |
| 225° | *107.2°* | 180 | *12.4* | 440 | *30.3* |
| 250° | *121.1°* | 175 | *12.1* | 415 | *28.6* |
| 275° | *135.0°* | 170 | *11.7* | 395 | *27.2* |
| 300° | *148.9°* | 165 | *11.4* | 375 | *25.9* |
| 325° | *162.8°* | 155 | *10.7* | 355 | *24.5* |
| 350° | *178.3°* | 150 | *10.3* | 335 | *23.1* |
| 375° | *190.6°* | 145 | *10.0* | 315 | *21.7* |
| 400° | *207.8°* | 140 | *9.7* | 290 | *20.0* |
| 425° | *218.3°* | 130 | *9.0* | 270 | *18.6* |
| 450° | *232.2°* | 125 | *8.6* | 250 | *17.2* |

* Applies to fittings and flanges manufactured with ASTM A-126 Class B material only.

**Standards and Specifications**

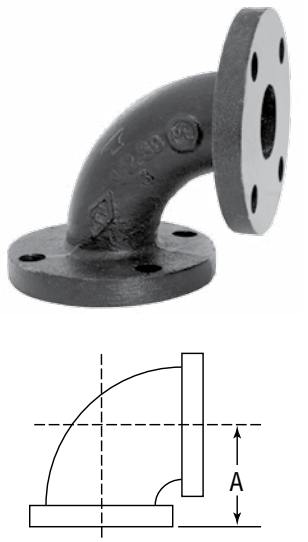
| | Dimensions | Material | Galvanizing** | Thread | Pressure Rating |
|---|---|---|---|---|---|
| **CAST IRON FLANGES AND FLANGED FITTINGS** | | | | | |
| Class 125 (1"-12") | ASME B16.1 | ASTM A- 126 (A) or (B) | ASTM A-153 | ASME B1.20.1 | ASME B16.1 |
| Class 250 (1"-12") | ASME B16.1 | ASTM A- 126 (A) or (B) | ASTM A-153 | ASME B1.20.1 | ASME B16.1 |

** ASTM B 633. Type I, SC 4, may be supplied as alternate zinc coating per applicable ASME B16 product standard.

# Cast Iron Flanged Fittings

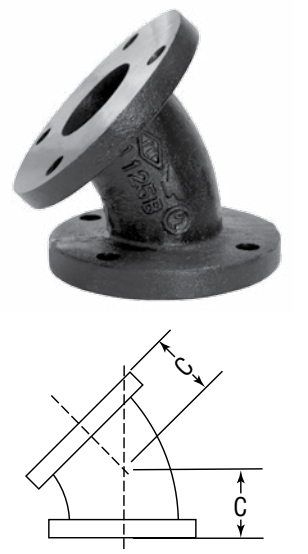
Class 125 (Standard)

**FIGURE 801**
**90° Flanged Elbow**




| Size | | A | | Flange Dia. | | Thickness | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Min. Flange | | Wall | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/2 | *40* | 4 | *102* | 5 | *127* | 9/16 | *14* | 5/16 | *8* | 9.00 | *4.08* | – | – |
| 2 | *50* | 4 1/2 | *114* | 6 | *152* | 5/8 | *16* | 5/16 | *8* | 14.00 | *6.35* | – | – |
| 2 1/2 | *65* | 5 | *127* | 7 | *178* | 11/16 | *17* | 5/16 | *8* | 19.00 | *8.62* | 19.00 | *8.62* |
| 3 | *80* | 5 1/2 | *140* | 7 1/2 | *191* | 3/4 | *19* | 3/8 | *10* | 24.00 | *10.88* | 24.00 | *10.88* |
| 4 | *100* | 6 1/2 | *165* | 9 | *229* | 15/16 | *24* | 1/2 | *13* | 41.00 | *18.59* | 41.00 | *18.59* |
| 5 | *125* | 7 1/2 | *191* | 10 | *254* | 15/16 | *24* | 1/2 | *13* | 52.00 | *23.58* | – | – |
| 6 | *150* | 8 | *203* | 11 | *279* | 1 | *25* | 9/16 | *14* | 68.00 | *30.84* | 68.00 | *30.84* |
| 8 | *200* | 9 | *229* | 13 1/2 | *343* | 1 1/8 | *29* | 5/8 | *16* | 110.00 | *49.89* | 110.00 | *49.89* |
| 10 | *250* | 11 | *279* | 16 | *406* | 1 3/16 | *30* | 3/4 | *19* | 175.00 | *79.37* | 175.00 | *79.37* |
| 12 | *300* | 12 | *305* | 19 | *483* | 1 1/4 | *32* | 13/16 | *23* | 250.00 | *113.38* | – | – |

**FIGURE 802**
**45° Flanged Elbow**



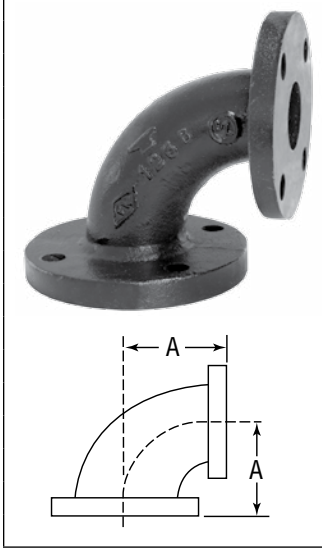

| Size | | A | | Flange Dia. | | Thickness | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Min. Flange | | Wall | | Black | | Galv. | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 2 | *50* | 2 1/2 | *64* | 6 | *152* | 5/8 | *16* | 5/16 | *8* | 12.00 | *5.44* | – | – |
| 2 1/2 | *65* | 3 | *76* | 7 | *178* | 11/16 | *17* | 5/16 | *8* | 17.00 | *7.71* | – | – |
| 3 | *80* | 3 | *76* | 7 1/2 | *191* | 3/4 | *19* | 3/8 | *10* | 20.00 | *9.07* | 20.00 | *9.07* |
| 4 | *100* | 4 | *102* | 9 | *229* | 15/16 | *24* | 1/2 | *13* | 36.00 | *16.33* | 36.00 | *16.33* |
| 5 | *125* | 4 1/2 | *114* | 10 | *254* | 15/16 | *24* | 1/2 | *13* | 45.00 | *20.41* | – | – |
| 6 | *150* | 5 | *127* | 11 | *279* | 1 | *25* | 9/16 | *14* | 60.00 | *27.21* | 60.00 | *27.21* |
| 8 | *200* | 5 1/2 | *140* | 13 1/2 | *343* | 1 1/8 | *29* | 5/8 | *16* | 94.00 | *42.63* | 94.00 | *42.63* |
| 10 | *250* | 6 1/2 | *165* | 16 | *406* | 1 3/16 | *30* | 3/4 | *19* | 145.00 | *65.76* | 145.00 | *65.76* |
| 12 | *300* | 7 1/2 | *191* | 19 | *483* | 1 1/4 | *32* | 13/16 | *23* | 220.00 | *99.77* | 220.00 | *99.77* |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

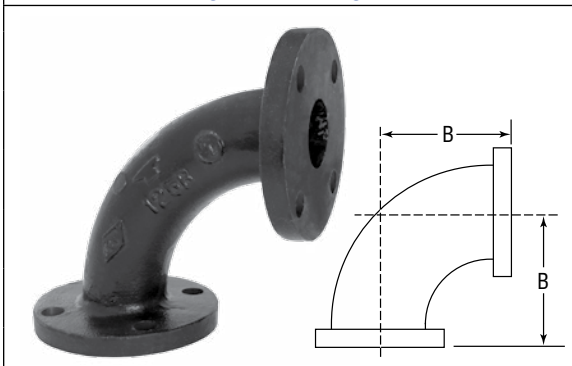
Class 125 (Standard)

**FIGURE 803**
**90° Reducing Flanged Elbow**




| Size | | | | A | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* |
| 2 1/2 | *65* | 2 | *50* | 5 | *127* | 18.00 | *8.16* |
| 3 | *80* | 2 | *50* | 5 1/2 | *140* | 19.00 | *8.62* |
| | | 2 1/2 | *65* | | | 22.00 | *9.98* |
| 4 | *100* | 2 1/2 | *65* | 6 1/2 | *165* | 31.00 | *14.06* |
| | | 3 | *80* | | | 33.00 | *14.97* |
| 5 | *125* | 4 | *100* | 7 1/2 | *191* | 48.00 | *21.77* |
| 6 | *150* | 3 | *80* | 8 | *203* | 47.00 | *21.32* |
| | | 4 | *100* | | | 56.00 | *25.40* |
| | | 5 | *125* | | | 60.00 | *27.21* |
| 8 | *200* | 4 | *100* | 9 | *229* | 77.00 | *34.92* |
| | | 5 | *125* | | | 82.00 | *37.19* |
| | | 6 | *150* | | | 90.00 | *40.82* |
| 10 | *250* | 6 | *150* | 11 | *279* | 125.00 | *56.69* |
| | | 8 | *200* | | | 150.00 | *68.03* |
| 12 | *300* | 8 | *200* | 12 | *305* | 190.00 | *86.17* |
| | | 10 | *250* | | | 220.00 | *99.77* |

**FIGURE 804**
**90° Long Radius Flanged Elbow**



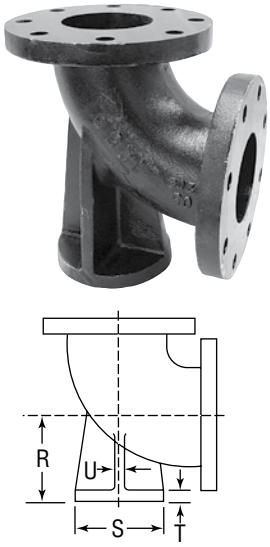

| Size | | B | | Flange Diameter | | Thickness Min. Flange | | Thickness Wall | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 | *50* | 6 1/2 | *165* | 6 | *152* | 5/8 | *16* | 5/16 | *8* | 16.00 | *7.26* |
| 3 | *80* | 7 3/4 | *197* | 7 1/2 | *191* | 3/4 | *19* | 3/8 | *10* | 28.00 | *12.70* |
| 4 | *100* | 9 | *229* | 9 | *229* | 15/16 | *24* | 1/2 | *13* | 48.00 | *21.77* |
| 6 | *150* | 11 1/2 | *292* | 11 | *279* | 1 | *25* | 9/16 | *14* | 85.00 | *38.55* |
| 8 | *200* | 14 | *356* | 13 1/2 | *343* | 1 1/8 | *29* | 5/8 | *16* | 145.00 | *65.76* |
| 10 | *250* | 16 1/2 | *419* | 16 | *406* | 1 3/16 | *30* | 3/4 | *19* | 230.00 | *104.31* |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

Class 125 (Standard)

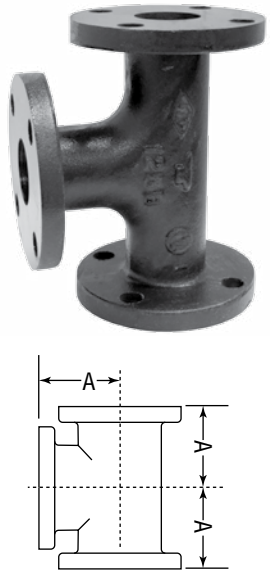
**FIGURE 805**
**90° Flanged Base Elbow**




| Size | | Center to Base R | | Dia. of Round Base S | | Thickness | | | | Size of Supporting Pipe for Base | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Base T | | Ribs U | | | | Black | |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| 4 | 100 | 5 1/2 | 140 | 6 | 152 | 5/8 | 16 | 1/2 | 13 | 2 | 51 | 59.00 | 26.76 |
| 6 | 150 | 7 | 178 | 7 | 178 | 11/16 | 17 | 5/8 | 16 | 2 1/2 | 64 | 110.00 | 49.89 |

Bases, when drilled, should be drilled to the template of the flange of the supporting pipe size. Size of base determined by size of largest opening of fitting. Bases will be furnished not faced and not drilled unless otherwise specified. When ordered faced, dimensions "R" and "T" will be slightly less than shown in table.

**FIGURE 811**
**Flanged Tee**




| Size | | A | | AA | | Flange Diameter | | Thickness | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Flange | | Wall | | Black | | Galv. | |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg | lbs | kg |
| 1 1/2 | 40 | 4 | 102 | 8 | 203 | 5 | 127 | 9/16 | 14 | 5/16 | 8 | 15.00 | 6.80 | – | – |
| 2 | 50 | 4 1/2 | 114 | 9 | 229 | 6 | 152 | 5/8 | 16 | 5/16 | 8 | 21.00 | 9.52 | – | – |
| 2 1/2 | 65 | 5 | 127 | 10 | 254 | 7 | 178 | 11/16 | 17 | 5/16 | 8 | 30.00 | 13.61 | – | – |
| 3 | 80 | 5 1/2 | 140 | 11 | 279 | 7 1/2 | 191 | 3/4 | 19 | 3/8 | 10 | 37.00 | 16.78 | 37.00 | 16.78 |
| 4 | 100 | 6 1/2 | 165 | 13 | 330 | 9 | 229 | 15/16 | 24 | 1/2 | 13 | 64.00 | 29.02 | 64.00 | 29.02 |
| 5 | 125 | 7 1/2 | 191 | 15 | 381 | 10 | 254 | 15/16 | 24 | 1/2 | 13 | 81.00 | 36.73 | – | – |
| 6 | 150 | 8 | 203 | 16 | 406 | 11 | 279 | 1 | 25 | 9/16 | 14 | 105.00 | 47.62 | 105.00 | 47.62 |
| 8 | 200 | 9 | 229 | 18 | 457 | 13 1/2 | 343 | 1 1/8 | 29 | 5/8 | 16 | 165.00 | 74.83 | 165.00 | 74.83 |
| 10 | 250 | 11 | 279 | 22 | 559 | 16 | 406 | 1 3/16 | 30 | 3/4 | 19 | 270.00 | 122.45 | – | – |
| 12 | 300 | 12 | 305 | 24 | 610 | 19 | 483 | 1 1/4 | 32 | 13/16 | 22 | 380.00 | 172.34 | – | – |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

## Class 125 (Standard)

**FIGURE 812**
**Flanged Reducing Tee**

4 NPS *(100 DN)*
6 NPS *(150 DN)* — 5 NPS *(125 DN)*

Read as:
6 x 5 x 4
*(150 x 125 x 100DN)*

Dimensions for reducing tees for sizes 16" NPS *(400 DN)* and smaller have same center to face dimensions as straight size fittings corresponding to the largest opening. Dimensions of sizes not listed furnished on request.

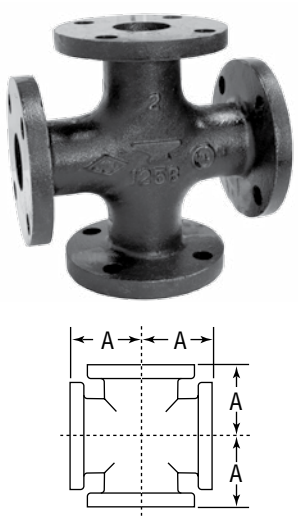
| Size | | | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | NPS | *DN* | lbs | *kg* | lbs | *kg* |
| 3 | *80* | 3 | *80* | 2 | *50* | 34.00 | *15.42* | – | – |
| | | | | 2½ | *65* | 35.00 | *15.87* | – | – |
| 4 | *100* | 4 | *100* | 2 | *50* | 51.00 | *23.13* | – | – |
| | | | | 2½ | *65* | 56.00 | *25.40* | – | – |
| | | | | 3 | *80* | 57.00 | *25.85* | – | – |
| | | | | 6 | *150* | 88.00 | *39.91* | – | – |
| 6 | *150* | 4 | *100* | 4 | *100* | 88.00 | *39.91* | – | – |
| | | | | 6 | *150* | 94.00 | *42.63* | – | – |
| | | 6 | *150* | 2 | *50* | 86.00 | *39.00* | – | – |
| | | | | 2½ | *65* | 90.00 | *40.82* | – | – |
| | | | | 3 | *80* | 92.00 | *41.72* | – | – |
| | | | | 4 | *100* | 97.00 | *43.99* | – | – |
| | | | | 8 | *200* | 142.00 | *64.40* | – | – |
| 8 | *200* | 4 | *100* | 8 | *200* | 146.00 | *66.21* | – | – |
| | | 6 | *150* | 4 | *100* | 125.00 | *56.69* | – | – |
| | | | | 6 | *150* | 144.00 | *65.31* | – | – |
| | | | | 8 | *200* | 159.00 | *72.11* | – | – |
| | | 8 | *200* | 4 | *100* | 143.00 | *64.85* | 143.00 | *64.85* |
| | | | | 6 | *150* | 156.00 | *70.75* | 156.00 | *70.75* |
| 10 | *250* | 8 | *200* | 8 | *200* | 232.00 | *105.22* | – | – |
| | | | | 10 | *250* | 262.00 | *118.82* | – | – |
| | | 10 | *250* | 6 | *150* | 240.00 | *108.84* | – | – |
| | | | | 8 | *200* | 262.00 | *118.82* | – | – |
| 12 | *300* | 12 | *300* | 6 | *150* | 323.00 | *146.49* | – | – |
| | | | | 8 | *200* | 330.00 | *149.66* | – | – |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

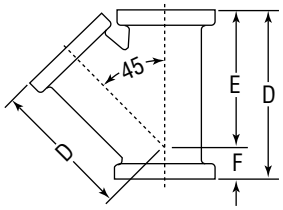
Class 125 (Standard)

**FIGURE 821**
**Flanged Cross**




| Size | | A | | AA | | Flange Diameter | | Thickness | | | | Unit Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Min. Flange | | Wall | | Black |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs / kg |
| 2 | 50 | 4 1/2 | 114 | 9 | 225 | 6 | 152 | 5/8 | 16 | 5/16 | 8 | 28.00 / 12.70 |
| 3 | 80 | 5 1/2 | 140 | 11 | 275 | 7 1/2 | 191 | 3/4 | 19 | 3/8 | 10 | 48.00 / 21.77 |
| 4 | 100 | 6 1/2 | 165 | 13 | 325 | 9 | 229 | 15/16 | 24 | 1/2 | 13 | 82.00 / 37.19 |
| 6 | 150 | 8 | 203 | 16 | 400 | 11 | 279 | 1 | 25 | 9/16 | 14 | 135.00 / 61.22 |
| 8 | 200 | 9 | 229 | 18 | 450 | 13 1/2 | 343 | 1 1/8 | 29 | 5/8 | 16 | 210.00 / 95.24 |

**FIGURE 823**
**Flanged Lateral**



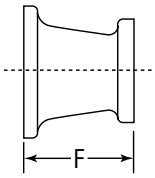

| Size | | Face to Face D | | Center to Face E | | Center to Face F | | Flange Diameter | | Thickness | | | | Unit Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Min. Flange | | Wall | | Black |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | in | mm | lbs / kg |
| 3 | 80 | 13 | 330 | 10 | 254 | 3 | 76 | 7 1/2 | 191 | 3/4 | 19 | 3/8 | 10 | 44.00 / 19.95 |
| 4 | 100 | 15 | 381 | 12 | 305 | 3 | 76 | 9 | 229 | 15/16 | 24 | 1/2 | 13 | 75.00 / 34.01 |
| 6 | 150 | 18 | 457 | 14 1/2 | 368 | 3 1/2 | 89 | 11 | 279 | 1 | 25 | 9/16 | 14 | 125.00 / 56.69 |
| 8 | 200 | 22 | 559 | 17 1/2 | 445 | 4 1/2 | 114 | 13 1/2 | 343 | 1 1/8 | 29 | 5/8 | 16 | 210.00 / 95.24 |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

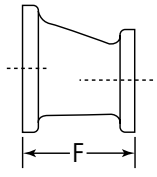
## Class 125 (Standard)

**FIGURE 825**
**Flanged Concentric Reducer**




| Size | | | | F | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Black | | Galv. | |
| NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 2 | *50* | 1 1/2 | *40* | 5 | *127* | 12.00 | *5.44* | – | – |
| 2 1/2 | *65* | 1 1/2 | *40* | 5 1/2 | *127* | 12.00 | *5.44* | – | – |
| | | 2 | *50* | | | 14.00 | *6.35* | – | – |
| 3 | *80* | 1 1/2 | *40* | 6 | *152* | 14.00 | *6.35* | – | – |
| | | 2 | *50* | | | 16.00 | *7.26* | – | – |
| | | 2 1/2 | *65* | | | 19.00 | *8.62* | 19.00 | *8.62* |
| 4 | *100* | 2 | *50* | 7 | *178* | 24.00 | *10.88* | 24.00 | *10.88* |
| | | 2 1/2 | *65* | | | 26.00 | *11.79* | – | – |
| | | 3 | *80* | | | 28.00 | *12.70* | 28.00 | *12.70* |
| 5 | *125* | 3 | *80* | 8 | *203* | 32.00 | *14.51* | – | – |
| | | 4 | *100* | | | 39.00 | *17.69* | – | – |
| 6 | *150* | 2 | *50* | 9 | *229* | 34.00 | *15.42* | – | – |
| | | 2 1/2 | *65* | | | 37.00 | *16.78* | – | – |
| | | 3 | *80* | | | 39.00 | *17.69* | – | – |
| | | 4 | *100* | | | 47.00 | *21.32* | 47.00 | *21.32* |
| | | 5 | *125* | | | 50.00 | *22.68* | – | – |
| 8 | *200* | 4 | *100* | 11 | *279* | 66.00 | *29.93* | – | – |
| | | 5 | *125* | | | 71.00 | *32.20* | – | – |
| | | 6 | *150* | | | 77.00 | *34.92* | 77.00 | *34.92* |
| 10 | *250* | 6 | *150* | 12 | *305* | 100.00 | *45.35* | – | – |
| | | 8 | *200* | | | 120.00 | *54.42* | – | – |
| 12 | *300* | 6 | *150* | 14 | *356* | 140.00 | *63.49* | – | – |
| | | 8 | *200* | | | 155.00 | *70.29* | – | – |
| | | 10 | *250* | | | 180.00 | *81.63* | – | – |

**FIGURE 826**
**Flanged Eccentric Reducer**




| Size | | | | F | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | | | | | Black | |
| NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* |
| 3 | *80* | 2 | *50* | 6 | *152* | 16.00 | *7.26* |
| | | 2 1/2 | *65* | | | 22.00 | *9.98* |
| 4 | *100* | 2 | *50* | 7 | *178* | 28.00 | *12.70* |
| | | 2 1/2 | *65* | | | 28.00 | *12.70* |
| | | 3 | *80* | | | 28.00 | *12.70* |
| 5 | *125* | 4 | *100* | 8 | *203* | 39.00 | *17.69* |
| 6 | *150* | 3 | *80* | 9 | *229* | 47.00 | *21.32* |
| | | 4 | *100* | | | 50.00 | *22.68* |
| | | 5 | *125* | | | 51.00 | *23.13* |
| 8 | *200* | 4 | *100* | 11 | *279* | 71.00 | *32.20* |
| | | 5 | *125* | | | 76.00 | *34.47* |
| | | 6 | *150* | | | 77.00 | *34.92* |
| 10 | *250* | 6 | *150* | 12 | *305* | 107.00 | *48.53* |
| | | 8 | *200* | | | 120.00 | *54.42* |

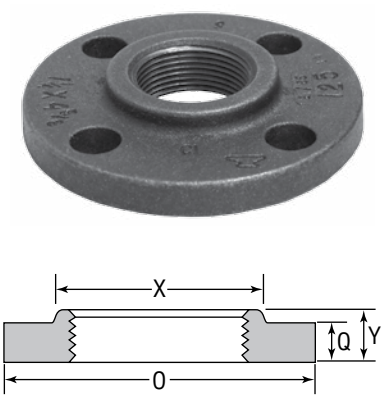
**Note:** See page 61 for pressure-temperature ratings.

# Iron Flanges

## Class 125 (Standard)

Class 125 (Standard) Iron Flanges are manufactured in conformance with ASME B16.1.

**FIGURE 1011**
**Companion Flange**



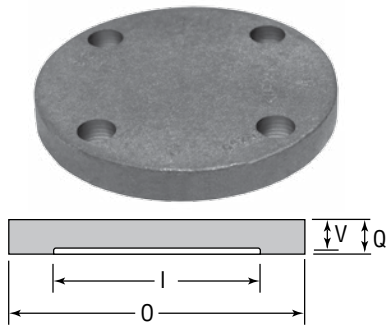

When ordering companion flanges, always give outside diameter as well as nominal pipe size.

| Pipe Size | | Diameter of Flange O | | Min. Flange Thickness Q | | Min. Diameter of Hub X | | Min. Length Through Hub Y | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Black Paint | | Galvanized | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 3/4* | *20* | 3 7/8 | *98* | 7/16 | *11* | 1 3/4 | *44* | 5/8 | *16* | 1.50 | *0.68* | 1.50 | *0.68* |
| 1 | *25* | 4 1/4 | *108* | 7/16 | *11* | 1 15/16 | *49* | 11/16 | *17* | 1.75 | *0.79* | 1.75 | *0.79* |
| 1 1/4 | *32* | 4 5/8 | *117* | 1/2 | *13* | 2 5/16 | *59* | 13/16 | *22* | 2.00 | *0.91* | 2.00 | *0.91* |
| 1 1/2 | *40* | 5 | *127* | 9/16 | *14* | 2 9/16 | *65* | 7/8 | *22* | 2.25 | *1.02* | 2.25 | *1.02* |
| 2 | *50* | 6 | *152* | 5/8 | *16* | 3 1/16 | *78* | 1 | *25* | 4.00 | *1.81* | 4.00 | *1.81* |
| 2 1/2 | *65* | 7 | *178* | 11/16 | *17* | 3 9/16 | *90* | 1 1/8 | *29* | 6.00 | *2.72* | 6.00 | *2.72* |
| 3 | *80* | 7 1/2 | *191* | 3/4 | *19* | 4 1/4 | *108* | 1 3/16 | *30* | 7.63 | *3.46* | 7.63 | *3.46* |
| 3 1/2 | *90* | 8 1/2 | *216* | 13/16 | *21* | 4 13/16 | *122* | 1 1/4 | *32* | 9.00 | *4.08* | – | – |
| 4 | *100* | 9 | *229* | 15/16 | *24* | 5 5/16 | *135* | 1 5/16 | *33* | 11.75 | *5.33* | 11.75 | *5.33* |
| 5 | *125* | 10 | *254* | 15/16 | *24* | 6 7/16 | *164* | 1 7/16 | *37* | 14.00 | *6.35* | 14.00 | *6.35* |
| 6 | *150* | 11 | *279* | 1 | *25* | 7 9/16 | *192* | 1 9/16 | *40* | 16.50 | *7.48* | 16.50 | *7.48* |
| 8 | *200* | 13 1/2 | *343* | 1 1/8 | *29* | 9 11/16 | *246* | 1 3/4 | *44* | 26.00 | *11.79* | 26.00 | *11.79* |
| 10 | *250* | 16 | *406* | 1 3/16 | *30* | 11 15/16 | *303* | 1 15/16 | *49* | 37.75 | *17.12* | 37.75 | *17.12* |
| 12 | *300* | 19 | *483* | 1 1/4 | *32* | 14 1/16 | *357* | 2 3/16 | *56* | 50.50 | *22.91* | 50.50 | *22.91* |

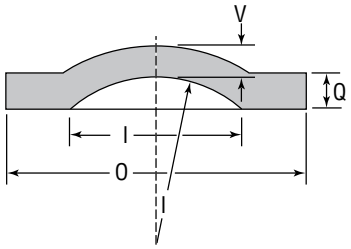
* Anvil size; not covered by ASME B16.1.

**FIGURE 1018**
**Blind Flange**

10 x 16 (NPS) and smaller




12 x 19 (NPS) and larger




| Pipe Size I | | Diameter of Flange O | | Min. Flange Thickness Q | | Wall Thickness V | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Black Paint | | Galvanized | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 | *25* | 4 1/4 | *108* | 7/16 | *11* | 3/8 | *10* | 2.00 | *0.91* | 2.00 | *0.91* |
| 1 1/4 | *32* | 4 5/8 | *117* | 1/2 | *13* | 7/16 | *11* | 2.25 | *1.02* | 2.25 | *1.02* |
| 1 1/2 | *40* | 5 | *127* | 9/16 | *14* | 1/2 | *13* | 3.75 | *1.70* | – | – |
| 2 | *50* | 6 | *152* | 5/8 | *16* | 9/16 | *14* | 4.00 | *1.81* | 4.00 | *1.81* |
| 2 1/2 | *65* | 7 | *178* | 11/16 | *17* | 5/8 | *16* | 6.75 | *3.06* | – | – |
| 3 | *80* | 7 1/2 | *191* | 3/4 | *19* | 11/16 | *17* | 8.00 | *3.63* | 8.00 | *3.63* |
| 3 1/2 | *90* | 8 1/2 | *216* | 13/16 | *21* | 3/4 | *19* | 11.00 | *4.99* | – | – |
| 4 | *100* | 9 | *229* | 15/16 | *24* | 7/8 | *22* | 14.00 | *6.35* | 14.00 | *6.35* |
| 5 | *125* | 10 | *254* | 15/16 | *24* | 7/8 | *22* | 18.00 | *8.16* | 18.00 | *8.16* |
| 6 | *150* | 11 | *279* | 1 | *25* | 15/16 | *24* | 23.00 | *10.43* | 23.00 | *10.43* |
| 8 | *200* | 13 1/2 | *343* | 1 1/8 | *29* | 1 1/16 | *27* | 40.00 | *18.14* | 40.00 | *18.14* |
| 10 | *250* | 16 | *406* | 1 3/16 | *30* | 1 1/8 | *29* | 59.00 | *26.76* | – | – |
| 12 | *300* | 19 | *483* | 1 1/4 | *32* | 13/16 | *21* | 88.00 | *39.92* | – | – |

All Class 125 cast iron standard flanges have a flat face. Blind Flange 12 x 19 NPS supplied dished with inside radius to the pipe diameter. When ordering blind flanges, always give the outside diameters.

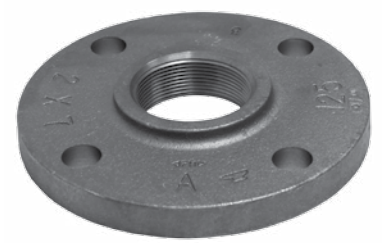
**Note:** See page 61 for pressure-temperature ratings.

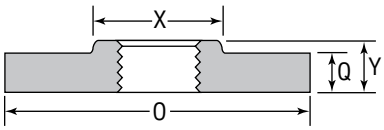
# Iron Flanges

## Class 125 (Standard)

Class 125 (Standard) Iron Flanges are manufactured in conformance with ASME B16.1.

**FIGURE 1016**
**Reducing Flange**






To order reducing companion flanges, specify threaded or reduced size first, then the outside diameter of deisred flange. For instance, if a reducing flange is required to connect a 5 NPS *(125 DN)* pipe to an 8 NPS *(200 DN)* valve or fitting having a 13½ inch *(338 DN)* OD flange, order 5 NPS x 13½ inch *(125 x 338 DN)* reducing flange.

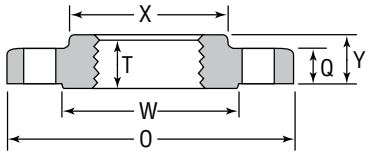
| Pipe Size | | Diameter of Flange O | | Min. Flange Thickness Q | | Min. Diam. of Hub X | | Min. Length Thru Hub Y | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Black Paint | | Galvanized | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 | *25* | 5 | *127* | 9/16 | *14* | 1 15/16 | *49* | 11/16 | *17* | 2.75 | *1.25* | – | – |
| 1 1/4 | *32* | | | | | 2 5/16 | *59* | 13/16 | *22* | 2.50 | *1.13* | – | – |
| 1 | *25* | 6 | *152* | 5/8 | *16* | 1 15/16 | *49* | 11/16 | *17* | 5.00 | *2.27* | – | – |
| 1 1/4 | *32* | | | | | 2 5/16 | *59* | 13/16 | *22* | 4.75 | *2.15* | – | – |
| 1 1/2 | *40* | | | | | 2 9/16 | *65* | 7/8 | *22* | 4.50 | *2.04* | 4.50 | *2.04* |
| 1 1/2 | *40* | 7 | *178* | 11/16 | *27* | 2 9/16 | *65* | 7/8 | *22* | 7.00 | *3.18* | 7.00 | *3.17* |
| 2 | *50* | | | | | 3 1/16 | *78* | 1 | *25* | 6.75 | *3.06* | 6.75 | *3.06* |
| 1 | *25* | 7 1/2 | *191* | 3/4 | *19* | 1 15/16 | *49* | 13/16 | *22* | 9.00 | *4.08* | – | – |
| 1 1/2 | *40* | | | | | 2 9/16 | *65* | 7/8 | *22* | 8.75 | *3.97* | 8.75 | *3.97* |
| 2 | *50* | | | | | 3 1/16 | *78* | 1 | *25* | 8.50 | *3.86* | 8.50 | *3.85* |
| 2 1/2 | *65* | | | | | 3 9/16 | *90* | 1 1/8 | *29* | 8.00 | *3.63* | 8.00 | *3.63* |
| 3 | *80* | 8 1/2 | *203* | 13/16 | *30* | 4 1/4 | *108* | 1 3/16 | *30* | 10.00 | *4.54* | – | – |
| 1 1/2 | *40* | 9 | *229* | 15/16 | *33* | 2 9/16 | *65* | 1 | *25* | 14.00 | *6.35* | 14.00 | *6.35* |
| 2 | *50* | | | | | 3 1/16 | *78* | 1 | *25* | 14.00 | *6.35* | 14.00 | *6.35* |
| 2 1/2 | *65* | | | | | 3 9/16 | *90* | 1 1/8 | *29* | 13.50 | *6.12* | 13.50 | *6.12* |
| 3 | *80* | | | | | 4 1/4 | *108* | 1 3/16 | *30* | 12.75 | *5.78* | 12.75 | *5.78* |
| 3 1/2 | *90* | | | | | 4 13/16 | *124* | 1 1/4 | *32* | 12.00 | *5.44* | – | – |
| 3 | *80* | 10 | *254* | 15/16 | *33* | 4 1/4 | *108* | 1 3/16 | *30* | 17.00 | *7.71* | 17.00 | *7.71* |
| 4 | *100* | | | | | 5 5/16 | *135* | 1 5/16 | *33* | 16.00 | *7.26* | 16.00 | *7.26* |
| 1 1/2 | *40* | 11 | *279* | 1 | *25* | 2 9/16 | *65* | 1 1/16 | *27* | 27.00 | *12.25* | – | – |
| 2 | *50* | | | | | 3 1/16 | *78* | 1 1/16 | *27* | 26.00 | *11.79* | 26.00 | *11.79* |
| 2 1/2 | *65* | | | | | 3 9/16 | *90* | 1 1/8 | *29* | 25.00 | *11.34* | 25.00 | *11.34* |
| 3 | *80* | | | | | 4 1/4 | *108* | 1 3/16 | *30* | 23.00 | *10.43* | 23.00 | *10.43* |
| 4 | *100* | | | | | 5 5/16 | *135* | 1 5/16 | *33* | 21.00 | *9.53* | 21.00 | *9.52* |
| 5 | *125* | | | | | 6 7/16 | *164* | 1 7/16 | *37* | 19.00 | *8.62* | 19.00 | *8.62* |
| 2 | *50* | 13 1/2 | *343* | 1 1/8 | *29* | 3 1/16 | *78* | 1 3/16 | *30* | 44.00 | *19.96* | – | – |
| 3 | *80* | | | | | 4 1/4 | *108* | 1 3/16 | *30* | 40.00 | *18.14* | 40.00 | *18.14* |
| 4 | *100* | | | | | 5 5/16 | *135* | 1 5/16 | *33* | 37.00 | *16.78* | 37.00 | *16.78* |
| 5 | *125* | | | | | 6 7/16 | *164* | 1 7/16 | *37* | 34.00 | *15.42* | – | – |
| 6 | *150* | | | | | 7 9/16 | *192* | 1 9/16 | *40* | 31.00 | *14.06* | 31.00 | *14.06* |
| 6 | *150* | 16 | *406* | 1 3/16 | *30* | 7 9/16 | *192* | 1 9/16 | *40* | 53.00 | *24.04* | – | – |
| 8 | *200* | | | | | 9 11/16 | *246* | 1 3/4 | *44* | 50.00 | *22.68* | – | – |
| 6 | *150* | 19 | *483* | 1 1/4 | *32* | 7 9/16 | *192* | 1 9/16 | *40* | 88.00 | *39.91* | – | – |
| 8 | *200* | | | | | 9 11/16 | *246* | 1 3/4 | *44* | 81.00 | *36.73* | – | – |

**Note:** See page 61 for pressure-temperature ratings.

# Iron Flanges

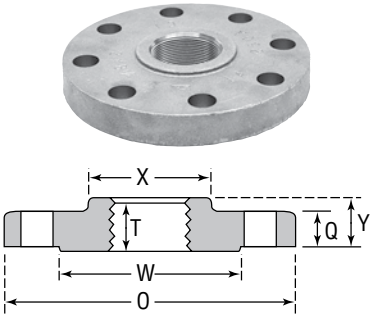
## Class 250 (Extra Heavy)

**FIGURE 1025**
**Companion Flange**



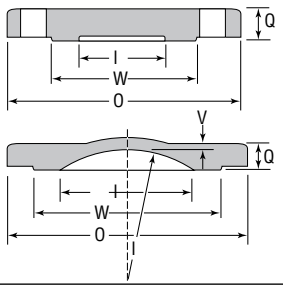

| Pipe Size | | Diameter of Flange O | | Min. Flange Thickness Q | | Min. Hub Diameter X | | Min. Length Thru Hub Y | | Min. Length of Threads T | | Diameter of Raised Face W | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Black Paint | | Galvanized | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| 1 1/4 | *32* | 5 1/4 | *133* | 3/4 | *19* | 2 1/2 | *64* | 1 | *25* | 0.76 | *19* | 3 1/16 | *78* | 3.75 | *1.70* | – | – |
| 1 1/2 | *40* | 6 1/8 | *156* | 13/16 | *21* | 2 3/4 | *70* | 1 1/8 | *29* | 0.87 | *22* | 3 9/16 | *90* | 5.75 | *2.61* | – | – |
| 2 | *50* | 6 1/2 | *165* | 7/8 | *22* | 3 5/16 | *84* | 1 1/4 | *32* | 1.00 | *25* | 4 3/16 | *106* | 6.50 | *2.95* | 6.50 | *2.95* |
| 2 1/2 | *65* | 7 1/2 | *191* | 1 | *25* | 3 15/16 | *100* | 1 7/16 | *37* | 1.14 | *29* | 4 15/16 | *125* | 9.50 | *4.31* | 9.50 | *4.31* |
| 3 | *80* | 8 1/4 | *210* | 1 1/8 | *29* | 4 5/8 | *117* | 1 9/16 | *40* | 1.20 | *30* | 5 11/16 | *144* | 12.33 | *5.59* | 12.33 | *5.59* |
| 4 | *100* | 10 | *254* | 1 1/4 | *32* | 5 3/4 | *146* | 1 3/4 | *44* | 1.30 | *33* | 6 15/16 | *176* | 20.00 | *9.07* | 20.00 | *9.07* |
| 5 | *125* | 11 | *279* | 1 3/8 | *35* | 7 | *178* | 1 7/8 | *48* | 1.41 | *36* | 8 5/16 | *211* | 24.00 | *10.88* | – | – |
| 6 | *150* | 12 1/2 | *318* | 1 7/16 | *37* | 8 1/8 | *206* | 1 15/16 | *49* | 1.51 | *38* | 9 11/16 | *246* | 32.00 | *14.51* | – | – |
| 8 | *200* | 15 | *381* | 1 5/8 | *41* | 10 1/4 | *260* | 2 3/16 | *56* | 1.71 | *43* | 11 15/16 | *303* | 51.00 | *23.13* | – | – |

**FIGURE 1030**
**Reducing Flange**




| Pipe Size | | Diameter of Flange O | | Min. Flange Thickness Q | | Min. Length Thru Hub Y | | Min. Length of Threads T | | Diameter of Raised Face W | | Diameter of Hub X | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | Black Paint | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 | *50* | 8 1/4 | *210* | 1 1/8 | *29* | 1 1/4 | *32* | 1.00 | *25* | 5 11/16 | *144* | 3 5/16 | *84* | 14.25 | *6.46* |
| 2 1/2 | *65* | 8 1/4 | *210* | 1 1/8 | *29* | 1 7/16 | *37* | 1.14 | *29* | 5 11/16 | *144* | 3 15/16 | *100* | 13.50 | *6.12* |
| 3 | *80* | 10 | *254* | 1 1/4 | *32* | 1 9/16 | *40* | 1.20 | *30* | 6 15/16 | *176* | 4 5/8 | *117* | 22.75 | *10.32* |
| 4 | *100* | 11 | *279* | 1 3/8 | *35* | 1 3/4 | *44* | 1.30 | *33* | 8 5/16 | *211* | 5 3/4 | *146* | 30.00 | *13.61* |

**FIGURE 1021**
**Blind Flange**



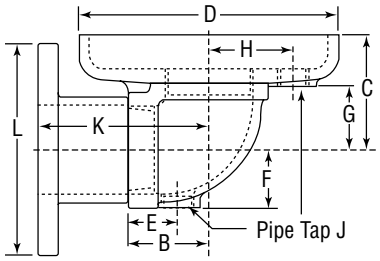

| Pipe Size | | Diameter of Flange O | | Diameter of Port I | | Min. Flange Thickness Q | | Min. Metal Thickness V | | Diameter of Raised Face W | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Black Paint | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | | | lbs | *kg* |
| 1 1/2 | *40* | 6 1/8 | *156* | 1 1/2 | *38* | 13/16 | *21* | – | – | 3 9/16 | *90* | 5.30 | *2.40* |
| 2 1/2 | *65* | 7 1/2 | *191* | 2 1/2 | *64* | 1 | *25* | – | – | 4 15/16 | *125* | 11.00 | *4.99* |
| 3 | *80* | 8 1/4 | *210* | 3 | *76* | 1 1/8 | *29* | – | – | 5 11/16 | *144* | 14.00 | *6.35* |
| 4 | *100* | 10 | *254* | 4 | *102* | 1 1/4 | *32* | – | – | 6 15/16 | *176* | 23.00 | *10.43* |
| 5 | *125* | 11 | *279* | 5 | *127* | 1 3/8 | *35* | – | – | 8 15/16 | *227* | 31.00 | *14.06* |
| 6 | *150* | 12 1/2 | *318* | 6 | *152* | 1 7/16 | *37* | – | – | 9 11/16 | *246* | 42.00 | *19.05* |
| 8 | *200* | 15 | *381* | 8 | *203* | 1 5/8 | *41* | – | – | 11 15/16 | *303* | 70.00 | *31.75* |

**Note:** See page 61 for pressure-temperature ratings.

# Cast Iron Threaded Fittings

## Safety Valve Discharge Elbows

**FIGURE 1538**
**Screwed**
**Cast Iron**



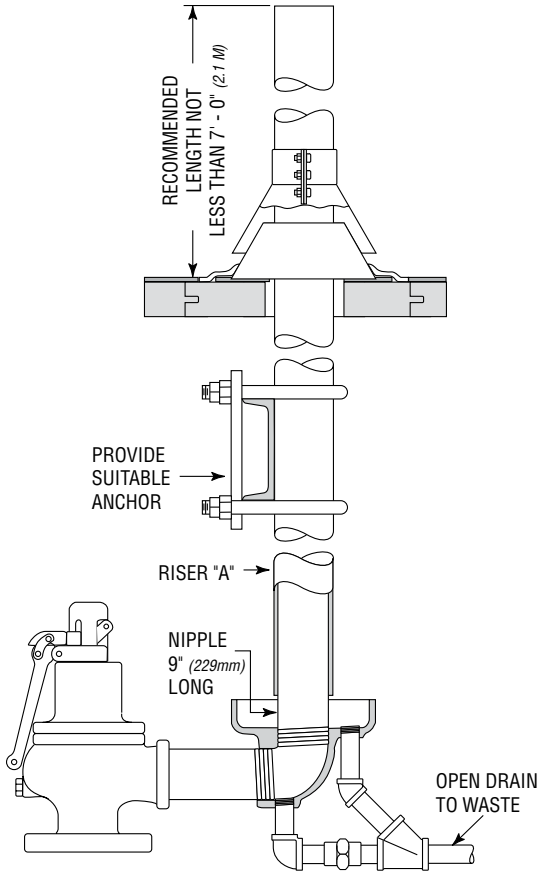

| Elbow Pipe Size | | Riser Pipe Size A | | B | | C | | D | | E | | F | | G | | H | | J | | K | | L | | Unit Weight Black | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2 1/2 | *65* | 3 1/2 | *89* | 2 11/16 | *89* | 4 5/16 | *110* | 8 1/2 | *216* | 1 5/8 | *41* | 1 15/16 | *49* | 2 1/8 | *54* | 2 3/4 | *70* | 3/4 | *19* | – | – | – | – | 12.00 | *5.44* |
| 3 | *80* | 4 | *102* | 3 1/8 | *79* | 4 7/8 | *124* | 9 1/2 | *241* | 1 5/8 | *41* | 2 5/16 | *59* | 2 9/16 | *65* | 3 1/8 | *79* | 3/4 | *19* | – | – | – | – | 15.00 | *6.80* |
| 4 | *100* | 5 | *127* | 3 3/4 | *95* | 5 3/4 | *146* | 11 | *279* | 1 3/4 | *44* | 2 15/16 | *75* | 3 3/16 | *81* | 3 3/4 | *95* | 3/4 | *19* | – | – | – | – | 27.00 | *12.24* |

Following are the advantages of Anvil safety valve discharge elbow for piping connections to safety valves when attached to boilers, etc.:

- Drip pan for removing condensate and rain water casts integral with elbow.
- Strains on safety valve minimized.
- Pipe tap J is standard.

With multiple pop safety valve, leakage of vapor at any discharge elbow indicates valve in operation.

Street elbows and flanged elbows furnished on order.




**Note:** See page 35 for pressure-temperature ratings.

# Bolt Template

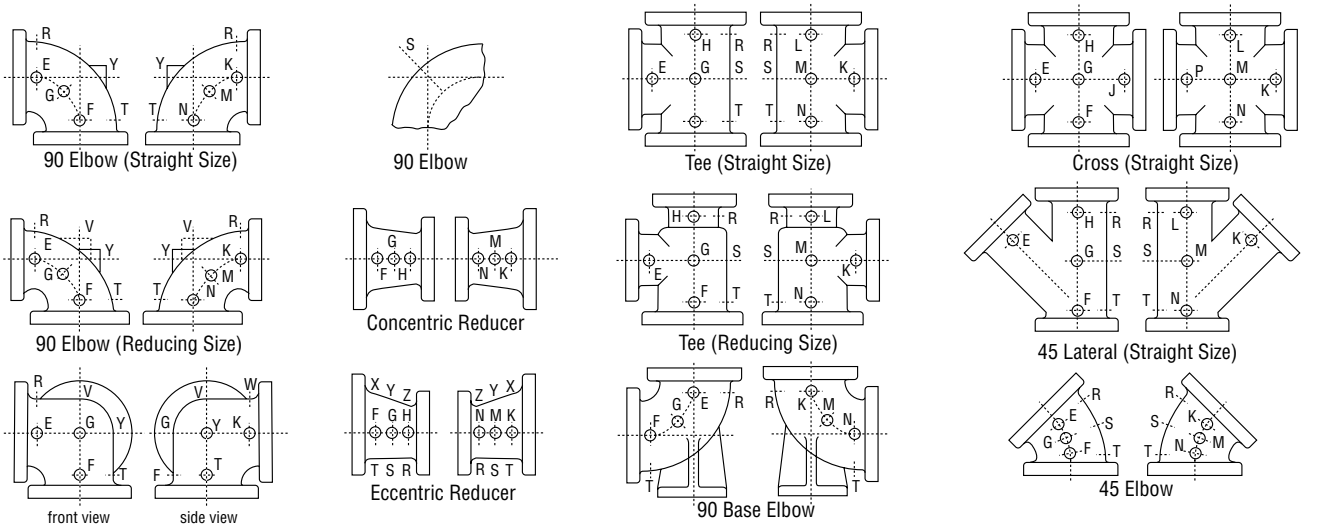
## For Drilling Flanged Fittings

**Bolt Template for Drilling Flanged Fittings**

| Pipe Size | | Flange Dia. | | Min. Flange Thickness | | Bolt Circle Dia. | | No of bolts | Bolt Hole Dia. | | Dia. of Bolt | | Length of Bolt | | Ring Gasket I.D. | | Ring Gasket O.D. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* |
| ¾ | *20* | 3⅞ | *98* | 7/16 | *11* | 2¾ | *70* | 4 | ⅝ | *16* | ½ | *13* | 1¾ | *44* | 1 1/16 | *27* | 2¼ | *57* |
| 1 | *25* | 4¼ | *108* | 7/16 | *11* | 3⅛ | *79* | 4 | ⅝ | *16* | ½ | *13* | 1¾ | *44* | 1 5/16 | *33* | 2⅝ | *67* |
| 1¼ | *32* | 4⅝ | *117* | ½ | *13* | 3½ | *89* | 4 | ⅝ | *16* | ½ | *13* | 2 | *51* | 1 21/32 | *42* | 3 | *76* |
| 1½ | *40* | 5 | *127* | 9/16 | *14* | 3⅞ | *98* | 4 | ⅝ | *16* | ½ | *13* | 2 | *51* | 1 29/32 | *48* | 3⅜ | *86* |
| 2 | *50* | 6 | *152* | ⅝ | *16* | 4¾ | *121* | 4 | ¾ | *19* | ⅝ | *16* | 2¼ | *57* | 2⅜ | *60* | 4⅛ | *105* |
| 2½ | *65* | 7 | *178* | 11/16 | *17* | 5½ | *140* | 4 | ¾ | *19* | ⅝ | *16* | 2½ | *64* | 2⅞ | *73* | 4⅞ | *124* |
| 3 | *80* | 7½ | *191* | ¾ | *19* | 6 | *152* | 4 | ¾ | *19* | ⅝ | *16* | 2½ | *64* | 3½ | *89* | 5⅜ | *137* |
| 3½ | *90* | 8½ | *216* | 13/16 | *22* | 7 | *178* | 8 | ¾ | *19* | ⅝ | *16* | 2¾ | *70* | 4 | *102* | 6⅜ | *162* |
| 4 | *100* | 9 | *229* | 15/16 | *24* | 7½ | *191* | 8 | ¾ | *19* | ⅝ | *16* | 3 | *76* | 4½ | *114* | 6⅞ | *175* |
| 5 | *125* | 10 | *254* | 15/16 | *24* | 8½ | *216* | 8 | ⅞ | *22* | ¾ | *19* | 3 | *76* | 5 9/16 | *141* | 7¾ | *197* |
| 6 | *150* | 11 | *279* | 1 | *25* | 9½ | *241* | 8 | ⅞ | *22* | ¾ | *19* | 3¼ | *83* | 6⅝ | *168* | 8¾ | *222* |
| 8 | *200* | 13½ | *343* | 1⅛ | *29* | 11¾ | *298* | 8 | ⅞ | *22* | ¾ | *19* | 3½ | *89* | 8⅝ | *219* | 11 | *279* |
| 10 | *250* | 16 | *406* | 1 3/16 | *30* | 14¼ | *362* | 12 | 1 | *25* | ⅞ | *22* | 3¾ | *95* | 10¾ | *273* | 13⅜ | *340* |
| 12 | *300* | 19 | *483* | 1¼ | *32* | 17 | *432* | 12 | 1 | *25* | ⅞ | *22* | 3¾ | *95* | 12¾ | *324* | 16⅛ | *410* |
| 14 O.D. | *350 O.D.* | 21 | *533* | 1⅜ | *35* | 18¾ | *476* | 12 | 1⅛ | *29* | 1 | *25* | 4¼ | *108* | 14 | *356* | 17¾ | *451* |
| 16 O.D. | *400 O.D.* | 23½ | *597* | 1 7/16 | *37* | 21¼ | *540* | 16 | 1⅛ | *29* | 1 | *25* | 4½ | *114* | 16 | *406* | 20¼ | *514* |
| 18 O.D. | *450 O.D.* | 25 | *635* | 1 9/16 | *40* | 22¾ | *578* | 16 | 1¼ | *32* | 1⅛ | *29* | 4¾ | *121* | 18 | *457* | 21⅝ | *549* |
| 20 O.D. | *500 O.D.* | 27½ | *699* | 1 11/16 | *43* | 25 | *635* | 20 | 1¼ | *32* | 1⅛ | *29* | 5 | *127* | 20 | *508* | 23⅞ | *606* |
| 24 O.D. | *600 O.D.* | 32 | *813* | 1⅞ | *48* | 29½ | *749* | 20 | 1⅜ | *35* | 1¼ | *32* | 5½ | *140* | 24 | *610* | 28¼ | *718* |

Drilling templates are in multiples of four, so that fittings may be made to face in any quarter. Bolt holes straddle the center line.

**Method of designating location of tapped holes for drains when specified Class 125 (standard)**




Note: These sketches show two views of the same fitting and represent fittings with symmetrical shapes except for the side outlet elbow (straight sizes)

**Note:** See page 61 for pressure-temperature ratings.

# Steel Pipe Bushings & Plugs

## Merchant Steel Bushings & Plugs

| HEX BUSHINGS | Nominal Pipe Size | | Overall Length | | Width Across Flats | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | ¼ x ⅛ | *8 x 6* | 0.625 | *16* | 0.625 | *16* | 0.02 | *0.01* |
| | ⅜ x ⅛ | *10 x 6* | 0.750 | *19* | 0.687 | *17* | 0.05 | *0.02* |
| | ⅜ x ¼ | *10 x 8* | 0.750 | *19* | 0.687 | *17* | 0.03 | *0.01* |
| | ½ x ⅛ | *15 x 6* | 0.875 | *22* | 0.875 | *22* | 0.11 | *0.05* |
| | ½ x ¼ | *15 x 8* | 0.875 | *22* | 0.875 | *22* | 0.05 | *0.02* |
| | ½ x ⅜ | *15 x 10* | 0.875 | *22* | 0.875 | *22* | 0.06 | *0.03* |
| | ¾ x ⅛ | *20 x 6* | 1.000 | *25* | 1.062 | *27* | 0.21 | *0.10* |
| | ¾ x ¼ | *20 x 8* | 1.000 | *25* | 1.062 | *27* | 0.18 | *0.08* |
| | ¾ x ⅜ | *20 x 10* | 1.000 | *25* | 1.062 | *27* | 0.15 | *0.07* |
| | ¾ x ½ | *20 x 15* | 1.000 | *25* | 1.062 | *27* | 0.10 | *0.05* |
| | 1 x ⅛ | *25 x 6* | 1.062 | *27* | 1.375 | *35* | 0.19 | *0.09* |
| | 1 x ¼ | *25 x 8* | 1.062 | *27* | 1.375 | *35* | 0.19 | *0.09* |
| | 1 x ⅜ | *25 x 10* | 1.062 | *27* | 1.375 | *35* | 0.19 | *0.09* |
| | 1 x ½ | *25 x 15* | 1.062 | *27* | 1.375 | *35* | 0.19 | *0.09* |
| | 1 x ¾ | *25 x 20* | 1.062 | *27* | 1.375 | *35* | 0.19 | *0.09* |

All sizes taper tapped 3/4" per foot *(62.5mm per meter)* on diameter.

Finish or Coating:

- Black, dipped in rust resistant;
- Galvanized, zinc plated (inside and out). For sizes 1 1/4 *(32 DN)* and larger, see page 35, 49 and 50 for Malleable and Cast Iron and page 111 for Forged Steel.

### COUNTERSUNK PLUGS
**(Square and Hex Socket)**


| Nominal Pipe Size | | Min. Thread Length | | Min. Size of Socket | | | | Metal Thickness Bottom Countersunk | | Threads | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Square | | Hex | | | | | | Square | | Hex | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅛ | *6* | 0.37 | *9* | — | — | 3/16 | *5* | 0.06 | *0.06* | 27 | *686* | 0.02 | *0.01* | 0.02 | *0.01* |
| ¼ | *8* | 0.44 | *11* | ¼ | *6* | ¼ | *6* | 0.09 | *0.09* | 18 | *457* | 0.04 | *0.02* | 0.04 | *0.02* |
| ⅜ | *10* | 0.48 | *12* | 5/16 | *8* | 5/16 | *8* | 0.13 | *0.13* | 18 | *457* | 0.06 | *0.03* | 0.06 | *0.03* |
| ½ | *15* | 0.56 | *14* | ⅜ | *10* | ⅜ | *10* | 0.16 | *0.16* | 14 | *356* | 0.12 | *0.05* | 0.12 | *0.05* |
| ¾ | *20* | 0.63 | *16* | ½ | *8* | 9/16 | *14* | 0.18 | *0.18* | 14 | *356* | 0.19 | *0.09* | 0.19 | *0.09* |
| 1 | *25* | 0.75 | *19* | ½ | *8* | ⅝ | *16* | 0.20 | *0.20* | 11½ | *292* | 0.22 | *0.10* | 0.21 | *0.10* |
| 1¼ | *32* | 0.80 | *20* | ¾ | *19* | ¾ | *19* | 0.22 | *0.22* | 11½ | *292* | 0.37 | *0.17* | 0.38 | *0.17* |
| 1½ | *40* | 0.83 | *21* | ¾ | *19* | 1 | *25* | 0.24 | *0.24* | 11½ | *292* | 0.47 | *0.21* | 0.44 | *0.20* |
| 2 | *50* | 0.88 | *22* | ⅞ | *22* | 1 | *25* | 0.26 | *0.26* | 11½ | *292* | 0.84 | *0.38* | 0.85 | *0.39* |

- All sizes taper tapped — 3/4" per foot *(62.5mm per meter)* on diameter.

Finish or Coating:

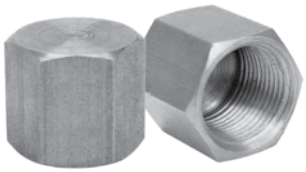
- Black, dipped in rust resistant;
- Galvanized, zinc-plated (inside and out).

# Steel Pipe Bushings, Caps & Plugs

## Merchant Steel Bushings, Caps & Plugs

BECK®

| FLUSH BUSHINGS | Nominal Pipe Size | | Length of External Thread, Min. | | Length of Internal Thread, Min. | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | ¼ x ⅛ | *8 x 6* | 0.440 | *11* | 0.260 | *7* | 0.01 | *0.00* |
| | ⅜ x ⅛ | *10 x 6* | 0.480 | *12* | 0.250 | *6* | 0.03 | *0.01* |
| | ⅜ x ¼ | *10 x 8* | 0.480 | *12* | 0.400 | *10* | 0.02 | *0.01* |
| | ½ x ¼ | *15 x 8* | 0.560 | *14* | 0.320 | *8* | 0.05 | *0.02* |
| | ½ x ⅜ | *15 x 10* | 0.560 | *14* | 0.410 | *11* | 0.03 | *0.01* |

| CAPS | Nominal Pipe Size | | Cap Length | | Nominal Width Across Flats | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | ⅛ | *6* | 0.563 | *14* | 0.560 | *14* | 0.02 | *0.01* |
| | ¼ | *8* | 0.844 | *22* | 0.625 | *16* | 0.03 | *0.01* |
| | ⅜ | *10* | 0.813 | *21* | 0.870 | *22* | 0.06 | *0.03* |
| | ½ | *15* | 1.063 | *27* | 1.062 | *27* | 0.11 | *0.05* |
| | ¾ | *20* | 1.114 | *28* | 1.183 | *30* | 0.14 | *0.06* |

| SOLID SQUARE HEAD PLUGS | Nominal Pipe Size | | Minimum Overall Plug Length | | Nominal Width Across Flats | | Threads | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| | ⅛ | *6* | 0.625 | *16* | 9/32 | *7* | 27 | *686* | 0.02 | *0.01* |
| | ¼ | *8* | 0.687 | *17* | ⅜ | *10* | 18 | *457* | 0.04 | *0.02* |
| | ⅜ | *10* | 0.812 | *21* | 7/16 | *11* | 18 | *457* | 0.06 | *0.03* |
| | ½ | *15* | 0.937 | *24* | 9/16 | *14* | 14 | *356* | 0.12 | *0.05* |
| | ¾ | *20* | 1.062 | *27* | ⅝ | *16* | 14 | *356* | 0.19 | *0.09* |
| | 1 | *25* | 1.125 | *29* | 13/16 | *22* | 11½ | *292* | 0.34 | *0.15* |
| | 1¼ | *32* | 1.360 | *35* | 15/16 | *24* | 11½ | *292* | 0.55 | *0.25* |
| | 1½ | *40* | 1.450 | *37* | 1⅛ | *29* | 11½ | *292* | 0.82 | *0.37* |
| | 2 | *50* | 1.560 | *40* | 1 5/16 | *34* | 11½ | *292* | 1.35 | *0.61* |




## Specifications

**Unless otherwise specified** welded nipples ASTM A 53 are furnished on orders for steel nipples in standard and extra strong sizes 1/8" – 8" NPS *(6 – 200 DN)*.

**Welded steel nipples (A 53 Type F or Type E)** are available in standard and extra strong sizes 1/8" – 8" NPS *(6 – 200 DN)*, right hand threads, black or galvanized.

**Seamless nipples** manufactured for the U.S. and International markets are *not* phosphate coated. Seamless nipples manufactured for Canada *are* phosphate coated.

**Seamless steel pressure tube nipples (ASTM A 106 Grade B)** are available in standard and extra strong sizes 1/8" – 8" NPS *(6 – 200 DN)* with right hand threads, black only.

**Right and left steel nipples** are available in standard and extra heavy weight sizes 1/8" – 4" NPS *(8 – 50 DN)*, in 4" *(102mm)* and 6" *(152mm)* lengths.

**Nipples** are available from stock in 1/8" – 8" NPS *(6 – 200 DN)* diameter, close to 12 NPS *(300 DN)* in length. Sizes 13" – 24" NPS *(325 – 600 DN)*. (Prices on application.)

Steel pipe nipples meet ASTM A733.

1/8" Schedule 40 and 80 galvanized nipples are all electroplated.

### Identification

Where possible, each seamless pipe nipple is identified with the following:

- A trade mark
- Seamless designation "SMLS"
- Pipe schedule 40, 80, 160, XXS
- Material designation
- Heat number for traceability

**Standards and Specifications**

| | Dimensions | Material | Thread | Federal/Other |
|---|---|---|---|---|
| **PIPE NIPPLES** | | | | |
| Steel Pipe - Welded | ASTM A733 | ASTM A53 Type F or Type E | ASME B1.20.1 | WWN 351 |
| Steel Pipe - Seamless (High Temp.) | ASTM A733 | ASTM A106 Gr. B | ASME B1.20.1 | WWN 351 |
| Brass | ASTM B687 | ASTM B43 | ASME B1.20.1 | WWN 351 |

# Seamless Pipe Nipples

Black & Galvanized, Std. Sch. 40, XH Sch. 80, Sch. 160, XXH

| FIG. 320: | FIG. 325: | FIG. 326: | FIG. 327: | FIG. 330: | FIG. 335: | FIG. 333: | FIG. 329: |
|---|---|---|---|---|---|---|---|
| Standard Black Sch. 40 | Extra Heavy Black Sch. 80 | 160 Black Sch. 160 | XXH Black | Standard Galv. Sch. 40 | Extra Heavy Galv. Sch. 80 | 160 Galv. Sch. 160 | XXH Galvanized |

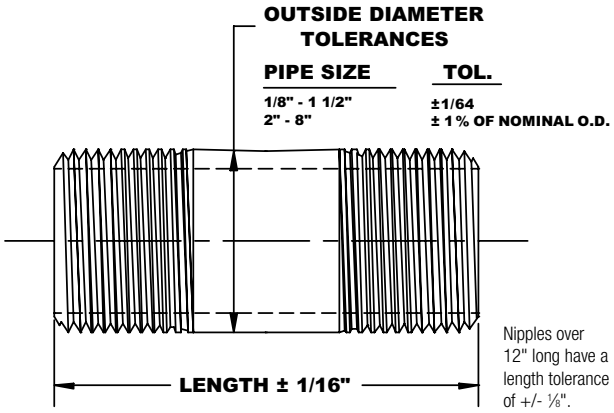
## Specifications

**Dimensions:** ASTM A733 (See table below for standard sizes)

**Threads:** NPT per ASME B1.20.1

**Material:** ASTM A106 Grade B Seamless Pipe
ASTM A333 Grade 6 Seamless Pipe (For Canada only)

**Finish:** ASTM A106 Nipples Black or Hot Dip Galvanized
ASTM A333 Nipples Phosphate Coated or Zinc Electroplated




| Pipe Size | Pipe O.D. | Length Close | Pipe Nipple Lengths | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | in | in | | | | | | | | | | | | | | | | |
| ⅛ | 0.405 | ¾ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ¼ | 0.540 | ⅞ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ⅜ | 0.675 | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ½ | 0.840 | 1⅛ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ¾ | 1.050 | 1⅜ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | 1.315 | 1½ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1¼ | 1.660 | 1⅝ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1½ | 1.900 | 1¾ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 2.375 | 2 | | | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2½ | 2.875 | 2½ | | | | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3 | 3.500 | 2⅝ | | | | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 4 | 4.500 | 2⅞ | | | | | | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 5 | 5.563 | 3 | | | | | | | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 6 | 6.625 | 3⅛ | | | | | | | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

**Note:** Other lengths available upon request.
8" Pipe Size available as POA - contact your Anvil Representative for details.

# Welded Pipe Nipples

Black & Galvanized, Std. Sch. 40, XH Sch. 80

**FIG. 339:** Standard Black Schedule 40

**FIG. 338:** Extra Heavy Black Schedule 80

**FIG. 343:** Standard Galv. Schedule 40

**FIG. 342:** Extra Heavy Galv. Schedule 80

## Specifications

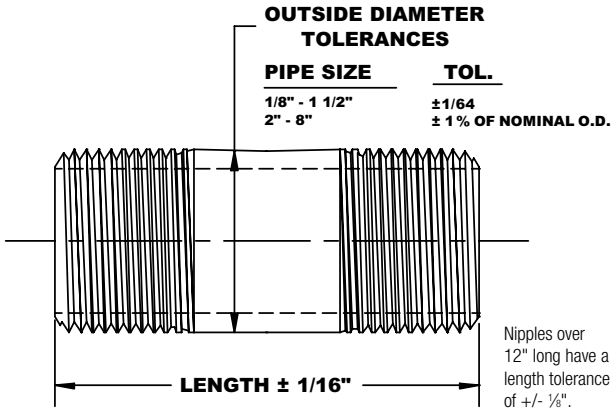
**Dimensions:** ASTM A733 (See table below for standard sizes)

**Threads:** NPT per ASME B1.20.1

**Material:** ASTM A53 Welded Steel Pipe

**Finish:** Black, Hot Dip Galvanized, or Zinc Electroplated

Standard and Extra Heavy Right and Left Nipples available in 1/8" - 4" diameter and 4" or 6" lengths. See Special Design Pipe Nipples on page 80 for more information.




| Pipe Size | Pipe O.D. | Length Close | Pipe Nipple Lengths | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | in | in | | | | | | | | | | | | | | | | |
| 1/8 | 0.405 | 3/4 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1/4 | 0.540 | 7/8 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3/8 | 0.675 | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ½ | 0.840 | 1⅛ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ¾ | 1.050 | 1⅜ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | 1.315 | 1½ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1¼ | 1.660 | 1⅝ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1½ | 1.900 | 1¾ | | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 2.375 | 2 | | | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2½ | 2.875 | 2½ | | | | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3 | 3.500 | 2⅝ | | | | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3½ | 4.000 | 2¾ | | | | | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 4 | 4.500 | 2⅞ | | | | | | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 5 | 5.563 | 3 | | | | | | | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 6 | 6.625 | 3⅛ | | | | | | | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

**Note:** Other lengths available upon request.

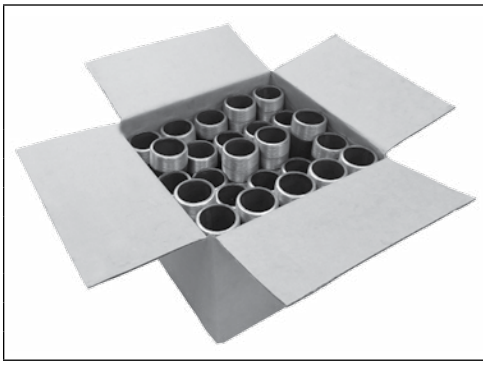
8" Pipe Size available as POA - contact your Anvil Representative for details.

# Steel Pipe Nipples

Welded – Ready Cut Pipe Standard — Schedule 40

## "A" ASSORTMENTS

### Mixed Cartons (Black — Figure 339 & Galvanized — Figure 343)



| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ½ | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 25 | 5.00 |
| ½ | 20 | 10 | 15 | 10 | 10 | 5 | 10 | 5 | 5 | 5 | 5 | 100 | 18.00 |
| ¾ | 4 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 25 | 7.00 |
| ¾ | 20 | 10 | 15 | 10 | 10 | 5 | 10 | 5 | 5 | 5 | 5 | 100 | 24.00 |
| 1 | 15 | - | 15 | 10 | 12 | 5 | 5 | 4 | 3 | 3 | 3 | 75 | 24.00 |
| 1 | 5 | - | 5 | 3 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 25 | 10.00 |
| 1¼ | 5 | - | 5 | 3 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 25 | 12.00 |
| 1½ | 5 | - | 5 | 3 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 25 | 15.00 |
| 2 | 6 | - | - | 3 | 3 | 2 | 3 | 1 | 3 | 1 | 3 | 25 | 22.00 |

All items ship in bulk quantities.

## "66" PACKS OR ASSORTED 6 CARTONS

### Black — Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⅛ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 6.00 |
| ¼ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 9.00 |
| ⅜ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 12.00 |
| ½ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 14.00 |
| ¾ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 19.00 |
| 1 | 6 | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 60 | 26.00 |
| 1¼ | 6 | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 60 | 33.00 |
| 1½ | 6 | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 60 | 41.00 |
| 2 | 6 | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 54 | 53.00 |

All items ship in bulk quantities.

## HANDY PACK ASSORTMENTS

### Mixed Cartons (Black — Figure 339 & Galvanized — Figure 343)

| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⅛ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 6.00 |
| ¼ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 9.00 |
| ⅜ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 12.00 |
| ½ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 14.00 |
| ¾ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 19.00 |
| 1 | 6 | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 60 | 26.00 |
| 1¼ | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 27 | 19.00 |
| 1½ | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 27 | 23.00 |
| 2 | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 27 | 30.00 |

All items ship in bulk quantities.

# Steel Pipe Nipples

Welded – Ready Cut Pipe Standard — Schedule 40, XH Sch. 80

## SINGLE RUN PACKS

### Black — Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ⅛ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 1.00 |
| ¼ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 1.50 |
| ⅜ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 2.00 |
| ½ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 2.50 |
| ¾ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 3.50 |
| 1 | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 5.00 |
| 1¼ | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 7.00 |
| 1½ | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 8.00 |
| 2 | 1 | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 | 10.00 |
| 2½ | 1 | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 | 13.30 |
| 3 | 1 | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 | 15.80 |

All items ship in bulk quantities.

## SINGLE RUN PACKS

### Black Only Extra Heavy — Figure 338

| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ½ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 3.20 |
| ¾ | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 4.30 |
| 1 | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 6.10 |
| 1¼ | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 8.40 |
| 1½ | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 10.30 |
| 2 | 1 | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 | 13.90 |

All items ship in bulk quantities.

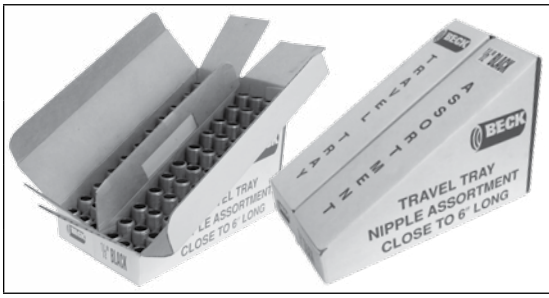
## READY CUT PIPE

### Black Extra Long— Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" |
|---|---|---|---|---|---|---|---|---|---|---|
| ⅛ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| ¼ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| ⅜ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| ½ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| ¾ | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1¼ | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1½ | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

## TRAVEL TRAYS

### Black — Figure 339 & Galvanized — Figure 343




| Nom. Pipe Size | Close | 1½" | 2" | 2½" | 3" | 3½" | 4" | 4½" | 5" | 5½" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ½ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 15.00 |
| ¾ | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 66 | 20.00 |
| 1 | 5 | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 50 | 22.00 |

All items ship in bulk quantities.

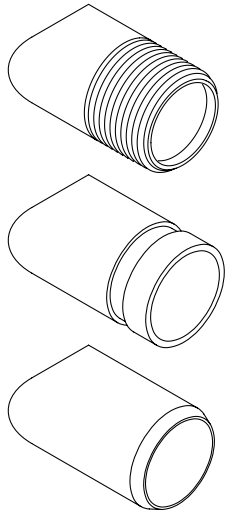
# Special Design Pipe Nipples

Beck Pipe Nipples are available with a variety of options for customization. To order, begin by selecting the figure number, material, finish, and end treatments from the table below. Then, select the nominal pipe size and specify the length rounded to the nearest 1/16". Contact your Anvil Representative for additional options.

| Fig No. | Description | Material | | Finish | | End #1 | End #2 | NPS | Length |
|---|---|---|---|---|---|---|---|---|---|
| 320SD | Sch. 40 Seamless Nipple *Special Design* | A | ASTM A106 GR B | A | Plain with Zinc Phosphate Coating | A NPT | A NPT | 1/8 | Up to 24" Maximum Specify to the nearest 1/16" |
| | | B | ASTM A333 | B | Plain with Sandblasted Surface | B PLN | B PLN | 1/4 | |
| 330SD | Sch. 40 Seamless Nipple - Galvanized *Special Design* | A | ASTM A106 GR B | A | Hot Dip Galvanized per ASTM A153 | C PSQ | C PSQ | 3/8 | |
| | | B | ASTM A333 | B | Zinc Electroplated per ASTM B633 | D PDB | D PDB | 1/2 | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | E ROE | E ROE | 3/4 | |
| 325SD | XH/Sch. 80 Seamless Nipple *Special Design* | A | ASTM A106 GR B | A | Plain with Zinc Phosphate Coating | F BEV | F BEV | 1 | |
| | | B | ASTM A333 | B | Plain with Sandblasted Surface | G NPL | G NPL | 1 1/4 | |
| 335SD | XH/Sch. 80 Seamless Nipple - Galvanized *Special Design* | A | ASTM A106 GR B | A | Hot Dip Galvanized per ASTM A153 | H NPM | H NPM | 1 1/2 | |
| | | B | ASTM A333 | B | Zinc Electroplated per ASTM B633 | I ISO | I ISO | 2 | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | J GRV | J GRV | 2 1/2 | |
| 326SD | Sch. 160 Seamless Nipple *Special Design* | A | ASTM A106 GR B | A | Plain with Zinc Phosphate Coating | K LHT | K LHT | 3 | |
| | | B | ASTM A333 | B | Plain with Sandblasted Surface | | | 4 | |
| 333SD | Sch. 160 Seamless Nipple - Galvanized *Special Design* | A | ASTM A106 GR B | A | Hot Dip Galvanized per ASTM A153 | | | 5 | |
| | | B | ASTM A333 | B | Zinc Electroplated per ASTM B633 | | | 6 | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | | | | |
| 327SD | XXH Seamless Nipple *Special Design* | A | ASTM A106 GR B | A | Plain with Zinc Phosphate Coating | | | | |
| | | B | ASTM A333 | B | Plain with Sandblasted Surface | | | | |
| 329SD | XXH Seamless Nipple - Galvanized *Special Design* | A | ASTM A106 GR B | A | Hot Dip Galvanized per ASTM A153 | | | | |
| | | B | ASTM A333 | B | Zinc Electroplated per ASTM B633 | | | | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | | | | |
| 339SD | Sch. 40 Welded Nipple *Special Design* | A | ASTM A53, Type F, CW | A | Plain with Zinc Phosphate Coating | | | | |
| | | B | ASTM A53, Type E, EW | B | Plain with Sandblasted Surface | | | | |
| 343SD | Sch. 40 Welded Nipple - Galvanized *Special Design* | A | ASTM A53, Type F, CW | A | Hot Dip Galvanized per ASTM A153 | | | | |
| | | B | ASTM A53, Type E, EW | B | Zinc Electroplated per ASTM B633 | | | | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | | | | |
| 338SD | XH/Sch. 80 Welded Nipple *Special Design* | A | ASTM A53, Type F, CW | A | Plain with Zinc Phosphate Coating | | | | |
| | | B | ASTM A53, Type E, EW | B | Plain with Sandblasted Surface | | | | |
| 342SD | XH/Sch. 80 Welded Nipple - Galvanized *Special Design* | A | ASTM A53, Type F, CW | A | Hot Dip Galvanized per ASTM A153 | | | | |
| | | B | ASTM A53, Type E, EW | B | Zinc Electroplated per ASTM B633 | | | | |
| | | - | - | C | Zinc Electroplated with Yellow Chromate | | | | |
| 341SD | Tank Nipple - Sch. 40 Welded *Special Design* | A | ASTM A53, Type E, EW | A | Plain with Zinc Phosphate Coating | | | | |
| | | | | B | Plain with Sandblasted Surface | | | | |
| | | | | C | Zinc Electroplated per ASTM B633 | | | | |
| | | | | D | Zinc Electroplated with Yellow Chromate | | | | |
| 344SD | **Butt Nipple - Sch. 40 Welded *Special Design* | A | ASTM A53, Type F, CW | A | Plain with Zinc Phosphate Coating | | | | |
| | | | | B | Plain with Sandblasted Surface | | | | |
| | | B | ASTM A53, Type E, EW | C | Zinc Electroplated per ASTM B633 | | | | |
| | | | | D | Zinc Electroplated with Yellow Chromate | | | | |
| 345SD | Mining Nipple - Sch. 40 Welded *Special Design* | A | ASTM A53, Type E, EW | A | Plain with Zinc Phosphate Coating | | | | |
| | | | | B | Plain with Sandblasted Surface | | | | |
| | | | | C | Zinc Electroplated per ASTM B633 | | | | |
| | | | | D | Zinc Electroplated with Yellow Chromate | | | | |
| 362SD | Special Design Seamless Nipple Brass & Chromium Plated Brass | A | ASTM B43 Brass | A | Plain | | | | |
| | | | | B | Chrome Plated | | | | |
| 363SD | Special Design Grooved Adapter Nipple - Aluminum & Brass | A | ASTM B43 Brass | A | Plain | | | | |
| | | | | B | Chrome Plated | | | | |

**End Codes**

| | |
|---|---|
| NPT | Standard NPT Thread per ASME B1.20.1 (RH) (TOE) |
| PLN | Plain End/Roller Cut |
| PSQ | Plain End with Square or Saw Cut |
| PDB | Plain End with Square Cut and Deburred |
| ROE | Ream One End - Square Cut End with Ream |
| BEV | Square Cut End with 37½° Bevel |
| NPL | NPSL Straight Thread per ASME B1.20.1 (Locknut) (Toe) |
| NPM | NPSM Straight Thread per ASME B.1.20.1 (Mechanical) (Toe) |
| ISO | ISO/BSPT Taper Threads per ISO 7/1 |
| GRV | Cut Grooved End per Anvil Specification |
| LHT | NPT-LH / Left Handed NPT Thread per ASME B.1.20.1 (TOE) |



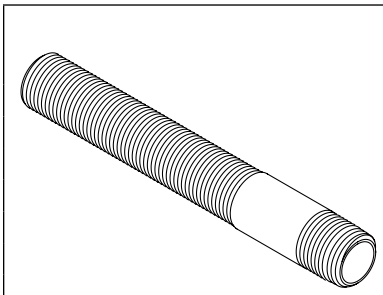
** NPS and lengths available POA, upon request. Contact your Anvil Representative for details.

# Special Design Pipe Nipples



## TANK NIPPLES

### FIG. 341SD - Black & Galvanized

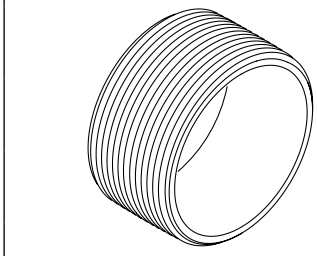


| Description | Size | Length | Weight |
|---|---|---|---|
| Tank Nipples are recommended for use as tank legs, not intended for pressure service. Tank Nipples have standard NPT threads on one end and straight NPSM threads running for 4" on the other end. Tank Nipples are fabricated from ASTM A53 Schedule 40 welded pipe. | ⅛ | 6 | 0.13 |
| | ¼ | 6 | 0.20 |
| | ⅜ | 6 | 0.28 |
| | ½ | 6 | 0.40 |
| | ¾ | 6 | 0.53 |
| | 1 | 6 | 0.76 |
| | 1¼ | 6 | 1.04 |
| | 1½ | 6 | 1.28 |
| | 2 | 6 | 1.56 |

All Tank Nipples ship in quantities of 25.
Not intended for pressure service.

## BUTT NIPPLES

### FIG. 344SD - Black & Galvanized



| Description | Size | Length | Weight | Quantity |
|---|---|---|---|---|
| Butt Nipples are intended for joining couplings or female threaded components end to end without exposing male threads. Butt Nipples have standard NPT male threads on both ends. Threads may have fewer imperfect threads due to reduced nipple length. Butt Nipples are fabricated from ASTM A53 Schedule 40 welded pipe. | 2 | 1¼ | 0.28 | 25 |
| | 2½ | 2 | 0.87 | 10 |
| | 3 | 2 | 1.28 | 10 |
| | 4 | 2¼ | 1.11 | 5 |

## RIGHT & LEFT NIPPLES

### Black — Figure 339SD & Galvanized — Figure 343SD

| Nom. Pipe Size | Length | Weight | Quantity |
|---|---|---|---|
| ⅛ | 4" or 6" | 0.09 | - |
| ¼ | 4" or 6" | 0.13 | - |
| ⅜ | 4" or 6" | 0.18 | 25 |
| ½ | 4" or 6" | 0.25 | 25 |
| ¾ | 4" or 6" | 0.35 | 25 |
| 1 | 4" or 6" | 0.51 | 25 |
| 1¼ | 4" or 6" | 0.68 | 25 |
| 1½ | 4" or 6" | 0.80 | 25 |
| 2 | 4" or 6" | 1.09 | 25 |
| 2½ | 4" or 6" | 1.50 | - |
| 3 | 4" or 6" | 2.00 | - |
| 3½ | 4" or 6" | 2.80 | - |
| 4 | 4" or 6" | 3.24 | - |

# Steel Pipe Couplings

## Merchant Couplings

**FIGURE 336**
**Standard, Full & Half**

| Size | | Outside Diameter (Coupling) | | Length | | | | Threads | | Unit Weight | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Full | | Half | | | | Full | | | | Half | | | |
| | | | | | | | | | | Straight Tapped | | Taper Tapped | | Straight Tapped | | Taper Tapped | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
| ⅛ | *6* | 0.563 | *14* | 13⁄16 | *22* | 11⁄32 | *9* | 27 | *686* | 0.03 | *0.01* | 0.03 | *0.01* | 0.01 | *0.00* | 0.01 | *0.00* |
| ¼ | *8* | 0.719 | *18* | 1 3⁄16 | *30* | 17⁄32 | *13* | 18 | *457* | 0.07 | *0.03* | 0.07 | *0.03* | 0.03 | *0.01* | 0.03 | *0.01* |
| ⅜ | *10* | 0.875 | *22* | 1 3⁄16 | *30* | 17⁄32 | *13* | 18 | *457* | 0.10 | *0.05* | 0.10 | *0.05* | 0.05 | *0.02* | 0.05 | *0.02* |
| ½ | *15* | 1.063 | *27* | 1 9⁄16 | *40* | 23⁄32 | *18* | 14 | *356* | 0.18 | *0.08* | 0.18 | *0.08* | 0.08 | *0.04* | 0.08 | *0.04* |
| ¾ | *20* | 1.313 | *33* | 1 5⁄8 | *41* | ¾ | *19* | 14 | *356* | 0.26 | *0.12* | 0.26 | *0.12* | 0.12 | *0.05* | 0.12 | *0.05* |
| 1 | *25* | 1.576 | *40* | 2 | *51* | 15⁄16 | *24* | 11½ | *292* | 0.42 | *0.19* | 0.42 | *0.19* | 0.18 | *0.08* | 0.18 | *0.08* |
| 1¼ | *32* | 1.900 | *48* | 2 1⁄16 | *52* | 31⁄32 | *25* | 11½ | *292* | 0.50 | *0.23* | 0.50 | *0.23* | 0.23 | *0.10* | 0.23 | *0.10* |
| 1½ | *40* | 2.200 | *56* | 2 1⁄16 | *52* | 31⁄32 | *25* | 11½ | *292* | 0.67 | *0.30* | 0.67 | *0.30* | 0.32 | *0.15* | 0.32 | *0.15* |
| 2 | *50* | 2.750 | *70* | 2 1⁄8 | *54* | 1 | *25* | 11½ | *292* | 1.03 | *0.47* | 1.03 | *0.47* | 0.47 | *0.21* | 0.47 | *0.21* |
| 2½ | *65* | 3.250 | *83* | 3 1⁄8 | *79* | 1½ | *38* | 8 | *203* | 2.09 | *0.95* | 2.15 | *0.98* | 0.96 | *0.44* | 0.96 | *0.44* |
| 3 | *80* | 4.000 | *102* | 3¼ | *83* | 1 9⁄16 | *40* | 8 | *203* | 3.36 | *1.52* | 3.46 | *1.57* | 1.60 | *0.73* | 1.60 | *0.73* |
| 3½ | *90* | 4.625 | *117* | 3⅜ | *86* | 1⅝ | *41* | 8 | *203* | 4.82 | *2.19* | 5.18 | *2.35* | 2.22 | *1.01* | 2.22 | *1.01* |
| 4 | *100* | 5.000 | *127* | 3½ | *89* | 1 11⁄16 | *43* | 8 | *203* | 4.80 | *2.18* | 4.87 | *2.21* | 2.11 | *0.96* | 2.11 | *0.96* |
| 5 | *125* | 6.296 | *160* | 3¾ | *95* | 1 13⁄16 | *46* | 8 | *203* | 8.31 | *3.77* | 8.75 | *3.97* | 3.80 | *1.72* | 3.80 | *1.72* |
| 6 | *150* | 7.390 | *188* | 4 | *102* | 1 13⁄16 | *46* | 8 | *203* | 11.18 | *5.07* | 11.88 | *5.39* | 5.28 | *2.39* | 5.28 | *2.39* |

- Manufactured in accordance with ASTM specification A865 and A589.
- Merchant couplings in sizes 1⁄8" NPS *(6 DN)* through 2" NPS *(50 DN)* are normally supplied straight tapped. Sizes 2 1⁄2" NPS *(65 DN)* and larger are taper tapped.
- Taper tapped standard merchant couplings in sizes 1⁄8" NPS *(6 DN)* through 2" NPS *(50 DN)* are available upon request.
- API line pipe couplings are used in all sizes over 6" NPS *(150 DN).*
- Couplings from 1⁄8" NPS *(6 DN)* through 6" NPS *(150 DN)* are dipped in rust preventative.
- Electroplated full couplings are also available.

**Note**

- Half couplings are chamfered on one end and squared on the other.

# Steel Pipe Couplings
## Merchant Couplings



**FIGURE 337**
**Extra Strong (XS), Full & Half**

| Size | | Outside Diameter (Coupling) | | Length | | | | Unit Weight | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Full | | Half | | Full | | Half | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* |
| ⅛ | *6* | 0.563 | *14* | 1 1/16 | *27* | 15/32 | *12* | 0.04 | *0.02* | 0.02 | *0.01* |
| ¼ | *8* | 0.719 | *18* | 1⅝ | *41* | ¾ | *19* | 0.09 | *0.04* | 0.04 | *0.02* |
| ⅜ | *10* | 0.875 | *22* | 1⅝ | *41* | ¾ | *19* | 0.14 | *0.06* | 0.06 | *0.03* |
| ½ | *15* | 1.063 | *27* | 2⅛ | *54* | 1 | *25* | 0.25 | *0.11* | 0.11 | *0.05* |
| ¾ | *20* | 1.313 | *33* | 2⅛ | *54* | 1 | *25* | 0.36 | *0.16* | 0.17 | *0.08* |
| 1 | *25* | 1.576 | *40* | 2⅝ | *67* | 1¼ | *32* | 0.56 | *0.25* | 0.26 | *0.12* |
| 1¼ | *32* | 2.054 | *52* | 2¾ | *70* | 1 5/16 | *33* | 1.08 | *0.49* | 0.51 | *0.23* |
| 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 1 5/16 | *33* | 0.98 | *0.44* | 0.61 | *0.28* |
| 2 | *50* | 2.875 | *73* | 2⅞ | *73* | 1⅜ | *35* | 2.01 | *0.91* | 0.92 | *0.42* |
| 2½ | *65* | 3.375 | *86* | 4⅛ | *105* | 2 | *51* | 3.53 | *1.60* | 1.72 | *0.78* |
| 3 | *80* | 4.000 | *102* | 4¼ | *108* | 2 1/16 | *52* | 4.61 | *2.09* | 2.12 | *0.96* |
| 3½ | *90* | 4.625 | *117* | 4⅜ | *111* | 2⅛ | *54* | 6.25 | *2.84* | 2.97 | *1.35* |
| 4 | *100* | 5.200 | *127* | 4½ | *114* | 2 3/16 | *56* | 7.88 | *3.57* | 3.84 | *1.74* |
| 5 | *125* | 6.296 | *160* | 4⅝ | *117* | 2 3/16 | *56* | 10.50 | *4.76* | 4.85 | *2.20* |
| 6 | *150* | 7.390 | *188* | 4⅞ | *124* | 2 3/16 | *56* | 14.51 | *6.58* | 6.85 | *3.11* |

- Manufactured in accordance with ASTM Specification A865.
- All sizes are taper tapped.
- Non-recessed couplings will be supplied for sizes under 6" NPS unless otherwise specified.
- Extra strong half couplings can be supplied in sizes under 6" NPS *(150 DN).*
- Couplings 1/8" – 6" NPS *(6 – 150 DN)* are dipped in rust preventative.
- Electroplated full couplings are also available.

**Note**

- Half couplings are chamfered on one end and squared on the other.

# Steel Pipe Couplings

## Merchant Couplings

| FIGURE 346<br>Standard, Right & Left | Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | ½ | *15* | 1.063 | *27* | 1 9/16 | *40* | 0.17 | *0.08* |
| | ¾ | *20* | 1.313 | *33* | 1 5/8 | *41* | 0.28 | *0.13* |
| | 1 | *25* | 1.576 | *40* | 2 | *51* | 0.43 | *0.20* |
| | 1¼ | *32* | 1.900 | *48* | 2 1/16 | *52* | 0.54 | *0.24* |
| | 1½ | *40* | 2.200 | *56* | 2 1/16 | *52* | 0.73 | *0.33* |
| | 2 | *50* | 2.750 | *70* | 2⅛ | *54* | 1.11 | *0.50* |

**Note**

- The left hand threaded end of all right and left couplings is knurled for identification. All sizes of right and left couplings are taper tapped ¾" per foot *(62.5mm per meter)* on the diameter and all are dipped in rust preventative.

| FIGURE 347<br>Extra Strong (XS), Right & Left | Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | ½ | *15* | 1.063 | *27* | 2⅛ | *54* | 0.25 | *0.11* |
| | ¾ | *20* | 1.313 | *33* | 2⅛ | *54* | 0.36 | *0.16* |
| | 1 | *25* | 1.576 | *40* | 2⅝ | *67* | 0.74 | *0.34* |
| | 1¼ | *32* | 2.054 | *52* | 2¾ | *70* | 1.08 | *0.49* |
| | 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 0.95 | *0.43* |
| | 2 | *50* | 2.875 | *73* | 2⅞ | *73* | 2.01 | *0.91* |

- The left hand threaded end of all right and left couplings is knurled for identification, and all are dipped in rust preventative.
- Extra strong right and left couplings are available on request.

# Steel Pipe Couplings



**FIGURE 348**
**API LIne Pipe Couplings**

| Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.563 | *14* | 1 1/16 | *27* | 0.04 | *0.02* |
| ¼ | *8* | 0.719 | *18* | 1⅝ | *41* | 0.10 | *0.05* |
| ⅜ | *10* | 0.875 | *22* | 1⅝ | *41* | 0.13 | *0.06* |
| ½ | *15* | 1.063 | *27* | 2⅛ | *54* | 0.24 | *0.11* |
| ¾ | *20* | 1.313 | *33* | 2⅛ | *54* | 0.35 | *0.16* |
| 1 | *25* | 1.576 | *40* | 2⅝ | *67* | 0.52 | *0.24* |
| 1¼ | *32* | 2.054 | *52* | 2¾ | *70* | 1.00 | *0.45* |
| 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 0.88 | *0.40* |
| 2 | *50* | 2.875 | *73* | 2⅞ | *73* | 1.83 | *0.83* |
| 2½ | *65* | 3.375 | *86* | 4⅛ | *105* | 3.28 | *1.49* |
| 3 | *80* | 4.000 | *102* | 4¼ | *108* | 4.09 | *1.85* |
| 3½ | *90* | 4.625 | *117* | 4⅜ | *111* | 5.92 | *2.68* |
| 4 | *100* | 5.200 | *132* | 4½ | *114* | 7.59 | *3.44* |
| 5 | *125* | 6.296 | *160* | 4⅝ | *117* | 10.00 | *4.54* |
| 6 | *150* | 7.390 | *188* | 4⅞ | *124* | 12.92 | *5.86* |
| 8 | *200* | 9.625 | *244* | 5¼ | *133* | 23.18 | *10.51* |
| 10 | *250* | 11.750 | *298* | 5¾ | *146* | 31.55 | *14.31* |
| 12 | *300* | 14.000 | *356* | 6⅛ | *156* | 49.27 | *22.34* |

- These couplings are manufactured in accordance with American Petroleum Institute Specification 5L.
- All sizes are taper tapped 3/4" per foot *(62.5mm per meter)* on the diameter.
- All couplings are phosphated unless electroplated.

# Steel Pipe Couplings

| FIGURE 349<br>Water Well Reamed & Drifted Couplings | Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | 1¼ | *32* | 1.900 | *48* | 2¾ | *70* | 0.60 | *0.27* |
| | 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 0.84 | *0.38* |
| | 2 | *50* | 2.750 | *70* | 3⅜ | *86* | 1.58 | *0.72* |
| | 2½ | *65* | 3.250 | *83* | 3 15/16 | *100* | 2.32 | *1.05* |
| | 3 | *80* | 4.000 | *102* | 4 1/16 | *103* | 3.80 | *1.72* |
| | 3½ | *90* | 4.625 | *117* | 4 3/16 | *106* | 5.53 | *2.51* |
| | 4 | *100* | 5.200 | *132* | 4 5/16 | *110* | 7.14 | *3.24* |
| | 5 | *125* | 6.296 | *160* | 4½ | *114* | 9.57 | *4.34* |
| | 6 | *150* | 7.390 | *188* | 4 11/16 | *119* | 12.32 | *5.59* |
| | 8 | *200* | 9.625 | *244* | 5 1/16 | *129* | 22.35 | *10.14* |
| | 10 | *250* | 11.750 | *298* | 5 9/16 | *141* | 30.60 | *13.88* |
| | 12 | *300* | 14.000 | *356* | 5 15/16 | *151* | 48.00 | *21.77* |

- Manufactured in accordance with ASTM specification A589.
- All sizes are recessed and taper tapped ¾" per foot on diameter.
- Sizes over 2" have threads phosphated and outside painted light blue. The electroplated have a light blue band around the center of the coupling.

| FIGURE 350<br>#9 Drive Couplings | Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | 1¼ | *32* | 2.054 | *52* | 2¾ | *70* | 1.00 | *0.45* |
| | 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 0.84 | *0.38* |
| | 2 | *50* | 2.875 | *73* | 3⅜ | *86* | 2.14 | *0.97* |

- All sizes are recessed and taper tapped ¾" per foot on diameter.

| FIGURE 379<br>Shallow Well Couplings | Size | | Outside Diameter (Coupling) | | Length | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|
|  | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| | 1¼ | *32* | 2.054 | *52* | 2¾ | *70* | 1.03 | *0.47* |
| | 1½ | *40* | 2.200 | *56* | 2¾ | *70* | 0.90 | *0.41* |
| | 2 | *50* | 2.875 | *73* | 2⅞ | *73* | 1.86 | *0.84* |

- The 1 ¼" are straight rapped and recessed.
- The 1 ½ and 2" are taper tapped ¾" per foot on diameter and recessed.
- The 2" threads are electroplated.

## Materials

The steel for Anvil Forged Carbon Steel Fittings consists of forging, bars, seamless pipe or tubes which conform to the requirements for melting process, chemical composition and mechanical properties of ASTM A105.

## Design Basis

ASME B16.11 - Forged fittings, socket-weld and threaded

## Dimensions

ASME B16.11, unless otherwise noted

## Threads

ASME B1.20.1 NPT Threads

## Forged Steel Fittings

In accordance with ASME standard B16.11 - "Forged Fittings, Socket-Welding and Threaded" this table shows the schedule of pipe corresponding to each class of fitting for rating purposes.

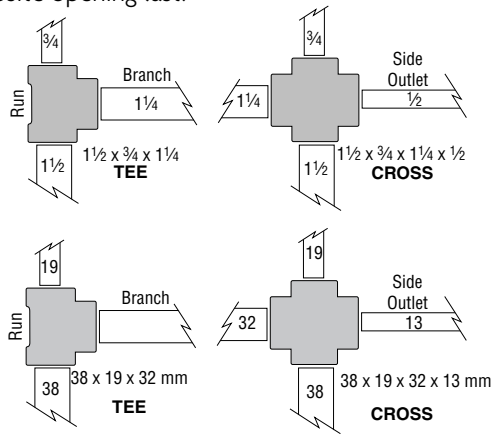
| PRESSURE RATINGS | | |
|---|---|---|
| Class | Schedule | |
| | N.P.T. | S.W. |
| 2000 | 80 | – |
| 3000 | 160 | 80 |
| 6000 | XXS/XXH | 160 |

ASME B16.11 provides that the maximum allowable pressure of a fitting be computed in accordance with the applicable piping code or regulation for straight seamless pipe or for material of equivalent composition and mechanical properties to the fitting. Any corrosion or mechanical allowances and any reduction in allowable stress due to temperature or other service conditions must be applied to the pipe and fitting alike.

## Reducing Fittings

Reducing elbows, tees and crosses are available in both threaded and socket-welding.

On reducing tees and crosses give the size of the largest run opening; then give the opposite opening. On a tee give the branch size last. On a cross give the largest side outlet third and the opposite opening last.

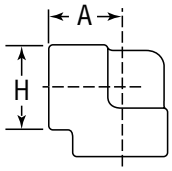



| Standards and Specifications | | | | |
|---|---|---|---|---|
| | Dimensions | Material | Thread | Pressure Rating |
| FORGED STEEL THREADED FITTINGS | | | | |
| Class 2000, 3000, 6000 | ASME B16.11 | ASTM A105, ASTM A182, ASTM A350 | ASME B1.20.1 | ASME B16.11 |

# Forged Steel Fittings

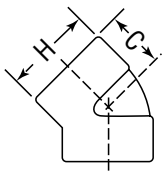
Class 2000 Threaded

**FIGURE 2101**
**90° Elbows**




| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 0.81 | *21* | 0.88 | *22* | 0.18 | *0.08* |
| ⅜ | *10* | 0.97 | *25* | 1.00 | *25* | 0.28 | *0.13* |
| ½ | *15* | 1.12 | *28* | 1.31 | *33* | 0.55 | *0.25* |
| ¾ | *20* | 1.31 | *33* | 1.50 | *38* | 0.72 | *0.33* |
| 1 | *25* | 1.50 | *38* | 1.81 | *46* | 1.22 | *0.55* |
| 1¼ | *32* | 1.75 | *44* | 2.19 | *56* | 1.65 | *0.75* |
| 1½ | *40* | 2.00 | *51* | 2.44 | *62* | 2.12 | *0.96* |
| 2 | *50* | 2.38 | *60* | 2.97 | *75* | 3.78 | *1.71* |
| 2½ | *65* | 3.00 | *76* | 3.62 | *92* | 6.50 | *2.95* |
| 3 | *80* | 3.38 | *86* | 4.31 | *109* | 11.10 | *5.03* |
| 4 | *100* | 4.19 | *106* | 5.75 | *146* | 22.30 | *10.11* |

**FIGURE 2102**
**45° Elbows**



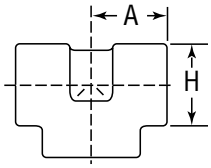

| Size | | C | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 0.69 | *17* | 0.88 | *22* | 0.16 | *0.07* |
| ⅜ | *10* | 0.75 | *19* | 1.00 | *25* | 0.25 | *0.11* |
| ½ | *15* | 0.88 | *22* | 1.31 | *33* | 0.48 | *0.22* |
| ¾ | *20* | 1.00 | *25* | 1.50 | *38* | 0.57 | *0.26* |
| 1 | *25* | 1.12 | *28* | 1.81 | *46* | 0.88 | *0.40* |
| 1¼ | *32* | 1.31 | *33* | 2.19 | *56* | 1.32 | *0.60* |
| 1½ | *40* | 1.38 | *35* | 2.44 | *62* | 1.62 | *0.73* |
| 2 | *50* | 1.69 | *43* | 2.97 | *75* | 2.83 | *1.28* |
| 2½ | *65* | 2.06 | *52* | 3.62 | *92* | 7.70 | *3.49* |
| 3 | *80* | 2.50 | *64* | 4.31 | *109* | 12.00 | *5.44* |

# Forged Steel Fittings

## Class 2000 Threaded

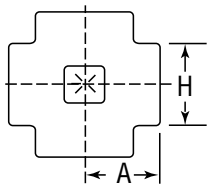


**FIGURE 2103**
**Tees**




| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 0.81 | *21* | 0.88 | *22* | 0.25 | *0.11* |
| ⅜ | *10* | 0.97 | *25* | 1.00 | *25* | 0.37 | *0.17* |
| ½ | *15* | 1.12 | *28* | 1.31 | *33* | 0.62 | *0.28* |
| ¾ | *20* | 1.31 | *33* | 1.50 | *38* | 0.43 | *0.20* |
| 1 | *25* | 1.50 | *38* | 1.81 | *46* | 1.33 | *0.60* |
| 1¼ | *32* | 1.75 | *44* | 2.19 | *56* | 2.10 | *0.95* |
| 1½ | *40* | 2.00 | *51* | 2.44 | *62* | 2.80 | *1.27* |
| 2 | *50* | 2.38 | *60* | 2.97 | *75* | 4.50 | *2.04* |
| 2½ | *65* | 3.00 | *76* | 3.62 | *92* | 9.10 | *4.13* |
| 3 | *80* | 3.38 | *86* | 4.31 | *109* | 13.50 | *6.12* |
| 4 | *100* | 4.19 | *106* | 5.75 | *146* | 32.00 | *14.51* |

**FIGURE 2104**
**Crosses**




| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 0.81 | *21* | 0.88 | *22* | 0.50 | *0.23* |
| ⅜ | *10* | 0.97 | *25* | 1.00 | *25* | 0.40 | *0.18* |
| ½ | *15* | 1.12 | *28* | 1.31 | *33* | 0.85 | *0.39* |
| ¾ | *20* | 1.31 | *33* | 1.50 | *38* | 1.10 | *0.50* |
| 1 | *25* | 1.50 | *38* | 1.81 | *46* | 1.70 | *0.77* |
| 1¼ | *32* | 1.75 | *44* | 2.19 | *56* | 2.40 | *1.09* |
| 1½ | *40* | 2.00 | *51* | 2.44 | *62* | 3.20 | *1.45* |
| 2 | *50* | 2.38 | *60* | 2.97 | *75* | 5.20 | *2.36* |
| 2½ | *65* | 3.00 | *76* | 3.62 | *92* | 16.50 | *7.48* |
| 3 | *80* | 3.38 | *86* | 4.31 | *109* | 20.00 | *9.07* |

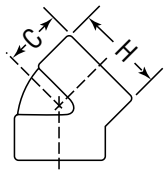
# Forged Steel Fittings

Class 3000 Threaded

## FIGURE 2111
90° Elbows

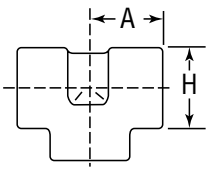

| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.81 | *21* | 0.88 | *22* | 0.23 | *0.10* |
| ¼ | *8* | 0.97 | *25* | 1.00 | *25* | 0.35 | *0.16* |
| ⅜ | *10* | 1.12 | *28* | 1.31 | *33* | 0.66 | *0.30* |
| ½ | *15* | 1.31 | *33* | 1.50 | *38* | 0.93 | *0.42* |
| ¾ | *20* | 1.50 | *38* | 1.81 | *46* | 1.48 | *0.67* |
| 1 | *25* | 1.75 | *44* | 2.19 | *56* | 2.30 | *1.04* |
| 1¼ | *32* | 2.00 | *51* | 2.44 | *62* | 2.68 | *1.22* |
| 1½ | *40* | 2.38 | *60* | 2.97 | *75* | 5.30 | *2.40* |
| 2 | *50* | 2.50 | *64* | 3.31 | *84* | 5.85 | *2.65* |
| 2½ | *65* | 3.25 | *83* | 4.00 | *102* | 10.00 | *4.54* |
| 3 | *80* | 3.75 | *95* | 4.75 | *121* | 17.20 | *7.80* |
| 4 | *100* | 4.50 | *114* | 6.00 | *152* | 29.30 | *13.29* |

## FIGURE 2112
45° Elbows


| Size | | C | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.69 | *17* | 0.88 | *22* | 0.18 | *0.08* |
| ¼ | *8* | 0.75 | *19* | 1.00 | *25* | 0.25 | *0.11* |
| ⅜ | *10* | 0.88 | *22* | 1.31 | *33* | 0.53 | *0.24* |
| ½ | *15* | 1.00 | *25* | 1.50 | *38* | 0.78 | *0.35* |
| ¾ | *20* | 1.12 | *28* | 1.81 | *46* | 1.20 | *0.54* |
| 1 | *25* | 1.31 | *33* | 2.19 | *56* | 1.90 | *0.86* |
| 1¼ | *32* | 1.38 | *35* | 2.44 | *62* | 2.30 | *1.04* |
| 1½ | *40* | 1.69 | *43* | 2.97 | *75* | 4.16 | *1.89* |
| 2 | *50* | 1.72 | *44* | 3.31 | *84* | 5.12 | *2.32* |
| 2½ | *65* | 2.06 | *52* | 4.00 | *102* | 7.70 | *3.49* |
| 3 | *80* | 2.50 | *64* | 4.75 | *121* | 12.00 | *5.44* |
| 4 | *100* | 3.12 | *79* | 6.00 | *152* | 19.70 | *8.93* |

## FIGURE 2114
Tees



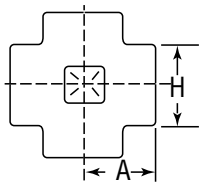

| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.81 | *21* | 0.88 | *22* | 0.31 | *0.14* |
| ¼ | *8* | 0.97 | *25* | 1.00 | *25* | 0.42 | *0.19* |
| ⅜ | *10* | 1.12 | *28* | 1.31 | *33* | 0.93 | *0.42* |
| ½ | *15* | 1.31 | *33* | 1.50 | *38* | 1.20 | *0.54* |
| ¾ | *20* | 1.50 | *38* | 1.81 | *46* | 1.84 | *0.83* |
| 1 | *25* | 1.75 | *44* | 2.19 | *56* | 3.05 | *1.38* |
| 1¼ | *32* | 2.00 | *51* | 2.44 | *62* | 3.62 | *1.64* |
| 1½ | *40* | 2.38 | *60* | 2.97 | *75* | 6.65 | *3.02* |
| 2 | *50* | 2.50 | *64* | 3.31 | *84* | 7.15 | *3.24* |
| 2½ | *65* | 3.25 | *83* | 4.00 | *102* | 13.70 | *6.21* |
| 3 | *80* | 3.75 | *95* | 4.75 | *121* | 21.00 | *9.52* |
| 4 | *100* | 4.50 | *114* | 6.00 | *152* | 38.00 | *17.23* |

# Forged Steel Fittings

## Class 3000 Threaded

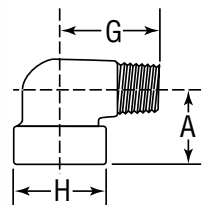


### FIGURE 2115
**Crosses**



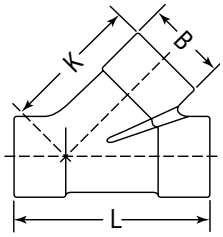

| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.81 | *21* | 0.88 | *22* | – | – |
| ¼ | *8* | 0.97 | *25* | 1.00 | *25* | – | – |
| ⅜ | *10* | 1.12 | *28* | 1.31 | *33* | – | – |
| ½ | *15* | 1.31 | *33* | 1.50 | *38* | 1.40 | *0.63* |
| ¾ | *20* | 1.50 | *38* | 1.81 | *46* | 2.10 | *0.95* |
| 1 | *25* | 1.75 | *44* | 2.19 | *56* | 3.50 | *1.59* |
| 1¼ | *32* | 2.00 | *51* | 2.44 | *62* | 4.30 | *1.95* |
| 1½ | *40* | 2.38 | *60* | 2.97 | *75* | 8.20 | *3.72* |
| 2 | *50* | 2.50 | *64* | 3.31 | *84* | 8.40 | *3.81* |
| 2½ | *65* | 3.25 | *83* | 4.00 | *102* | 17.10 | *7.76* |
| 3 | *80* | 3.75 | *95* | 4.75 | *121* | 20.00 | *9.07* |
| 4 | *100* | 4.50 | *114* | 6.00 | *152* | 32.00 | *14.51* |

### FIGURE 2113
**90° Street Elbows**




| Size | | A | | G | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.75 | *19* | 1.00 | *25* | 0.75 | *19* | – | – |
| ¼ | *8* | 0.88 | *22* | 1.25 | *32* | 1.00 | *25* | 0.23 | *0.10* |
| ⅜ | *10* | 1.00 | *25* | 1.50 | *38* | 1.25 | *32* | 0.38 | *0.17* |
| ½ | *15* | 1.12 | *28* | 1.62 | *41* | 1.50 | *38* | 0.53 | *0.24* |
| ¾ | *20* | 1.38 | *35* | 1.88 | *48* | 1.75 | *44* | 0.88 | *0.40* |
| 1 | *25* | 1.75 | *44* | 2.25 | *57* | 2.00 | *51* | 1.40 | *0.63* |
| 1¼ | *32* | 2.00 | *51* | 2.62 | *66* | 2.44 | *62* | 2.40 | *1.09* |
| 1½ | *40* | 2.12 | *54* | 2.81 | *71* | 2.75 | *70* | 2.90 | *1.32* |
| 2 | *50* | 2.50 | *64* | 3.31 | *84* | 3.31 | *84* | 5.00 | *2.27* |

### FIGURE 2116
**Laterals**

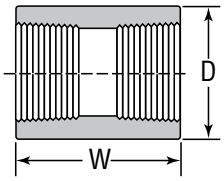



| Size | | B | | K | | L | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 1.56 | *39.62* | 2.56 | *65.02* | 3.56 | *90.42* | 1.75 | *0.79* |
| ¾ | *20* | 1.84 | *46.74* | 3.00 | *76.20* | 4.13 | *104.90* | 2.75 | *1.24* |
| 1 | *25* | 2.22 | *56.39* | 3.50 | *88.90* | 4.81 | *122.17* | 4.63 | *2.10* |
| 1¼ | *32* | 2.50 | *63.50* | 3.94 | *100.08* | 5.38 | *136.65* | 5.50 | *2.48* |
| 1½ | *40* | 3.03 | *79.96* | 4.75 | *120.65* | 6.44 | *163.58* | 10.81 | *4.91* |
| 2 | *50* | 3.34 | *84.84* | 5.00 | *127.00* | 6.63 | *168.40* | 11.50 | *5.23* |

# Forged Steel Fittings

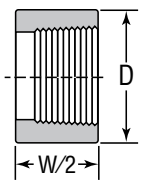
Class 3000 Threaded

**FIGURE 2117**
**Couplings**




| Size | | D | | W | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.62 | *16* | 1.25 | *32* | 0.14 | *0.06* |
| ¼ | *8* | 0.75 | *19* | 1.38 | *35* | 0.10 | *0.05* |
| ⅜ | *10* | 0.88 | *22* | 1.50 | *38* | 0.13 | *0.06* |
| ½ | *15* | 1.12 | *28* | 1.88 | *48* | 0.28 | *0.13* |
| ¾ | *20* | 1.38 | *35* | 2.00 | *51* | 0.44 | *0.20* |
| 1 | *25* | 1.75 | *44* | 2.38 | *60* | 1.08 | *0.49* |
| 1¼ | *32* | 2.25 | *57* | 2.62 | *67* | 1.68 | *0.76* |
| 1½ | *40* | 2.50 | *64* | 3.12 | *79* | 2.17 | *0.98* |
| 2 | *50* | 3.00 | *76* | 3.38 | *86* | 3.20 | *1.45* |
| 2½ | *65* | 3.62 | *92* | 3.62 | *92* | 4.70 | *2.13* |
| 3 | *80* | 4.25 | *108* | 4.25 | *108* | 6.80 | *3.08* |
| 4 | *100* | 5.50 | *140* | 4.75 | *121* | 12.30 | *5.58* |

**FIGURE 2119**
**Half Couplings**



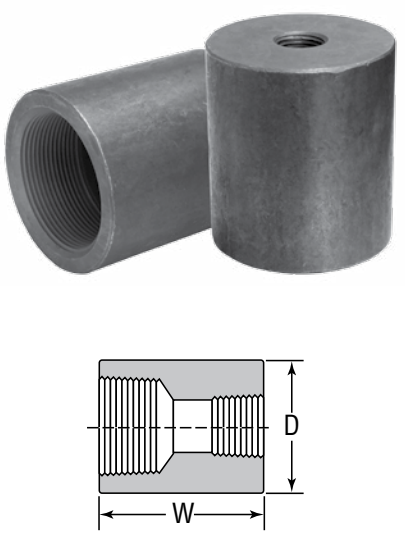

| Size | | D | | W/2 | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.62 | *16* | 0.63 | *16* | 0.05 | *0.02* |
| ¼ | *8* | 0.75 | *19* | 0.69 | *18* | 0.04 | *0.02* |
| ⅜ | *10* | 0.88 | *22* | 0.75 | *19* | 0.06 | *0.03* |
| ½ | *15* | 1.12 | *28* | 0.94 | *24* | 0.12 | *0.05* |
| ¾ | *20* | 1.38 | *35* | 1.00 | *26* | 0.21 | *0.10* |
| 1 | *25* | 1.75 | *44* | 1.19 | *30* | 0.43 | *0.20* |
| 1¼ | *32* | 2.25 | *57* | 1.31 | *34* | 0.76 | *0.34* |
| 1½ | *40* | 2.50 | *64* | 1.56 | *40* | 1.14 | *0.52* |
| 2 | *50* | 3.00 | *76* | 1.69 | *43* | 1.50 | *0.68* |
| 2½ | *65* | 3.62 | *92* | 1.81 | *46* | 2.40 | *1.09* |
| 3 | *80* | 4.25 | *108* | 2.13 | *54* | 3.25 | *1.47* |
| 4 | *100* | 5.50 | *140* | 2.38 | *61* | 6.25 | *2.83* |

# Forged Steel Fittings

Class 3000 Threaded

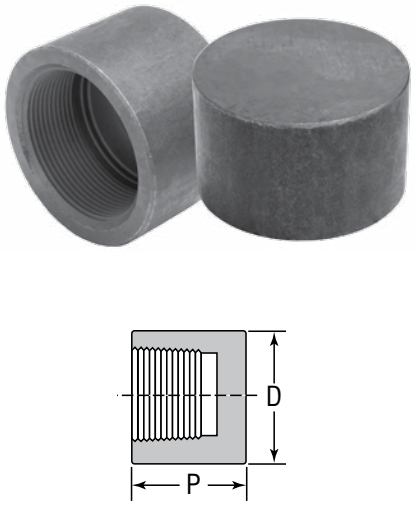


## FIGURE 2118
### Reducing Couplings




| Size | | | | D | | W | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ⅛ | *6* | 0.75 | *19* | 1.38 | *35* | 0.10 | *0.05* |
| ⅜ | *10* | ⅛ | *6* | 0.88 | *22* | 1.50 | *38* | 0.15 | *0.07* |
| ½ | *15* | ⅛ | *6* | 1.12 | *28* | 1.88 | *48* | 0.35 | *0.16* |
| ¾ | *20* | ⅛ | *6* | 1.38 | *35* | 2.00 | *51* | 0.52 | *0.24* |
| 1 | *25* | ⅛ | *6* | 1.75 | *44* | 2.38 | *60* | 1.10 | *0.50* |
| 1¼ | *32* | ¼ | *8* | 2.25 | *57* | 2.62 | *67* | 2.08 | *0.94* |
| 1½ | *40* | ¼ | *8* | 2.50 | *64* | 3.12 | *79* | 2.93 | *1.33* |
| 2 | *50* | ¼ | *8* | 3.00 | *76* | 3.38 | *86* | 4.40 | *2.00* |
| 2½ | *65* | ¾ | *20* | 3.62 | *92* | 3.62 | *92* | 7.50 | *3.40* |
| 3 | *80* | ¾ | *20* | 4.25 | *108* | 4.25 | *108* | 11.00 | *4.99* |
| 4 | *100* | 1½ | *40* | 5.50 | *140* | 4.75 | *121* | 20.50 | *9.30* |

## FIGURE 2120
### Pipe Caps

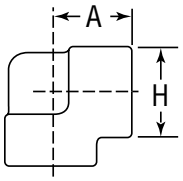



| Size | | D | | P | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.62 | *16* | 0.75 | *19* | 0.07 | *0.03* |
| ¼ | *8* | 0.75 | *19* | 1.00 | *25* | 0.08 | *0.04* |
| ⅜ | *10* | 0.88 | *22* | 1.00 | *25* | 0.11 | *0.05* |
| ½ | *15* | 1.12 | *28* | 1.25 | *32* | 0.23 | *0.10* |
| ¾ | *20* | 1.38 | *35* | 1.44 | *37* | 0.40 | *0.18* |
| 1 | *25* | 1.75 | *44* | 1.62 | *41* | 0.79 | *0.36* |
| 1¼ | *32* | 2.25 | *57* | 1.75 | *44* | 1.21 | *0.55* |
| 1½ | *40* | 2.50 | *64* | 1.75 | *44* | 1.75 | *0.79* |
| 2 | *50* | 3.00 | *76* | 1.88 | *48* | 2.46 | *1.12* |
| 2½ | *65* | 3.62 | *92* | 2.38 | *60* | 4.37 | *1.98* |
| 3 | *80* | 4.25 | *108* | 2.56 | *65* | 6.50 | *2.95* |
| 4 | *100* | 5.50 | *140* | 2.69 | *68* | 11.30 | *5.12* |

# Forged Steel Fittings

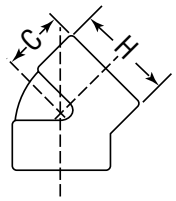
Class 6000 Threaded

## FIGURE 2131
90° Elbows



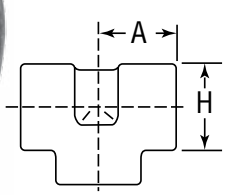

| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.97 | *25* | 1.00 | *25* | – | – |
| ¼ | *8* | 1.12 | *28* | 1.31 | *33* | – | – |
| ⅜ | *10* | 1.31 | *33* | 1.50 | *38* | – | – |
| ½ | *15* | 1.50 | *38* | 1.81 | *46* | 1.50 | *0.68* |
| ¾ | *20* | 1.75 | *44* | 2.19 | *56* | 2.60 | *1.18* |
| 1 | *25* | 2.00 | *51* | 2.44 | *62* | 3.50 | *1.59* |
| 1¼ | *32* | 2.38 | *60* | 2.97 | *75* | 6.00 | *2.72* |
| 1½ | *40* | 2.50 | *64* | 3.31 | *84* | 8.00 | *3.63* |
| 2 | *50* | 3.25 | *83* | 4.00 | *102* | 13.00 | *5.90* |
| 2½ | *65* | 3.75 | *95* | 4.75 | *121* | 22.30 | *10.11* |
| 3 | *80* | 4.19 | *106* | 5.75 | *146* | 36.00 | *16.33* |
| 4 | *100* | 4.50 | *114* | 6.00 | *152* | – | – |

## FIGURE 2132
45° Elbows




| Size | | C | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.75 | *19* | 1.00 | *25* | – | – |
| ¼ | *8* | 0.88 | *22* | 1.31 | *33* | – | – |
| ⅜ | *10* | 1.00 | *25* | 1.50 | *38* | – | – |
| ½ | *15* | 1.12 | *28* | 1.81 | *46* | 2.25 | *1.02* |
| ¾ | *20* | 1.31 | *33* | 2.19 | *56* | 2.30 | *1.04* |
| 1 | *25* | 1.38 | *35* | 2.44 | *62* | 2.69 | *1.22* |
| 1¼ | *32* | 1.69 | *43* | 2.97 | *75* | 4.69 | *2.13* |
| 1½ | *40* | 1.72 | *44* | 3.31 | *84* | 5.60 | *2.54* |
| 2 | *50* | 2.06 | *52* | 4.00 | *102* | 9.50 | *4.31* |
| 2½ | *65* | 2.50 | *64* | 4.75 | *121* | 15.50 | *7.03* |
| 3 | *80* | 3.12 | *79* | 5.75 | *146* | 31.00 | *14.06* |
| 4 | *100* | 3.12 | *79* | 6.00 | *152* | – | – |

## FIGURE 2134
Tees

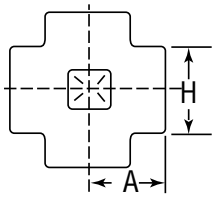



| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.97 | *25* | 1.00 | *25* | – | – |
| ¼ | *8* | 1.12 | *28* | 1.31 | *33* | – | – |
| ⅜ | *10* | 1.31 | *33* | 1.50 | *38* | – | – |
| ½ | *15* | 1.50 | *38* | 1.81 | *46* | 2.25 | *1.02* |
| ¾ | *20* | 1.75 | *44* | 2.19 | *56* | 2.30 | *1.04* |
| 1 | *25* | 2.00 | *51* | 2.44 | *62* | 2.69 | *1.22* |
| 1¼ | *32* | 2.38 | *60* | 2.97 | *75* | 4.69 | *2.13* |
| 1½ | *40* | 2.50 | *64* | 3.31 | *84* | 5.60 | *2.54* |
| 2 | *50* | 3.25 | *83* | 4.00 | *102* | 9.50 | *4.31* |
| 2½ | *65* | 3.75 | *95* | 4.75 | *121* | 15.50 | *7.03* |
| 3 | *80* | 4.19 | *106* | 5.75 | *146* | 31.00 | *14.06* |
| 4 | *100* | 4.50 | *114* | 6.00 | *152* | – | – |

# Forged Steel Fittings

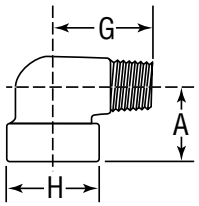
Class 6000 Threaded

## FIGURE 2135
Crosses



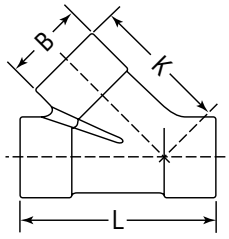

| Size | | A | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.97 | 25 | 1.00 | 25 | 0.56 | 0.25 |
| ¼ | 8 | 1.12 | 28 | 1.31 | 33 | 1.19 | 0.54 |
| ⅜ | 10 | 1.31 | 33 | 1.50 | 38 | 1.50 | 0.68 |
| ½ | 15 | 1.50 | 38 | 1.81 | 46 | 2.60 | 1.18 |
| ¾ | 20 | 1.75 | 44 | 2.19 | 56 | 4.30 | 1.95 |
| 1 | 25 | 2.00 | 51 | 2.44 | 62 | 5.70 | 2.59 |
| 1¼ | 32 | 2.38 | 60 | 2.97 | 75 | 9.60 | 4.35 |
| 1½ | 40 | 2.50 | 64 | 3.31 | 84 | 11.40 | 5.17 |
| 2 | 50 | 3.25 | 83 | 4.00 | 102 | 21.40 | 9.71 |
| 2½ | 65 | 3.75 | 95 | 4.75 | 121 | 28.30 | 12.83 |
| 3 | 80 | 4.19 | 106 | 5.75 | 146 | 59.00 | 26.76 |
| 4 | 100 | 4.50 | 114 | 6.00 | 152 | 43.50 | 19.73 |

## FIGURE 2133
90° Street Elbows


| Size | | A | | G | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.88 | 22 | 1.25 | 32 | 1.00 | 25 | – | – |
| ¼ | 8 | 1.00 | 25 | 1.50 | 38 | 1.25 | 32 | 0.38 | 0.17 |
| ⅜ | 10 | 1.12 | 28 | 1.62 | 41 | 1.50 | 38 | 0.44 | 0.20 |
| ½ | 15 | 1.38 | 35 | 1.88 | 48 | 1.75 | 44 | 1.10 | 0.50 |
| ¾ | 20 | 1.75 | 44 | 2.25 | 57 | 2.00 | 51 | 1.62 | 0.73 |
| 1 | 25 | 2.00 | 51 | 2.62 | 66 | 2.44 | 62 | 2.80 | 1.27 |
| 1¼ | 32 | 2.12 | 54 | 2.81 | 71 | 2.75 | 70 | 3.80 | 1.72 |
| 1½ | 40 | 2.50 | 64 | 3.31 | 84 | 3.31 | 84 | 7.20 | 3.27 |

## FIGURE 2136
Laterals

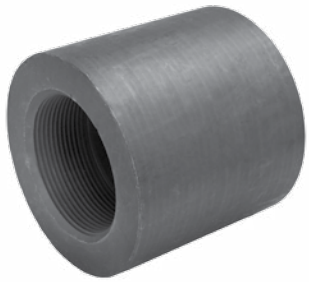


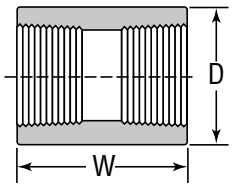

| Size | | B | | K | | L | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 1.84 | 46.74 | 3.00 | 76.20 | 4.13 | 104.90 | 3.25 | 1.46 |
| ¾ | 20 | 2.22 | 56.39 | 3.50 | 88.90 | 4.81 | 122.17 | 5.44 | 2.45 |
| 1 | 25 | 2.50 | 63.5 | 3.94 | 100.08 | 5.38 | 136.65 | 7.19 | 3.23 |
| 1¼ | 32 | 3.03 | 76.96 | 4.75 | 120.65 | 6.44 | 163.58 | 12.31 | 5.54 |
| 1½ | 40 | 3.34 | 84.84 | 5.00 | 127.00 | 6.63 | 168.40 | 15.95 | 7.25 |

# Forged Steel Fittings

Class 6000 Threaded

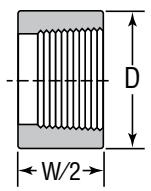
**FIGURE 2137**
**Couplings**






| Size | | D | | W | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.88 | *22* | 1.25 | *32* | 0.17 | *0.08* |
| ¼ | *8* | 1.00 | *25* | 1.38 | *35* | 0.30 | *0.14* |
| ⅜ | *10* | 1.25 | *32* | 1.50 | *38* | 0.45 | *0.20* |
| ½ | *15* | 1.50 | *38* | 1.88 | *48* | 0.70 | *0.32* |
| ¾ | *20* | 1.75 | *44* | 2.00 | *51* | 1.15 | *0.52* |
| 1 | *25* | 2.25 | *57* | 2.38 | *60* | 1.83 | *0.83* |
| 1¼ | *32* | 2.50 | *64* | 2.62 | *67* | 2.08 | *0.94* |
| 1½ | *40* | 3.00 | *76* | 3.12 | *79* | 3.95 | *1.79* |
| 2 | *50* | 3.62 | *92* | 3.38 | *86* | 6.50 | *2.95* |
| 2½ | *65* | 4.25 | *108* | 3.62 | *92* | – | – |
| 3 | *80* | 5.00 | *127* | 4.25 | *108* | – | – |
| 4 | *100* | 6.25 | *159* | 4.75 | *121* | – | – |

**FIGURE 2141**
**Half Couplings**

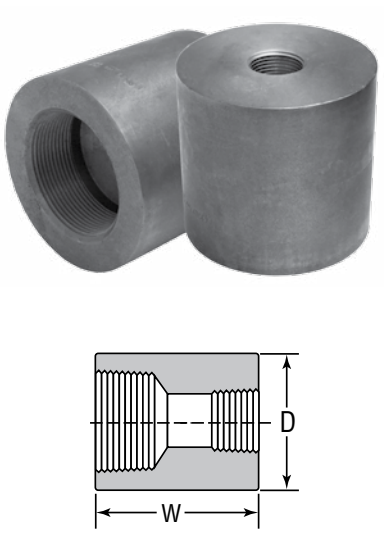



| Size | | D | | W/2 | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.88 | *22* | 0.63 | *16* | 0.08 | *0.04* |
| ¼ | *8* | 1.00 | *25* | 0.69 | *18* | 0.13 | *0.06* |
| ⅜ | *10* | 1.25 | *32* | 0.75 | *19* | 0.22 | *0.10* |
| ½ | *15* | 1.50 | *38* | 0.94 | *24* | 0.35 | *0.16* |
| ¾ | *20* | 1.75 | *44* | 1.00 | *26* | 0.46 | *0.21* |
| 1 | *25* | 2.25 | *57* | 1.19 | *30* | 0.95 | *0.43* |
| 1¼ | *32* | 2.50 | *64* | 1.31 | *34* | 1.10 | *0.50* |
| 1½ | *40* | 3.00 | *76* | 1.56 | *40* | 2.12 | *0.96* |
| 2 | *50* | 3.62 | *92* | 1.69 | *43* | 3.00 | *1.36* |
| 2½ | *65* | 4.25 | *108* | 1.81 | *46* | – | – |
| 3 | *80* | 5.00 | *127* | 2.13 | *54* | – | – |
| 4 | *100* | 6.25 | *159* | 2.38 | *61* | – | – |

# Forged Steel Fittings

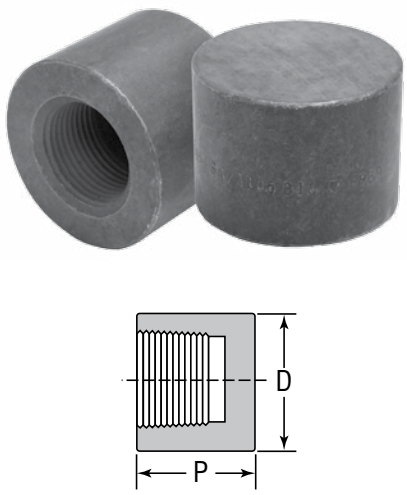
Class 6000 Threaded

**FIGURE 2138**
**Reducing Couplings**




| Size | | | | D | | W | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ⅛ | *6* | 1.00 | *25* | 1.38 | *35* | – | – |
| ⅜ | *10* | ⅛ | *6* | 1.25 | *32* | 1.50 | *38* | – | – |
| ½ | *15* | ⅛ | *6* | 1.50 | *38* | 1.88 | *48* | 0.78 | *0.35* |
| ¾ | *20* | ¼ | *8* | 1.75 | *44* | 2.00 | *51* | 1.16 | *0.53* |
| 1 | *25* | ¼ | *8* | 2.25 | *57* | 2.38 | *60* | 2.03 | *0.92* |
| 1¼ | *32* | ½ | *15* | 2.50 | *64* | 2.62 | *67* | 2.73 | *1.24* |
| 1½ | *40* | ¾ | *20* | 3.00 | *76* | 3.12 | *79* | 4.70 | *2.13* |
| 2 | *50* | ¾ | *20* | 3.62 | *92* | 3.38 | *86* | 7.50 | *3.40* |
| 2½ | *65* | 1¼ | *32* | 4.25 | *108* | 3.62 | *92* | – | – |
| 3 | *80* | 1½ | *40* | 5.00 | *127* | 4.25 | *108* | – | – |
| 4 | *100* | 2 | *50* | 6.25 | *159* | 4.75 | *121* | – | – |

**FIGURE 2143**
**Pipe Caps**

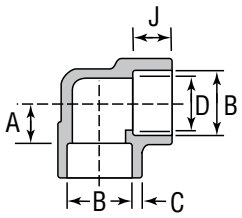



| Size | | D | | P | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | mm | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.88 | *22* | 1.00 | *25* | 0.01 | *0.00* |
| ¼ | *8* | 1.00 | *25* | 1.06 | *27* | 0.01 | *0.00* |
| ⅜ | *10* | 1.25 | *32* | 1.06 | *27* | 0.01 | *0.00* |
| ½ | *15* | 1.50 | *38* | 1.31 | *33* | 0.41 | *0.19* |
| ¾ | *20* | 1.75 | *44* | 1.50 | *38* | 0.57 | *0.26* |
| 1 | *25* | 2.25 | *57* | 1.69 | *43* | 1.17 | *0.53* |
| 1¼ | *32* | 2.50 | *64* | 1.81 | *46* | 1.42 | *0.64* |
| 1½ | *40* | 3.00 | *76* | 1.88 | *48* | 2.17 | *0.98* |
| 2 | *50* | 3.62 | *92* | 2.00 | *51* | 3.66 | *1.66* |
| 2½ | *65* | 4.25 | *108* | 2.50 | *64* | 4.94 | *2.24* |
| 3 | *80* | 5.00 | *127* | 2.69 | *68* | 7.66 | *3.47* |
| 4 | *100* | 6.25 | *159* | 2.94 | *75* | 14.53 | *6.59* |

# Forged Steel Fittings

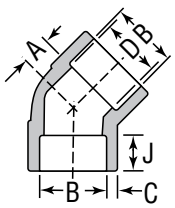
## Class 3000 Socket Weld

**FIGURE 2150**
**90° Elbows**




| Size | | A Nominal | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.44 | 11.0 | .440<br>.420 | 11.2<br>10.8 | 0.125 | 3.18 | .299<br>.239 | 7.6<br>6.1 | 0.38 | 9.5 | 0.25 | 0.11 |
| ¼ | 8 | 0.44 | 11.0 | .575<br>.555 | 14.6<br>14.2 | 0.130 | 3.30 | .394<br>.334 | 10.0<br>8.5 | 0.38 | 9.5 | 0.31 | 0.14 |
| ⅜ | 10 | 0.53 | 13.5 | .710<br>.690 | 18.0<br>17.6 | 0.138 | 3.50 | .523<br>.463 | 13.3<br>11.8 | 0.38 | 9.5 | 0.31 | 0.14 |
| ½ | 15 | 0.62 | 15.5 | .875<br>.855 | 22.2<br>21.8 | 0.161 | 4.09 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.53 | 0.24 |
| ¾ | 20 | 0.75 | 19.0 | 1.085<br>1.065 | 27.6<br>27.2 | 0.168 | 4.27 | .854<br>.794 | 21.7<br>20.2 | 0.50 | 12.5 | 0.64 | 0.29 |
| 1 | 25 | 0.88 | 22.5 | 1.350<br>1.330 | 34.3<br>33.9 | 0.196 | 4.98 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 0.95 | 0.43 |
| 1¼ | 32 | 1.06 | 27.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.208 | 5.28 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 1.60 | 0.73 |
| 1½ | 40 | 1.25 | 32.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.218 | 5.54 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 2.12 | 0.96 |
| 2 | 50 | 1.50 | 38.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.238 | 6.04 | 2.097<br>2.037 | 53.3<br>51.7 | 0.62 | 16.0 | 3.66 | 1.66 |
| 2½ | 65 | 1.62 | 41.0 | 2.931<br>2.906 | 74.4<br>73.9 | 0.302 | 7.67 | 2.529<br>2.409 | 64.2<br>61.2 | 0.62 | 16.0 | 6.10 | 2.77 |
| 3 | 80 | 2.25 | 57.0 | 3.560<br>3.535 | 90.3<br>89.8 | 0.327 | 8.30 | 3.128<br>3.008 | 79.4<br>76.4 | 0.62 | 16.0 | 9.70 | 4.40 |
| 4 | 100 | 2.62 | 66.5 | 4.570<br>4.545 | 115.7<br>115.2 | 0.368 | 9.35 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | 23.00 | 10.43 |

**FIGURE 2151**
**45° Elbows**




| Size | | A Nominal | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.31 | 8.0 | .440<br>.420 | 11.2<br>10.8 | 0.125 | 3.18 | .299<br>.239 | 7.6<br>6.1 | 0.38 | 9.5 | 0.18 | 0.08 |
| ¼ | 8 | 0.31 | 8.0 | .575<br>.555 | 14.6<br>14.2 | 0.130 | 3.30 | .394<br>.334 | 10.0<br>8.5 | 0.38 | 9.5 | 0.16 | 0.07 |
| ⅜ | 10 | 0.31 | 8.0 | .710<br>.690 | 18.0<br>17.6 | 0.138 | 3.50 | .523<br>.463 | 13.3<br>11.8 | 0.38 | 9.5 | 0.18 | 0.08 |
| ½ | 15 | 0.44 | 11.0 | .875<br>.855 | 22.2<br>21.8 | 0.161 | 4.09 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.43 | 0.20 |
| ¾ | 20 | 0.50 | 13.0 | 1.085<br>1.065 | 27.6<br>27.2 | 0.168 | 4.27 | .854<br>.794 | 21.7<br>20.2 | 0.50 | 12.5 | 0.58 | 0.26 |
| 1 | 25 | 0.56 | 14.0 | 1.350<br>1.330 | 34.3<br>33.9 | 0.196 | 4.98 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 0.90 | 0.41 |
| 1¼ | 32 | 0.69 | 17.5 | 1.695<br>1.675 | 43.1<br>42.7 | 0.208 | 5.28 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 1.30 | 0.59 |
| 1½ | 40 | 0.81 | 20.5 | 1.935<br>1.915 | 49.2<br>48.8 | 0.218 | 5.54 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 1.57 | 0.71 |
| 2 | 50 | 1.00 | 25.5 | 2.426<br>2.406 | 61.7<br>61.2 | 0.238 | 6.04 | 2.097<br>2.037 | 53.3<br>51.7 | 0.62 | 16.0 | 2.73 | 1.24 |
| 2½ | 65 | 1.12 | 28.5 | 2.931<br>2.906 | 74.4<br>73.9 | 0.302 | 7.67 | 2.529<br>2.409 | 64.2<br>61.2 | 0.62 | 16.0 | 7.50 | 3.40 |
| 3 | 80 | 1.25 | 32.0 | 3.560<br>3.535 | 90.3<br>89.8 | 0.327 | 8.30 | 3.128<br>3.008 | 79.4<br>76.4 | 0.62 | 16.0 | 10.40 | 4.72 |
| 4 | 100 | 1.62 | 41.0 | 4.570<br>4.545 | 115.7<br>115.2 | 0.368 | 9.35 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | 19.80 | 8.98 |

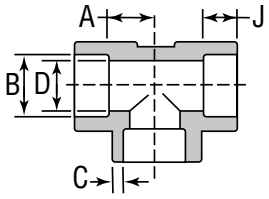
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

## Class 3000 Socket Weld

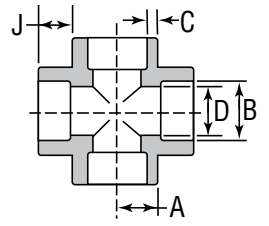


**FIGURE 2152**
**Tees**




| Size | | A Nominal | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.44 | 11.0 | .440<br>.420 | 11.2<br>10.8 | 0.125 | 3.18 | .299<br>.239 | 7.6<br>6.1 | 0.38 | 9.5 | 0.28 | 0.13 |
| ¼ | 8 | 0.44 | 11.0 | .575<br>.555 | 14.6<br>14.2 | 0.130 | 3.30 | .394<br>.334 | 10.0<br>8.5 | 0.38 | 9.5 | 0.24 | 0.11 |
| ⅜ | 10 | 0.53 | 13.5 | .710<br>.690 | 18.0<br>17.6 | 0.138 | 3.50 | .523<br>.463 | 13.3<br>11.8 | 0.38 | 9.5 | 0.38 | 0.17 |
| ½ | 15 | 0.62 | 15.5 | .875<br>.855 | 22.2<br>21.8 | 0.161 | 4.09 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.65 | 0.29 |
| ¾ | 20 | 0.75 | 19.0 | 1.085<br>1.065 | 27.6<br>27.2 | 0.168 | 4.27 | .854<br>.794 | 21.7<br>20.2 | 0.50 | 12.5 | 0.86 | 0.39 |
| 1 | 25 | 0.88 | 22.5 | 1.350<br>1.330 | 34.3<br>33.9 | 0.196 | 4.98 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 1.37 | 0.62 |
| 1¼ | 32 | 1.06 | 27.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.208 | 5.28 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 2.00 | 0.91 |
| 1½ | 40 | 1.25 | 32.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.218 | 5.54 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 2.80 | 1.27 |
| 2 | 50 | 1.50 | 38.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.238 | 6.04 | 2.097<br>2.037 | 53.3<br>51.7 | 0.62 | 16.0 | 3.85 | 1.75 |
| 2½ | 65 | 1.62 | 41.0 | 2.931<br>2.906 | 74.4<br>73.9 | 0.302 | 7.67 | 2.529<br>2.409 | 64.2<br>61.2 | 0.62 | 16.0 | 8.20 | 3.72 |
| 3 | 80 | 2.25 | 57.0 | 3.560<br>3.535 | 90.3<br>89.8 | 0.327 | 8.30 | 3.128<br>3.008 | 79.4<br>76.4 | 0.62 | 16.0 | 12.00 | 5.44 |
| 4 | 100 | 2.62 | 66.5 | 4.570<br>4.545 | 115.7<br>115.2 | 0.368 | 9.35 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | 29.00 | 13.15 |

**FIGURE 2153**
**Crosses**




| Size | | A Nominal | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | 0.44 | 11.0 | .440<br>.420 | 11.2<br>10.8 | 0.125 | 3.18 | .299<br>.239 | 7.6<br>6.1 | 0.38 | 9.5 | 0.45 | 0.20 |
| ¼ | 8 | 0.44 | 11.0 | .575<br>.555 | 14.6<br>14.2 | 0.130 | 3.30 | .394<br>.334 | 10.0<br>8.5 | 0.38 | 9.5 | 0.38 | 0.17 |
| ⅜ | 10 | 0.53 | 13.5 | .710<br>.690 | 18.0<br>17.6 | 0.138 | 3.50 | .523<br>.463 | 13.3<br>11.8 | 0.38 | 9.5 | 0.32 | 0.15 |
| ½ | 15 | 0.62 | 15.5 | .875<br>.855 | 22.2<br>21.8 | 0.161 | 4.09 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.81 | 0.37 |
| ¾ | 20 | 0.75 | 19.0 | 1.085<br>1.065 | 27.6<br>27.2 | 0.168 | 4.27 | .854<br>.794 | 21.7<br>20.2 | 0.50 | 12.5 | 1.10 | 0.50 |
| 1 | 25 | 0.88 | 22.5 | 1.350<br>1.330 | 34.3<br>33.9 | 0.196 | 4.98 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 1.56 | 0.71 |
| 1¼ | 32 | 1.06 | 27.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.208 | 5.28 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 2.44 | 1.11 |
| 1½ | 40 | 1.25 | 32.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.218 | 5.54 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 3.25 | 1.47 |
| 2 | 50 | 1.50 | 38.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.238 | 6.04 | 2.097<br>2.037 | 53.3<br>51.7 | 0.62 | 16.0 | 5.20 | 2.36 |
| 2½ | 65 | 1.62 | 41.0 | 2.931<br>2.906 | 74.4<br>73.9 | 0.302 | 7.67 | 2.529<br>2.409 | 64.2<br>61.2 | 0.62 | 16.0 | 13.40 | 6.08 |
| 3 | 80 | 2.25 | 57.0 | 3.560<br>3.535 | 90.3<br>89.8 | 0.327 | 8.30 | 3.128<br>3.008 | 79.4<br>76.4 | 0.62 | 16.0 | 20.00 | 9.07 |
| 4 | 100 | 2.62 | 66.5 | 4.570<br>4.545 | 115.7<br>115.2 | 0.368 | 9.35 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | – | – |

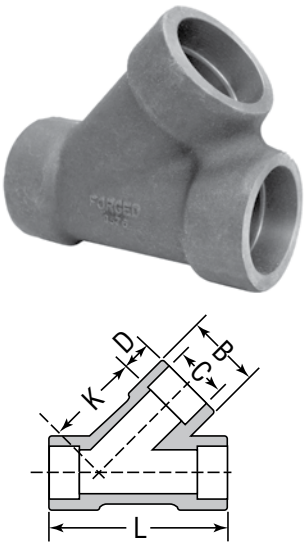
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.

Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

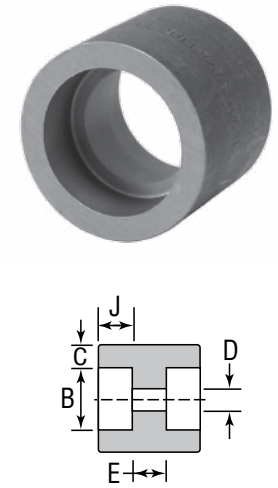
## Class 3000 Socket Weld

**FIGURE 2158**
**Laterals**




| Size | | B | | C | | D | | K | | L | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 1.31 | 33.27 | 0.855 | 21.72 | 0.375 | 8.89 | 2.125 | 54.66 | 3.000 | 76.20 | 1.00 | 0.45 |
| ¾ | 20 | 1.56 | 39.62 | 1.065 | 27.05 | 0.500 | 12.70 | 2.563 | 65.10 | 3.563 | 90.50 | 1.50 | 0.68 |
| 1 | 25 | 1.84 | 46.74 | 1.330 | 33.78 | 0.500 | 12.70 | 3.000 | 76.2 | 4.125 | 104.78 | 2.38 | 1.07 |
| 1¼ | 32 | 2.22 | 56.39 | 1.675 | 41.91 | 0.500 | 12.70 | 3.500 | 88.90 | 4.813 | 122.25 | 3.75 | 1.69 |
| 1½ | 40 | 2.50 | 63.50 | 1.915 | 49.53 | 0.500 | 12.70 | 3.938 | 100.03 | 5.375 | 135.89 | 4.13 | 1.91 |
| 2 | 50 | 3.03 | 79.96 | 2.406 | 61.11 | 0.625 | 16.51 | 4.750 | 120.65 | 6.438 | 163.53 | 6.29 | 2.83 |

**FIGURE 2154**
**Couplings**




| Size | | B *Socket Dia.* | | C *Minimum* | | D *Bore Dia.* | | E | | J *Socket Depth Minimum* | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | .440<br>.420 | 11.2<br>10.8 | 0.125 | 3.18 | .299<br>.239 | 7.6<br>6.1 | 0.25 | 6.5 | 0.38 | 9.5 | 0.08 | 0.04 |
| ¼ | 8 | .575<br>.555 | 14.6<br>14.2 | 0.130 | 3.30 | .394<br>.334 | 10.0<br>8.5 | 0.25 | 6.5 | 0.38 | 9.5 | 0.10 | 0.05 |
| ⅜ | 10 | .710<br>.690 | 18.0<br>17.6 | 0.138 | 3.50 | .523<br>.463 | 13.3<br>11.8 | 0.25 | 6.5 | 0.38 | 9.5 | 0.16 | 0.07 |
| ½ | 15 | .875<br>.855 | 22.2<br>21.8 | 0.161 | 4.09 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.38 | 9.5 | 0.21 | 0.10 |
| ¾ | 20 | 1.085<br>1.065 | 27.6<br>27.2 | 0.168 | 4.27 | .854<br>.794 | 21.7<br>20.2 | 0.38 | 9.5 | 0.50 | 12.5 | 0.40 | 0.18 |
| 1 | 25 | 1.350<br>1.330 | 34.3<br>33.9 | 0.196 | 4.98 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 0.50 | 12.5 | 0.55 | 0.25 |
| 1¼ | 32 | 1.695<br>1.675 | 43.1<br>42.7 | 0.208 | 5.28 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 0.50 | 12.5 | 0.75 | 0.34 |
| 1½ | 40 | 1.935<br>1.915 | 49.2<br>48.8 | 0.218 | 5.54 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 0.50 | 12.5 | 1.10 | 0.50 |
| 2 | 50 | 2.426<br>2.406 | 61.7<br>61.2 | 0.238 | 6.04 | 2.097<br>2.037 | 53.3<br>51.7 | 0.75 | 19.0 | 0.62 | 16.0 | 1.65 | 0.75 |
| 2½ | 65 | 2.931<br>2.906 | 74.4<br>73.9 | 0.302 | 7.67 | 2.529<br>2.409 | 64.2<br>61.2 | 0.75 | 19.0 | 0.62 | 16.0 | 3.25 | 1.47 |
| 3 | 80 | 3.560<br>3.535 | 90.3<br>89.8 | 0.327 | 8.30 | 3.128<br>3.008 | 79.4<br>76.4 | 0.75 | 19.0 | 0.62 | 16.0 | 5.10 | 2.31 |
| 4 | 100 | 4.570<br>4.545 | 115.7<br>115.2 | 0.368 | 9.35 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | 0.75 | 19.0 | 7.50 | 3.40 |

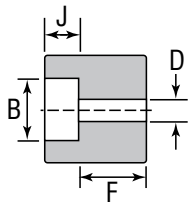
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

## Class 3000 Socket Weld

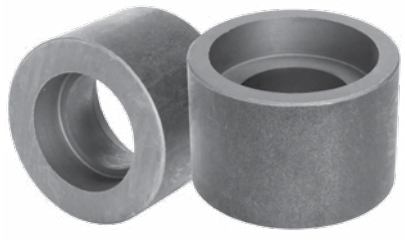


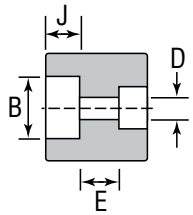
**FIGURE 2155**
**Half Couplings**




| Size | | B Socket Dia. | | D Bore Dia. | | F | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | .440<br>.420 | 11.2<br>10.8 | .299<br>.239 | 7.6<br>6.1 | 0.62 | 16.0 | 0.38 | 9.5 | 0.09 | 0.04 |
| ¼ | 8 | .575<br>.555 | 14.6<br>14.2 | .394<br>.334 | 10.0<br>8.5 | 0.62 | 16.0 | 0.38 | 9.5 | 0.12 | 0.05 |
| ⅜ | 10 | .710<br>.690 | 18.0<br>17.6 | .523<br>.463 | 13.3<br>11.8 | 0.69 | 17.5 | 0.38 | 9.5 | 0.23 | 0.10 |
| ½ | 15 | .875<br>.855 | 22.2<br>21.8 | .652<br>.592 | 16.6<br>15.0 | 0.88 | 22.5 | 0.38 | 9.5 | 0.28 | 0.13 |
| ¾ | 20 | 1.085<br>1.065 | 27.6<br>27.2 | .854<br>.794 | 21.7<br>20.2 | 0.94 | 24.0 | 0.50 | 12.5 | 0.43 | 0.20 |
| 1 | 25 | 1.350<br>1.330 | 34.3<br>33.9 | 1.079<br>1.019 | 27.4<br>25.9 | 1.12 | 28.5 | 0.50 | 12.5 | 0.66 | 0.30 |
| 1¼ | 32 | 1.695<br>1.675 | 43.1<br>42.7 | 1.410<br>1.350 | 35.8<br>34.3 | 1.19 | 30.0 | 0.50 | 12.5 | 1.10 | 0.50 |
| 1½ | 40 | 1.935<br>1.915 | 49.2<br>48.8 | 1.640<br>1.580 | 41.6<br>40.1 | 1.25 | 32.0 | 0.50 | 12.5 | 1.06 | 0.48 |
| 2 | 50 | 2.426<br>2.406 | 61.7<br>61.2 | 2.097<br>2.037 | 53.3<br>51.7 | 1.62 | 41.0 | 0.62 | 16.0 | 2.15 | 0.98 |
| 2½ | 65 | 2.931<br>2.906 | 74.4<br>73.9 | 2.529<br>2.409 | 64.2<br>61.2 | 1.69 | 43.0 | 0.62 | 16.0 | 3.70 | 1.68 |
| 3 | 80 | 3.560<br>3.535 | 90.3<br>89.8 | 3.128<br>3.008 | 79.4<br>76.4 | 1.75 | 44.5 | 0.62 | 16.0 | 6.00 | 2.72 |
| 4 | 100 | 4.570<br>4.545 | 115.7<br>115.2 | 4.086<br>3.966 | 103.8<br>100.7 | 1.88 | 48.0 | 0.75 | 19.0 | 8.00 | 3.63 |

**FIGURE 2156**
**Reducing Couplings**






| Size | | | | B Socket Dia. | | D Bore Dia. | | E | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lowest Reduction | | | | | | | | | | | |
| NPS | DN | NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ¼ | 8 | ⅛ | 6 | .575<br>.555 | 14.6<br>14.2 | .394<br>.334 | 10.0<br>8.5 | 0.25 | 6.5 | 0.38 | 9.5 | 0.10 | 0.05 |
| ⅜ | 10 | ⅛ | 6 | .710<br>.690 | 18.0<br>17.6 | .523<br>.463 | 13.3<br>11.8 | 0.25 | 6.5 | 0.38 | 9.5 | 0.16 | 0.07 |
| ½ | 15 | ⅛ | 6 | .875<br>.855 | 22.2<br>21.8 | .652<br>.592 | 16.6<br>15.0 | 0.38 | 9.5 | 0.38 | 9.5 | 0.21 | 0.10 |
| ¾ | 20 | ⅛ | 6 | 1.085<br>1.065 | 27.6<br>27.2 | .854<br>.794 | 21.7<br>20.2 | 0.38 | 9.5 | 0.50 | 12.5 | 0.40 | 0.18 |
| 1 | 25 | ⅛ | 6 | 1.350<br>1.330 | 34.3<br>33.9 | 1.079<br>1.019 | 27.4<br>25.9 | 0.50 | 12.5 | 0.50 | 12.5 | 0.55 | 0.25 |
| 1¼ | 32 | ¼ | 8 | 1.695<br>1.675 | 43.1<br>42.7 | 1.410<br>1.350 | 35.8<br>34.3 | 0.50 | 12.5 | 0.50 | 12.5 | 0.75 | 0.34 |
| 1½ | 40 | ¼ | 8 | 1.935<br>1.915 | 49.2<br>48.8 | 1.640<br>1.580 | 41.6<br>40.1 | 0.50 | 12.5 | 0.50 | 12.5 | 1.10 | 0.50 |
| 2 | 50 | ½ | 15 | 2.426<br>2.406 | 61.7<br>61.2 | 2.097<br>2.037 | 53.3<br>51.7 | 0.75 | 19.0 | 0.62 | 16.0 | 1.65 | 0.75 |
| 2½ | 65 | ½ | 15 | 2.931<br>2.906 | 74.4<br>73.9 | 2.529<br>2.409 | 64.2<br>61.2 | 0.75 | 19.0 | 0.62 | 16.0 | 3.25 | 1.47 |
| 3 | 80 | 1½ | 40 | 3.560<br>3.535 | 90.3<br>89.8 | 3.128<br>3.008 | 79.4<br>76.4 | 0.75 | 19.0 | 0.62 | 16.0 | 5.10 | 2.31 |
| 4 | 100 | 2 | 50 | 4.570<br>4.545 | 115.7<br>115.2 | 4.086<br>3.966 | 103.8<br>100.7 | 0.75 | 19.0 | 0.75 | 19.0 | 7.50 | 3.40 |

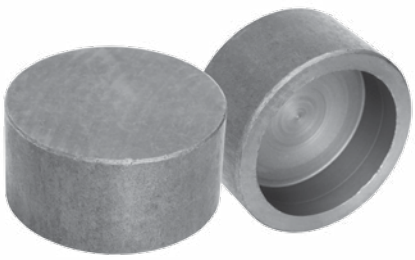
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.

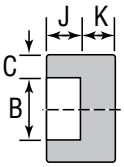
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

## Class 3000 Socket Weld

**FIGURE 2157**
**Pipe Caps**






| Size | | B Socket Dia. | | C Minimum | | J Socket Depth Minimum | | K | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | .440<br>.420 | *11.2*<br>*10.8* | 0.125 | *3.18* | 0.38 | *9.5* | 0.19 | *4.8* | 0.07 | *0.03* |
| ¼ | *8* | .575<br>.555 | *14.6*<br>*14.2* | 0.130 | *3.30* | 0.38 | *9.5* | 0.19 | *4.8* | 0.09 | *0.04* |
| ⅜ | *10* | .710<br>.690 | *18.0*<br>*17.6* | 0.138 | *3.50* | 0.38 | *9.5* | 0.19 | *4.8* | 0.17 | *0.08* |
| ½ | *15* | .875<br>.855 | *22.2*<br>*21.8* | 0.161 | *4.09* | 0.38 | *9.5* | 0.25 | *6.4* | 0.30 | *0.14* |
| ¾ | *20* | 1.085<br>1.065 | *27.6*<br>*27.2* | 0.168 | *4.27* | 0.50 | *12.5* | 0.25 | *6.4* | 0.37 | *0.17* |
| 1 | *25* | 1.350<br>1.330 | *34.3*<br>*33.9* | 0.196 | *4.98* | 0.50 | *12.5* | 0.38 | *9.6* | 0.60 | *0.27* |
| 1¼ | *32* | 1.695<br>1.675 | *43.1*<br>*42.7* | 0.208 | *5.28* | 0.50 | *12.5* | 0.38 | *9.6* | 0.96 | *0.44* |
| 1½ | *40* | 1.935<br>1.915 | *49.2*<br>*48.8* | 0.218 | *5.54* | 0.50 | *12.5* | 0.44 | *11.2* | 1.20 | *0.54* |
| 2 | *50* | 2.426<br>2.406 | *61.7*<br>*61.2* | 0.238 | *6.04* | 0.62 | *16.0* | 0.50 | *12.7* | 2.00 | *0.91* |
| 2½ | *65* | 2.931<br>2.906 | *74.4*<br>*73.9* | 0.302 | *7.67* | 0.62 | *16.0* | 0.62 | *15.7* | 2.75 | *1.25* |
| 3 | *80* | 3.560<br>3.535 | *90.3*<br>*89.8* | 0.327 | *8.30* | 0.62 | *16.0* | 0.75 | *19.0* | 5.00 | *2.27* |
| 4 | *100* | 4.570<br>4.545 | *115.7*<br>*115.2* | 0.368 | *9.35* | 0.75 | *19.0* | 0.88 | *22.4* | 8.25 | *3.74* |

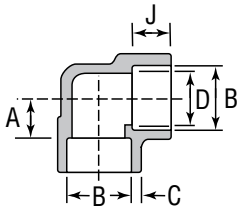
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

## Class 6000 Socket Weld

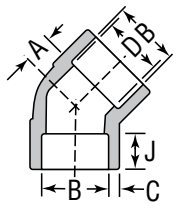


**FIGURE 2170**
**90° Elbows**




| Size | | A Nominal | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 0.75 | 19.0 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 0.90 | 0.41 |
| ¾ | 20 | 0.88 | 22.5 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | .642<br>.582 | 16.3<br>14.8 | 0.50 | 12.5 | 1.50 | 0.68 |
| 1 | 25 | 1.06 | 27.0 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 2.32 | 1.05 |
| 1¼ | 32 | 1.25 | 32.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 3.00 | 1.36 |
| 1½ | 40 | 1.50 | 38.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 5.50 | 2.49 |
| 2 | 50 | 1.62 | 41.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 1.717<br>1.657 | 43.6<br>42.1 | 0.62 | 16.0 | 6.50 | 2.95 |
| 2½ | 65 | 2.25 | 57.1 | 2.931<br>2.906 | 74.4<br>73.9 | 0.41 | 10.41 | 2.185<br>2.065 | 55.5<br>52.5 | 0.62 | 16.0 | 12.00 | 5.44 |
| 3 | 80 | 2.50 | 63.5 | 3.560<br>3.535 | 90.3<br>89.8 | 0.48 | 12.19 | 2.684<br>2.564 | 68.2<br>65.1 | 0.62 | 16.0 | 19.60 | 8.89 |
| 4 | 100 | 2.62 | 66.5 | 4.570<br>4.545 | 115.7<br>115.2 | 0.58 | 14.73 | 3.498<br>3.378 | 88.8<br>85.8 | 0.75 | 19.0 | 36.40 | 16.51 |

**FIGURE 2171**
**45° Elbows**



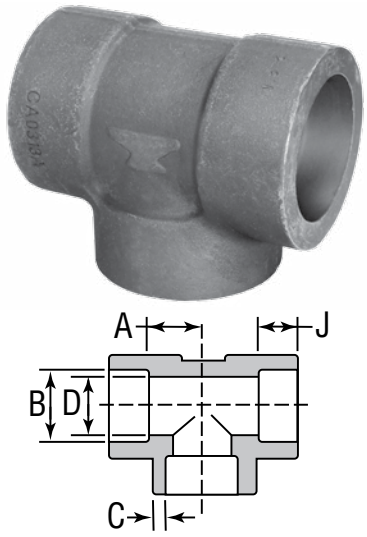

| Size | | A | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 0.50 | 12.5 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 0.90 | 0.41 |
| ¾ | 20 | 0.56 | 14.0 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | .642<br>.582 | 16.3<br>14.8 | 0.50 | 12.5 | 1.50 | 0.68 |
| 1 | 25 | 0.69 | 17.5 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 2.32 | 1.05 |
| 1¼ | 32 | 0.81 | 20.5 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 3.00 | 1.36 |
| 1½ | 40 | 1.00 | 25.5 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 5.50 | 2.49 |
| 2 | 50 | 1.12 | 28.5 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 1.717<br>1.657 | 43.6<br>42.1 | 0.62 | 16.0 | 6.50 | 2.95 |
| 2½ | 65 | 1.25 | 31.8 | 2.931<br>2.906 | 74.4<br>73.9 | 0.41 | 10.41 | 2.185<br>2.065 | 55.5<br>52.5 | 0.62 | 16.0 | 12.00 | 5.44 |
| 3 | 80 | 1.38 | 35.1 | 3.560<br>3.535 | 90.3<br>89.8 | 0.48 | 12.19 | 2.684<br>2.564 | 68.2<br>65.1 | 0.62 | 16.0 | 19.60 | 8.89 |
| 4 | 100 | 1.58 | 40.1 | 4.570<br>4.545 | 115.7<br>115.2 | 0.58 | 14.73 | 3.498<br>3.378 | 88.8<br>85.8 | 0.75 | 19.0 | 36.40 | 16.51 |

**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

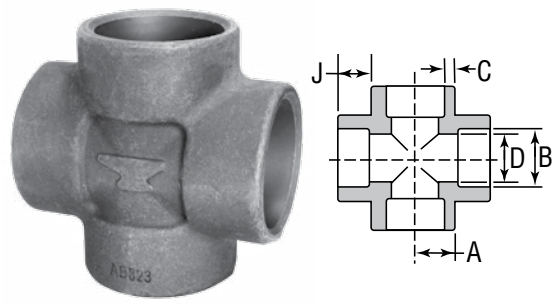
## Class 6000 Socket Weld

### FIGURE 2172
**Tees**



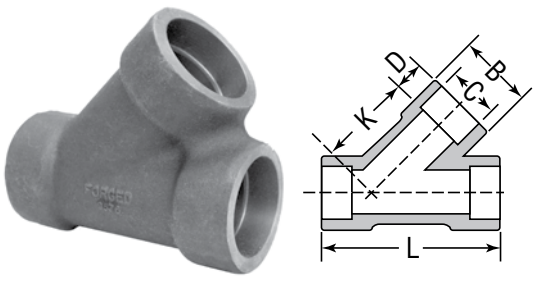

| Size | | A | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 0.75 | 19.0 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 1.16 | 0.53 |
| ¾ | 20 | 0.88 | 22.5 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | .642<br>.582 | 16.3<br>14.8 | 0.50 | 12.5 | 2.00 | 0.91 |
| 1 | 25 | 1.06 | 27.0 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 3.16 | 1.43 |
| 1¼ | 32 | 1.25 | 32.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 3.62 | 1.64 |
| 1½ | 40 | 1.50 | 38.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 7.10 | 3.22 |
| 2 | 50 | 1.62 | 41.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 1.717<br>1.657 | 43.6<br>42.1 | 0.62 | 16.0 | 8.90 | 4.04 |
| 2½ | 65 | 2.25 | 57.1 | 2.931<br>2.906 | 74.4<br>73.9 | 0.41 | 10.41 | 2.185<br>2.065 | 55.5<br>52.5 | 0.62 | 16.0 | 16.63 | 7.54 |
| 3 | 80 | 2.50 | 63.5 | 3.560<br>3.535 | 90.3<br>89.8 | 0.48 | 12.19 | 2.684<br>2.564 | 68.2<br>65.1 | 0.62 | 16.0 | 23.80 | 10.79 |
| 4 | 100 | 2.62 | 66.5 | 4.570<br>4.545 | 115.7<br>115.2 | 0.58 | 14.73 | 3.498<br>3.378 | 88.8<br>85.8 | 0.75 | 19.0 | 45.32 | 20.55 |

### FIGURE 2173
**Crosses**




| Size | | A | | B Socket Dia. | | C Minimum | | D Bore Dia. | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 0.75 | 19.0 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 1.40 | 0.63 |
| ¾ | 20 | 0.88 | 22.5 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | .642<br>.582 | 16.3<br>14.8 | 0.50 | 12.5 | 2.30 | 1.04 |
| 1 | 25 | 1.06 | 27.0 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 3.80 | 1.72 |
| 1¼ | 32 | 1.25 | 32.0 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 4.70 | 2.13 |
| 1½ | 40 | 1.50 | 38.0 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 8.70 | 3.95 |
| 2 | 50 | 1.62 | 41.0 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 1.717<br>1.657 | 43.6<br>42.1 | 0.62 | 16.0 | 9.30 | 4.22 |

### FIGURE 2178
**Laterals**




| Size | | B | | C | | D | | K | | L | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 1.56 | 39.62 | 0.855 | 21.72 | 0.375 | 8.89 | 2.56 | 65.10 | 3.56 | 90.50 | 2.00 | 0.91 |
| ¾ | 20 | 1.84 | 46.74 | 1.065 | 27.05 | 0.500 | 12.70 | 3.00 | 76.20 | 4.13 | 104.78 | 3.06 | 1.39 |
| 1 | 25 | 2.22 | 56.39 | 1.330 | 33.78 | 0.500 | 12.70 | 3.50 | 88.90 | 4.81 | 122.17 | 5.13 | 2.33 |
| 1¼ | 32 | 2.50 | 63.50 | 1.675 | 41.91 | 0.500 | 12.70 | 3.94 | 100.08 | 5.38 | 135.89 | 6.25 | 2.84 |
| 1½ | 40 | 3.03 | 76.96 | 1.915 | 49.53 | 0.500 | 12.70 | 4.75 | 120.65 | 6.44 | 163.58 | 11.94 | 5.43 |

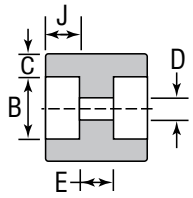
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.

Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

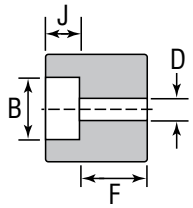
## Class 6000 Socket Weld

**FIGURE 2174**
**Couplings**




| Size | | B Socket Dia. | | C Minimum | | D Bore Dia. | | E | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 0.38 | 9.5 | 0.53 | 0.24 |
| ¾ | 20 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | .642<br>.582 | 16.3<br>14.8 | 0.38 | 9.5 | 0.50 | 12.5 | 0.56 | 0.25 |
| 1 | 25 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 0.50 | 12.5 | 0.92 | 0.42 |
| 1¼ | 32 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 0.50 | 12.5 | 1.16 | 0.53 |
| 1½ | 40 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 0.50 | 12.5 | 2.57 | 1.17 |
| 2 | 50 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 1.717<br>1.657 | 43.6<br>42.1 | 0.75 | 19.0 | 0.62 | 16.0 | 4.75 | 2.15 |
| 2½ | 65 | 2.931<br>2.906 | 74.4<br>73.9 | 0.410 | 10.41 | 2.185<br>2.065 | 55.5<br>52.5 | 0.75 | 19.0 | 0.62 | 16.0 | – | – |
| 3 | 80 | 3.560<br>3.535 | 90.3<br>89.8 | 0.480 | 12.19 | 2.684<br>2.564 | 68.2<br>65.1 | 0.75 | 19.0 | 0.62 | 16.0 | – | – |
| 4 | 100 | 4.570<br>4.545 | 115.7<br>115.2 | 0.580 | 14.73 | 3.498<br>3.378 | 88.8<br>85.8 | 0.75 | 19.0 | 0.75 | 19.0 | – | – |

**FIGURE 2175**
**Half Couplings**




| Size | | B Socket Dia. | | D Bore Dia. | | F | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | .875<br>.855 | 22.2<br>21.8 | .494<br>.434 | 12.5<br>11.0 | 0.88 | 22.5 | 0.38 | 9.5 | 0.56 | 0.25 |
| ¾ | 20 | 1.085<br>1.065 | 27.6<br>27.2 | .642<br>.582 | 16.3<br>14.8 | 0.94 | 24.0 | 0.50 | 12.5 | 0.95 | 0.43 |
| 1 | 25 | 1.350<br>1.330 | 34.3<br>33.9 | .845<br>.785 | 21.5<br>19.9 | 1.12 | 28.5 | 0.50 | 12.5 | 1.12 | 0.51 |
| 1¼ | 32 | 1.695<br>1.675 | 43.1<br>42.7 | 1.190<br>1.130 | 30.2<br>28.7 | 1.19 | 30.0 | 0.50 | 12.5 | 1.87 | 0.85 |
| 1½ | 40 | 1.935<br>1.915 | 49.2<br>48.8 | 1.368<br>1.308 | 34.7<br>33.2 | 1.25 | 32.0 | 0.50 | 12.5 | 2.87 | 1.30 |
| 2 | 50 | 2.426<br>2.406 | 61.7<br>61.2 | 1.717<br>1.657 | 43.6<br>42.1 | 1.62 | 41.0 | 0.62 | 16.0 | 3.62 | 1.64 |
| 2½ | 65 | 2.931<br>2.906 | 74.4<br>73.9 | 2.185<br>2.065 | 55.5<br>52.5 | 1.69 | 43.0 | 0.62 | 16.0 | – | – |
| 3 | 80 | 3.560<br>3.535 | 90.3<br>89.8 | 2.684<br>2.564 | 68.2<br>65.1 | 1.75 | 44.5 | 0.62 | 16.0 | – | – |
| 4 | 100 | 4.570<br>4.545 | 115.7<br>115.2 | 3.498<br>3.378 | 88.8<br>85.8 | 1.88 | 48.0 | 0.75 | 19.0 | – | – |

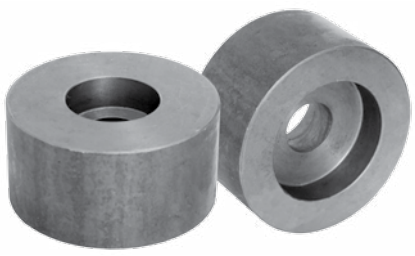
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.

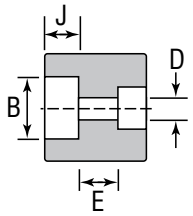
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

## Class 6000 Socket Weld

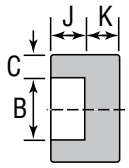
**FIGURE 2176**
**Reducing Couplings**






| Size | | | | B Socket Dia. | | D Bore Dia. | | E | | J Socket Depth Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lowest Reduction | | | | | | | | | | | |
| NPS | DN | NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | ¼ | 8 | .875<br>.855 | 22.2<br>21.8 | .494<br>.434 | 12.5<br>11.0 | 0.38 | 9.5 | 0.38 | 9.5 | – | – |
| ¾ | 20 | ⅜ | 10 | 1.085<br>1.065 | 27.6<br>27.2 | .642<br>.582 | 16.3<br>14.8 | 0.38 | 9.5 | 0.50 | 12.5 | 0.81 | 0.37 |
| 1 | 25 | ⅜ | 10 | 1.350<br>1.330 | 34.3<br>33.9 | .845<br>.785 | 21.5<br>19.9 | 0.50 | 12.5 | 0.50 | 12.5 | 1.80 | 0.82 |
| 1¼ | 32 | ½ | 15 | 1.695<br>1.675 | 43.1<br>42.7 | 1.190<br>1.130 | 30.2<br>28.7 | 0.50 | 12.5 | 0.50 | 12.5 | 2.00 | 0.91 |
| 1½ | 40 | ½ | 15 | 1.935<br>1.915 | 49.2<br>48.8 | 1.368<br>1.308 | 34.7<br>33.2 | 0.50 | 12.5 | 0.50 | 12.5 | 3.20 | 1.45 |
| 2 | 50 | ¾ | 20 | 2.426<br>2.406 | 61.7<br>61.2 | 1.717<br>1.657 | 43.6<br>42.1 | 0.75 | 19.0 | 0.62 | 16.0 | 5.40 | 2.45 |
| 2½ | 65 | 1¼ | 32 | 2.931<br>2.906 | 74.4<br>73.9 | 2.185<br>2.065 | 55.5<br>52.5 | 0.75 | 19.0 | 0.62 | 16.0 | – | – |
| 3 | 80 | 1½ | 40 | 3.560<br>3.535 | 90.3<br>89.8 | 2.684<br>2.564 | 68.2<br>65.1 | 0.75 | 19.0 | 0.62 | 16.0 | – | – |
| 4 | 100 | 2 | 50 | 4.570<br>4.545 | 115.7<br>115.2 | 3.498<br>3.378 | 88.8<br>85.8 | 0.75 | 19.0 | 0.75 | 19.0 | – | – |

**FIGURE 2177**
**Pipe Caps**




| Size | | B Socket Dia. | | C Minimum | | J Socket Depth Minimum | | K Minimum | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | DN | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | .875<br>.855 | 22.2<br>21.8 | 0.204 | 5.18 | 0.38 | 9.5 | 0.31 | 7.9 | 0.42 | 0.19 |
| ¾ | 20 | 1.085<br>1.065 | 27.6<br>27.2 | 0.238 | 6.04 | 0.50 | 12.5 | 0.31 | 7.9 | 0.58 | 0.26 |
| 1 | 25 | 1.350<br>1.330 | 34.3<br>33.9 | 0.273 | 6.93 | 0.50 | 12.5 | 0.44 | 11.2 | 1.21 | 0.55 |
| 1¼ | 32 | 1.695<br>1.675 | 43.1<br>42.7 | 0.273 | 6.93 | 0.50 | 12.5 | 0.44 | 11.2 | 1.00 | 0.45 |
| 1½ | 40 | 1.935<br>1.915 | 49.2<br>48.8 | 0.307 | 7.80 | 0.50 | 12.5 | 0.50 | 12.7 | 2.12 | 0.96 |
| 2 | 50 | 2.426<br>2.406 | 61.7<br>61.2 | 0.374 | 9.50 | 0.62 | 16.0 | 0.62 | 15.7 | 4.87 | 2.21 |
| 2½ | 65 | 2.931<br>2.906 | 74.4<br>73.9 | 0.41 | 10.41 | 0.62 | 16.0 | 0.75 | 19.0 | – | – |
| 3 | 80 | 3.560<br>3.535 | 90.3<br>89.8 | 0.48 | 12.19 | 0.62 | 16.0 | 0.88 | 22.4 | – | – |
| 4 | 100 | 4.570<br>4.545 | 115.7<br>115.2 | 0.58 | 14.73 | 0.75 | 19.0 | 1.12 | 28.4 | – | – |

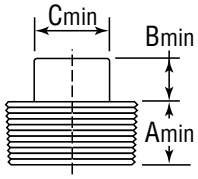
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in *(1.6mm)* away from contact with the bottom of the socket before starting the weld.

Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# Forged Steel Fittings

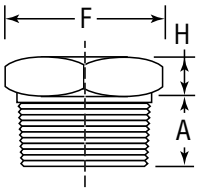
## High Pressure Plugs

### FIGURE 2122
**Square Head Plugs**



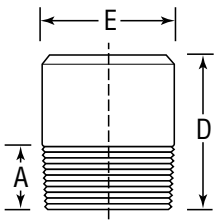

| Size | | A | | B | | C | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.38 | *10* | 0.25 | *6* | 0.28 | *7* | 0.02 | *0.01* |
| ¼ | *8* | 0.44 | *11* | 0.25 | *6* | 0.38 | *10* | 0.03 | *0.01* |
| ⅜ | *10* | 0.50 | *13* | 0.31 | *8* | 0.44 | *11* | 0.06 | *0.03* |
| ½ | *15* | 0.56 | *14* | 0.38 | *10* | 0.56 | *14* | 0.10 | *0.05* |
| ¾ | *20* | 0.62 | *16* | 0.44 | *11* | 0.62 | *16* | 0.18 | *0.08* |
| 1 | *25* | 0.75 | *19* | 0.50 | *13* | 0.81 | *21* | 0.38 | *0.17* |
| 1¼ | *32* | 0.81 | *21* | 0.56 | *14* | 0.94 | *24* | 0.62 | *0.28* |
| 1½ | *40* | 0.81 | *21* | 0.62 | *16* | 1.12 | *28* | 0.88 | *0.40* |
| 2 | *50* | 0.88 | *22* | 0.69 | *18* | 1.31 | *32* | 1.40 | *0.63* |
| 2½ | *65* | 1.06 | *27* | 0.75 | *19* | 1.50 | *36* | 2.20 | *1.00* |
| 3 | *80* | 1.12 | *28* | 0.81 | *21* | 1.69 | *41* | 3.40 | *1.54* |
| 4 | *100* | 1.25 | *32* | 1.00 | *25* | 2.50 | *65* | 8.50 | *3.85* |

### FIGURE 2142
**Hex Head Plugs**




| Size | | A | | F *Across Flats* | | H | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.38 | *10* | 0.44 | *11* | 0.25 | *6* | 0.03 | *0.01* |
| ¼ | *8* | 0.44 | *11* | 0.62 | *16* | 0.25 | *6* | 0.05 | *0.02* |
| ⅜ | *10* | 0.50 | *13* | 0.69 | *18* | 0.31 | *8* | 0.09 | *0.04* |
| ½ | *15* | 0.56 | *14* | 0.88 | *22* | 0.31 | *8* | 0.13 | *0.06* |
| ¾ | *20* | 0.62 | *16* | 1.06 | *27* | 0.38 | *10* | 0.27 | *0.12* |
| 1 | *25* | 0.75 | *19* | 1.38 | *36* | 0.38 | *10* | 0.48 | *0.22* |
| 1¼ | *32* | 0.81 | *21* | 1.75 | *46* | 0.56 | *14* | 0.94 | *0.43* |
| 1½ | *40* | 0.81 | *21* | 2.00 | *50* | 0.62 | *16* | 1.20 | *0.54* |
| 2 | *50* | 0.88 | *22* | 2.50 | *65* | 0.69 | *18* | 2.40 | *1.09* |
| 2½ | *65* | 1.06 | *27* | 3.00 | *75* | 0.75 | *19* | 3.80 | *1.72* |
| 3 | *80* | 1.12 | *28* | 3.50 | *90* | 0.81 | *21* | 4.80 | *2.18* |
| 4 | *100* | 1.25 | *32* | 4.62 | *115* | 1.00 | *25* | 13.00 | *5.90* |

### FIGURE 2121
**Round Head Plugs**



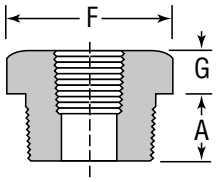

| Size | | A | | D | | E | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | 0.38 | *10* | 1.38 | *35* | 0.41 | *10* | 0.05 | *0.02* |
| ¼ | *8* | 0.44 | *11* | 1.62 | *41* | 0.53 | *13* | 0.10 | *0.05* |
| ⅜ | *10* | 0.50 | *13* | 1.62 | *41* | 0.69 | *18* | 0.16 | *0.07* |
| ½ | *15* | 0.56 | *14* | 1.75 | *44* | 0.84 | *21* | 0.28 | *0.13* |
| ¾ | *20* | 0.62 | *16* | 1.75 | *44* | 1.06 | *27* | 0.42 | *0.19* |
| 1 | *25* | 0.75 | *19* | 2.00 | *51* | 1.31 | *33* | 0.82 | *0.37* |
| 1¼ | *32* | 0.81 | *21* | 2.00 | *51* | 1.69 | *43* | 1.20 | *0.54* |
| 1½ | *40* | 0.81 | *21* | 2.00 | *51* | 1.91 | *49* | 1.50 | *0.68* |
| 2 | *50* | 0.88 | *22* | 2.50 | *64* | 2.38 | *60* | 3.20 | *1.45* |
| 2½ | *65* | 1.06 | *27* | 2.75 | *70* | 2.88 | *73* | – | – |
| 3 | *80* | 1.12 | *28* | 2.75 | *70* | 3.50 | *89* | – | – |
| 4 | *100* | 1.25 | *32* | 3.00 | *76* | 4.50 | *114* | – | – |

**Note:** Plugs and bushings are not identified by Pressure Class. They may be used for ratings up to Pressure Class 6000 (per ASME B16.11)

# Forged Steel Fittings

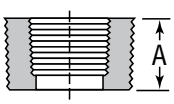
## High Pressure Bushings

**FIGURE 2139**
**Hex Head Bushings**




| Size | | | | A | | F | | G | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Lowest Reduction | | | | | | | | | |
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ⅛ | *6* | 0.44 | *11* | 0.62 | *16* | 0.12 | *3* | 0.02 | *0.01* |
| ⅜ | *10* | ⅛ | *6* | 0.50 | *13* | 0.69 | *18* | 0.16 | *4* | 0.03 | *0.01* |
| ½ | *15* | ⅛ | *6* | 0.56 | *14* | 0.88 | *22* | 0.19 | *5* | 0.06 | *0.03* |
| ¾ | *20* | ⅛ | *6* | 0.62 | *16* | 1.06 | *27* | 0.22 | *6* | 0.11 | *0.05* |
| 1 | *25* | ⅛ | *6* | 0.75 | *19* | 1.38 | *36* | 0.25 | *6* | 0.20 | *0.09* |
| 1¼ | *32* | ⅛ | *6* | 0.81 | *21* | 1.75 | *46* | 0.28 | *7* | 0.40 | *0.18* |
| 1½ | *40* | ¼ | *8* | 0.81 | *21* | 2.00 | *50* | 0.31 | *8* | 0.50 | *0.23* |
| 2 | *50* | ¼ | *8* | 0.88 | *22* | 2.50 | *65* | 0.34 | *9* | 0.85 | *0.39* |
| 2½ | *65* | ½ | *15* | 1.06 | *27* | 3.00 | *75* | 0.38 | *10* | 1.20 | *0.54* |
| 3 | *80* | ½ | *15* | 1.12 | *28* | 3.50 | *90* | 0.41 | *10* | 2.60 | *1.18* |
| 4 | *100* | 1½ | *40* | 1.25 | *32* | 4.62 | *115* | 0.50 | *13* | 7.00 | *3.17* |

**FIGURE 2140**
**Flush Bushings**

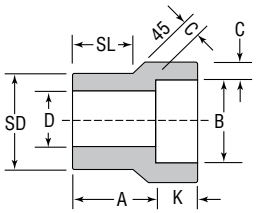



| Size | | | | A | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | Lowest Reduction | | | | | |
| NPS | *DN* | NPS | *DN* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ⅛ | *6* | 0.44 | *11* | 0.03 | *0.01* |
| ⅜ | *10* | ⅛ | *6* | 0.50 | *13* | 0.03 | *0.01* |
| ½ | *15* | ⅛ | *6* | 0.56 | *14* | 0.06 | *0.03* |
| ¾ | *20* | ⅛ | *6* | 0.62 | *16* | 0.09 | *0.04* |
| 1 | *25* | ⅛ | *6* | 0.75 | *19* | 0.12 | *0.05* |
| 1¼ | *32* | ⅛ | *6* | 0.81 | *21* | 0.15 | *0.07* |
| 1½ | *40* | ¼ | *8* | 0.81 | *21* | 0.20 | *0.09* |
| 2 | *50* | ¼ | *8* | 0.88 | *22* | 0.35 | *0.16* |

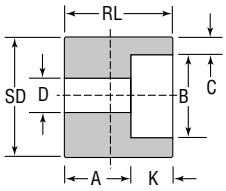
**Note:** Plugs and bushings are not identified by Pressure Class. They may be used for ratings up to Pressure Class 6000 (per ASME B16.11)

# Forged Steel Fittings

## Socket-Weld Reducer Inserts




Type 1 - Reducer Insert
Fig. 2159




Type 2 - Reducer Insert
Fig. 2179

### CLASS 3000
**For use with Schedule 40 and 80 Pipe**

Reducer inserts comply with MSS standard SP-79. They enable standard socket-weld fittings to be used for making any combination of pipe line reductions quickly and economically. Socket-weld reducer inserts serve SD D the same purpose as threaded reducing bushings with threaded fittings.

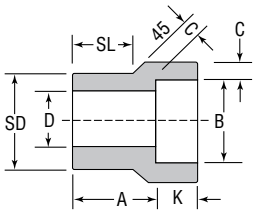
| Size | | | | Class 3000 – For use with Schedule 40 and 80 Pipe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD | | B | | Type | A | | D | | C Min. | | K | | SL | | RL Min. | | Unit Weight | |
| NPS | *DN* | NPS | *DN* | | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | ¼ | *8* | 1 | 0.81 | *20.57* | 0.364 | *9.25* | 0.149 | *3.78* | 0.438 | *11.11* | 0.62 | *15.75* | – | – | 0.18 | *0.08* |
| | | ⅜ | *10* | 1 | 0.81 | *20.57* | 0.493 | *12.52* | 0.158 | *4.00* | 0.438 | *11.11* | 0.62 | *15.75* | – | – | | |
| ¾ | *20* | ¼ | *8* | 2 | 0.69 | *17.53* | 0.364 | *9.25* | 0.149 | *3.78* | 0.375 | *9.53* | – | – | 1.06 | *27* | 0.25 | *0.11* |
| | | ⅜ | *10* | 2 | 0.62 | *15.75* | 0.493 | *12.52* | 0.158 | *4.00* | 0.438 | *11.11* | – | – | 1.06 | *27* | | |
| | | ½ | *15* | 1 | 0.88 | *22.35* | 0.622 | *15.80* | 0.184 | *4.67* | 0.438 | *11.11* | 0.69 | *17.53* | – | – | | |
| 1 | *25* | ¼ | *8* | 2 | 0.75 | *19.05* | 0.364 | *9.25* | 0.149 | *3.78* | 0.375 | *9.53* | – | – | 1.12 | *28* | 0.35 | *0.16* |
| | | ⅜ | *10* | 2 | 0.69 | *17.53* | 0.493 | *12.52* | 0.158 | *4.00* | 0.438 | *11.11* | – | – | 1.12 | *28* | | |
| | | ½ | *15* | 2 | 0.62 | *15.75* | 0.622 | *15.80* | 0.184 | *4.67* | 0.438 | *11.13* | – | – | 1.12 | *28* | | |
| | | ¾ | *20* | 1 | 0.94 | *23.88* | 0.824 | *20.93* | 0.193 | *4.90* | 0.563 | *14.29* | 0.75 | *19.05* | – | – | | |
| 1¼ | *32* | ¼ | *8* | 2 | 0.88 | *22.35* | 0.364 | *9.25* | 0.149 | *3.78* | 0.375 | *9.53* | – | – | 1.25 | *32* | 0.35 | *0.25* |
| | | ⅜ | *10* | 2 | 0.81 | *20.57* | 0.493 | *12.52* | 0.158 | *4.00* | 0.438 | *11.11* | – | – | 1.25 | *32* | | |
| | | ½ | *15* | 2 | 0.75 | *19.05* | 0.622 | *15.80* | 0.184 | *4.67* | 0.438 | *11.13* | – | – | 1.25 | *32* | | |
| | | ¾ | *20* | 2 | 0.69 | *17.53* | 0.824 | *20.93* | 0.193 | *4.90* | 0.563 | *14.29* | – | – | 1.25 | *32* | | |
| | | 1 | *25* | 1 | 1.00 | *25.40* | 1.049 | *26.65* | 0.224 | *5.69* | 0.563 | *14.29* | 0.81 | *20.57* | – | – | | |
| 1½ | *40* | ⅜ | *10* | 2 | 0.88 | *22.35* | 0.493 | *12.52* | 0.158 | *4.00* | 0.438 | *11.11* | – | – | 1.31 | *33* | 0.62 | *0.28* |
| | | ½ | *15* | 2 | 0.81 | *20.57* | 0.622 | *15.80* | 0.184 | *4.67* | 0.438 | *11.13* | – | – | 1.31 | *33* | | |
| | | ¾ | *20* | 2 | 0.75 | *19.05* | 0.824 | *20.93* | 0.193 | *4.90* | 0.563 | *14.29* | – | – | 1.31 | *33* | | |
| | | 1 | *25* | 2 | 0.69 | *17.53* | 1.049 | *26.65* | 0.224 | *5.69* | 0.500 | *12.70* | – | – | 1.31 | *33* | | |
| | | 1¼ | *32* | 1 | 1.12 | *28.45* | 1.380 | *35.05* | 0.239 | *6.00* | 0.563 | *14.29* | 0.88 | *22.35* | – | – | | |
| 2 | *50* | ½ | *15* | 2 | 1.00 | *25.40* | 0.622 | *15.80* | 0.184 | *4.67* | 0.438 | *11.13* | – | – | 1.50 | *38* | 1.50 | *0.68* |
| | | ¾ | *20* | 2 | 0.94 | *23.88* | 0.824 | *20.93* | 0.193 | *4.90* | 0.563 | *14.29* | – | – | 1.50 | *38* | | |
| | | 1 | *25* | 2 | 0.88 | *22.35* | 1.049 | *26.65* | 0.224 | *5.69* | 0.563 | *14.30* | – | – | 1.50 | *38* | | |
| | | 1¼ | *32* | 2 | 0.81 | *20.57* | 1.380 | *35.05* | 0.239 | *6.00* | 0.563 | *14.30* | – | – | 1.50 | *38* | | |
| | | 1½ | *40* | 1 | 1.25 | *31.75* | 1.610 | *40.64* | 0.250 | *6.35* | 0.563 | *14.29* | 1.00 | *25.40* | – | – | | |
| 2½ | *65* | ¾ | *20* | – | 1.56 | *39.62* | 0.824 | *20.93* | 0.193 | *4.90* | 0.562 | *14.27* | – | – | 2.12 | *54* | 3.00 | *1.36* |
| | | 1 | *25* | – | 1.50 | *38.10* | 1.049 | *26.65* | 0.224 | *5.69* | 0.562 | *14.27* | – | – | 2.12 | *54* | | |
| | | 1¼ | *32* | – | 1.44 | *36.58* | 1.380 | *35.05* | 0.239 | *6.00* | 0.562 | *14.27* | – | – | 2.12 | *54* | | |
| | | 1½ | *40* | – | 1.38 | *35.05* | 1.610 | *40.64* | 0.250 | *6.35* | 0.562 | *14.27* | – | – | 2.12 | *54* | | |
| | | 2 | *50* | – | 1.81 | *46.00* | 2.067 | *52.50* | 0.273 | *6.93* | 0.688 | *17.48* | 1.50 | *38.10* | – | – | | |
| 3 | *80* | 1 | *25* | – | 1.25 | *31.75* | 1.049 | *26.65* | 0.224 | *5.69* | 0.562 | *14.27* | – | – | 1.87 | *47* | 4.40 | *2.00* |
| | | 1¼ | *32* | – | 1.19 | *30.23* | 1.380 | *35.05* | 0.239 | *6.00* | 0.562 | *14.27* | – | – | 1.87 | *47* | | |
| | | 1½ | *40* | – | 1.12 | *28.45* | 1.610 | *40.64* | 0.250 | *6.35* | 0.562 | *14.27* | – | – | 1.87 | *47* | | |
| | | 2 | *50* | – | 1.00 | *25.40* | 2.067 | *52.50* | 0.273 | *6.93* | 0.688 | *17.48* | – | – | 1.87 | *47* | | |
| | | 2½ | *65* | – | 1.50 | *38.10* | 2.469 | *62.71* | 0.345 | *8.76* | 0.688 | *17.48* | 1.25 | *31.75* | – | – | | |

The larger size NPS is the insert size.

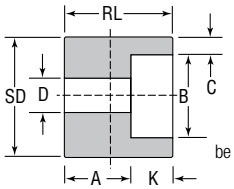
To minimize the possibility of cracking of the fillet welds, it is recommended that the shank portion of the reducer be withdrawn approximately .0625 in. *(1.6 mm)* away from the contact with the bottom of the socket before starting the weld. Likewise, the pipe is to be kept away from contacting the bottom of the reducer socket before welding.

# Forged Steel Fittings

## Socket-Weld Reducer Inserts




Type 1 - Reducer Insert
Fig. 2159




Type 2 - Reducer Insert
Fig. 2179

### CLASS 6000
**For use with Schedule 160 Pipe**

Reducer inserts comply with MSS standard SP-79. They enable standard socket-weld fittings to be used for making any combination of pipe line reductions quickly and economically. Socket-weld reducer inserts serve SD D the same purpose as threaded reducing bushings with threaded fittings.

| Size | | | | Class 6000 – For use with Schedule 160 Pipe | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD | | B | | Type | A | | D | | C Min. | | K | | SL | | RL Min. | | Unit Weight | |
| NPS | *DN* | NPS | *DN* | | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¾ | *20* | ¼ | *8* | 2 | 0.88 | *22.35* | 0.250 | *6.35* | 0.181 | *4.60* | 0.375 | *9.53* | – | – | 1.26 | *32* | 0.81 | *0.37* |
| | | ⅜ | *10* | 1 | 0.88 | *22.35* | 0.359 | *9.12* | 0.198 | *5.00* | 0.438 | *11.11* | 0.75 | *19.05* | – | – | | |
| | | ½ | *15* | 1 | 1.00 | *25.40* | 0.464 | *11.79* | 0.235 | *6.00* | 0.438 | *11.11* | 0.75 | *19.05* | – | – | | |
| 1 | *25* | ¼ | *8* | 2 | 0.94 | *23.88* | 0.250 | *6.35* | 0.181 | *4.60* | 0.375 | *9.53* | – | – | 1.31 | *33* | 1.80 | *0.82* |
| | | ⅜ | *10* | 2 | 0.88 | *22.35* | 0.359 | *9.12* | 0.198 | *5.00* | 0.438 | *11.13* | – | – | 1.31 | *33* | | |
| | | ½ | *15* | 1 | 1.12 | *28.45* | 0.464 | *11.79* | 0.235 | *6.00* | 0.438 | *11.11* | 0.81 | *20.57* | – | – | | |
| | | ¾ | *20* | 1 | 1.12 | *28.45* | 0.612 | *15.49* | 0.274 | *6.96* | 0.563 | *14.29* | 0.81 | *20.57* | – | – | | |
| 1¼ | *32* | ¼ | *8* | 2 | 1.00 | *25.40* | 0.250 | *6.35* | 0.181 | *4.60* | 0.375 | *9.53* | – | – | 1.37 | *35* | 2.00 | *0.91* |
| | | ⅜ | *10* | 2 | 0.94 | *23.88* | 0.359 | *9.12* | 0.198 | *5.00* | 0.438 | *11.11* | – | – | 1.37 | *35* | | |
| | | ½ | *15* | 2 | 0.88 | *22.35* | 0.464 | *11.79* | 0.235 | *6.00* | 0.438 | *11.13* | – | – | 1.37 | *35* | | |
| | | ¾ | *20* | 2 | 0.81 | *20.57* | 0.612 | *15.49* | 0.274 | *6.96* | 0.563 | *14.29* | – | – | 1.37 | *35* | | |
| | | 1 | *25* | 1 | 1.19 | *30.23* | 0.815 | *20.70* | 0.312 | *7.92* | 0.563 | *14.29* | 0.88 | *22.35* | – | – | | |
| 1½ | *40* | ⅜ | *10* | 2 | 1.12 | *28.45* | 0.359 | *9.12* | 0.198 | *5.00* | 0.438 | *11.11* | – | – | 1.56 | *40* | 3.20 | *1.45* |
| | | ½ | *15* | 2 | 1.06 | *26.92* | 0.464 | *11.79* | 0.235 | *6.00* | 0.438 | *11.13* | – | – | 1.56 | *40* | | |
| | | ¾ | *20* | 2 | 1.00 | *25.40* | 0.612 | *15.49* | 0.274 | *6.96* | 0.563 | *14.29* | – | – | 1.56 | *40* | | |
| | | 1 | *25* | 1 | 1.15 | *29.21* | 0.815 | *20.70* | 0.312 | *7.92* | 0.563 | *14.29* | 1.00 | *25.40* | – | – | | |
| | | 1¼ | *32* | 1 | 1.38 | *35.05* | 1.160 | *29.46* | 0.312 | *7.92* | 0.563 | *14.29* | 1.00 | *25.40* | – | – | | |
| 2 | *50* | ½ | *15* | 2 | 1.12 | *28.45* | 0.464 | *11.79* | 0.235 | *6.00* | 0.438 | *11.13* | – | – | 1.62 | *41* | 5.40 | *2.45* |
| | | ¾ | *20* | 2 | 1.06 | *26.92* | 0.612 | *15.49* | 0.274 | *6.96* | 0.562 | *14.3* | – | – | 1.62 | *41* | | |
| | | 1 | *25* | 2 | 1.00 | *25.40* | 0.815 | *20.70* | 0.312 | *7.92* | 0.562 | *14.3* | – | – | 1.62 | *41* | | |
| | | 1¼ | *32* | 2 | 0.94 | *23.88* | 1.160 | *29.46* | 0.312 | *7.92* | 0.562 | *14.3* | – | – | 1.62 | *41* | | |

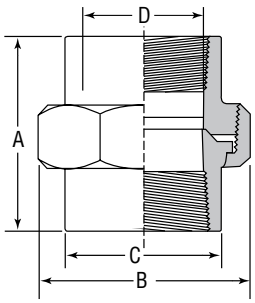
The larger size NPS is the insert size.

To minimize the possibility of cracking of the fillet welds, it is recommended that the shank portion of the reducer be withdrawn approximately .0625 in. *(1.6 mm)* away from the contact with the bottom of the socket before starting the weld. Likewise, the pipe is to be kept away from contacting the bottom of the reducer socket before welding.

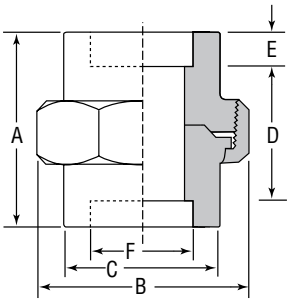
# Forged Steel Unions

## Class 3000 Threaded & Socket-Weld

Manufactured to MSS standard practice SP83
(Class 6000 by method of MSS SP83)




Threaded




Socket-Weld

**FIGURE 2125: Threaded Union**

| Size | | A | | B | | C* | | D | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 1.63 | *41.4* | 1.48 | *38* | .75 | *19.1* | .380 | *9.65* | 0.30 | *0.14* |
| ⅜ | *10* | 1.81 | *46.0* | 1.69 | *43* | .90 | *22.9* | .540 | *13.72* | 0.50 | *0.23* |
| ½ | *15* | 1.93 | *49.0* | 1.94 | *49* | 1.09 | *27.7* | .680 | *17.27* | 0.70 | *0.32* |
| ¾ | *20* | 2.24 | *56.9* | 2.38 | *60* | 1.32 | *33.5* | .850 | *21.59* | 1.20 | *0.54* |
| 1 | *25* | 2.44 | *62.0* | 2.78 | *71* | 1.63 | *41.4* | 1.100 | *27.94* | 1.70 | *0.77* |
| 1¼ | *32* | 2.80 | *71.1* | 3.36 | *85* | 1.99 | *50.5* | 1.400 | *35.56* | 2.50 | *1.13* |
| 1½ | *40* | 3.01 | *76.5* | 3.36 | *85* | 2.25 | *57.2* | 1.630 | *41.40* | 3.30 | *1.50* |
| 2 | *50* | 3.39 | *86.1* | 4.42 | *112* | 2.76 | *70.1* | 2.060 | *52.33* | 5.30 | *2.40* |
| 2½ | *65* | 4.03 | *102.4* | 5.23 | *133* | 3.36 | *85.3* | 2.540 | *64.52* | 8.60 | *3.90* |
| 3 | *80* | 4.29 | *109.0* | 6.16 | *156* | 4.03 | *102.4* | 3.050 | *77.47* | 12.70 | *5.76* |

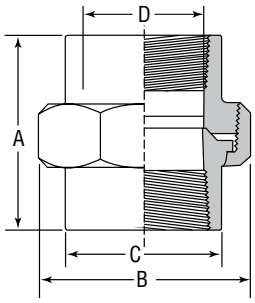
**FIGURE 2126: Socket-Weld Union**

| Size | | A | | B | | C* | | D | | E | | F | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 1.63 | *41.4* | 1.48 | *38* | 0.86 | *21.8* | .82 | *20.7* | .41 | *10.5* | 0.555<br>0.575 | *14*<br>*15* | 0.30 | *0.14* |
| ⅜ | *10* | 1.81 | *46.0* | 1.69 | *43* | 1.02 | *25.9* | .94 | *23.8* | .41 | *10.5* | 0.690<br>0.710 | *18*<br>*18* | 0.50 | *0.23* |
| ½ | *15* | 1.93 | *49.0* | 1.94 | *49* | 1.23 | *31.2* | .94 | *23.8* | .49 | *12.5* | 0.855<br>0.875 | *22*<br>*22* | 0.70 | *0.32* |
| ¾ | *20* | 2.24 | *56.9* | 2.38 | *60* | 1.46 | *37.1* | 1.13 | *28.6* | .55 | *14.0* | 1.065<br>1.085 | *27*<br>*28* | 1.20 | *0.54* |
| 1 | *25* | 2.44 | *62.0* | 2.78 | *71* | 1.79 | *45.5* | 1.19 | *30.3* | .59 | *15.0* | 1.330<br>1.350 | *34*<br>*34* | 1.70 | *0.77* |
| 1¼ | *32* | 2.80 | *71.1* | 3.36 | *85* | 2.16 | *54.9* | 1.44 | *36.6* | .67 | *17.0* | 1.675<br>1.695 | *43*<br>*43* | 2.50 | *1.13* |
| 1½ | *40* | 3.01 | *76.5* | 3.36 | *85* | 2.42 | *61.5* | 1.50 | *38.1* | .69 | *17.5* | 1.915<br>1.935 | *49*<br>*49* | 3.30 | *1.50* |
| 2 | *50* | 3.39 | *86.1* | 4.42 | *112* | 2.96 | *75.2* | 1.63 | *41.4* | .87 | *22.0* | 2.406<br>2.426 | *61*<br>*62* | 5.30 | *2.40* |
| 2½ | *65* | 4.03 | *102.4* | 5.23 | *133* | 3.61 | *91.7* | 2.24 | *56.9* | .98 | *25.0* | 2.906<br>2.931 | *74*<br>*74* | 8.60 | *3.90* |
| 3 | *80* | 4.29 | *109.0* | 6.16 | *156* | 4.30 | *109.2* | 2.31 | *58.7* | .98 | *25.0* | 3.535<br>3.560 | *90*<br>*90* | 12.70 | *5.76* |

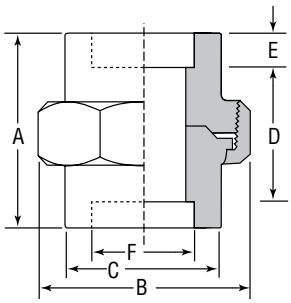
**"C" dimension measures across octagon corners or across the diameter as applicable. The 2½" NPS *(65 DN)* and 3" NPS *(80 DN)* – 3000 and 2" NPS *(50 DN)* – 6000 sizes have octagonal male and female ends; the other sizes are round.

# Forged Steel Unions

## Class 6000 Threaded & Socket-Weld




Threaded




Socket-Weld

Manufactured to MSS standard practice SP83
(Class 6000 by method of MSS SP83)

**FIGURE 2127: Threaded Union**

| Size | | A | | B | | C* | | D | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 2 | *51* | 1.69 | *43.0* | .98 | *25* | .252 | *6.4* | 0.60 | *0.27* |
| ⅜ | *10* | 2½ | *64* | 2.26 | *57.5* | 1.26 | *32* | .362 | *9.2* | 0.80 | *0.36* |
| ½ | *15* | 2⅝ | *67* | 2.41 | *61.2* | 1.50 | *38* | .465 | *11.8* | 1.40 | *0.63* |
| ¾ | *20* | 2¾ | *70* | 2.84 | *72.0* | 1.73 | *44* | .614 | *15.6* | 2.00 | *0.91* |
| 1 | *25* | 3 | *76* | 3.41 | *86.5* | 2.24 | *57* | .815 | *20.7* | 3.10 | *1.41* |
| 1¼ | *32* | 3½ | *89* | 3.78 | *96.0* | 2.52 | *64* | 1.161 | *29.5* | 5.90 | *2.68* |
| 1½ | *40* | 3⅞ | *98* | 4.37 | *111.0* | 2.99 | *76* | 1.339 | *34.0* | 6.60 | *2.99* |
| 2 | *50* | 4¼ | *108* | 5.28 | *134.0* | 3.62 | *92* | 1.689 | *42.9* | 10.50 | *4.76* |

**FIGURE 2128: Socket-Weld Union**

| Size | | A | | B | | C* | | D | | E | | F | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | 2 | *51* | 1.69 | *43.0* | .98 | *25* | .97 | *25* | .44 | *11* | 0.555<br>0.575 | *14*<br>*15* | 0.60 | *0.27* |
| ⅜ | *10* | 2½ | *64* | 2.26 | *57.5* | 1.26 | *32* | 1.09 | *28* | .44 | *11* | 0.690<br>0.710 | *18*<br>*18* | 0.80 | *0.36* |
| ½ | *15* | 2⅝ | *67* | 2.41 | *61.2* | 1.50 | *38* | 1.16 | *29* | .56 | *14* | 0.855<br>0.875 | *22*<br>*22* | 1.40 | *0.63* |
| ¾ | *20* | 2¾ | *70* | 2.84 | *72.0* | 1.73 | *44* | 1.38 | *35* | .56 | *14* | 1.065<br>1.085 | *27*<br>*28* | 2.00 | *0.91* |
| 1 | *25* | 3 | *76* | 3.41 | *86.5* | 2.24 | *57* | 1.70 | *43* | .56 | *14* | 1.330<br>1.350 | *34*<br>*34* | 3.10 | *1.41* |
| 1¼ | *32* | 3½ | *89* | 3.78 | *96.0* | 2.52 | *64* | 1.88 | *48* | .56 | *14* | 1.675<br>1.695 | *43*<br>*43* | 5.90 | *2.68* |
| 1½ | *40* | 3⅞ | *98* | 4.37 | *111.0* | 2.99 | *76* | 2.06 | *52* | .69 | *17* | 1.915<br>1.935 | *49*<br>*49* | 6.60 | *2.99* |
| 2 | *50* | 4¼ | *108* | 5.28 | *134.0* | 3.62 | *92* | 2.38 | *60* | .88 | *22* | 2.406<br>2.426 | *61*<br>*62* | 10.50 | *4.76* |

*"C" dimension measures across octagon corners or across the diameter as applicable. The 2½" NPS *(65 DN)* and 3" NPS *(80 DN)* – 3000 and 2" NPS *(50 DN)* – 6000 sizes have octagonal male and female ends; the other sizes are round.

# Forged Steel Anvilets

Anvil **Anvilets** provide a strong branch pipe connection, considerably stronger than a welded pipe-to-pipe connection. Consequently, with good welding procedures, Anvil **Anvilets** offer greater resistance to distortion and bursting.

Anvil **Anvilets** readily and economically permit the adding of branch connectors to existing piping installations, eliminating the relatively higher cost of cutting or disassembly and re-assembly required for the installation of tees.

Anvil **Anvilets** of the same outlet size as a header or run pipe size (i.e. "Full Size" **Anvilets**) are so proportioned that the (ellipticallyshaped) hole in the header pipe has the minimum weakening or distortion effect, and yet provides good fluid flow characteristics.

## Specifications

Chemical and physical properties are rigidly controlled to ensure consistently high quality. Physical and chemical test reports are available on request. Traceability of individual Anvilets can be established through the heat code of each fitting.

Anvil **Anvilets** meet the requirements of MSS standard SP-97. They are forged from steel which complies with ASTM A105.

***Threaded Anvilets*** - conform with ASME B1.20.1.

***Socket-Weld Anvilets*** - dimensions conform with ASME B16.11.

***Buttweld Anvilets*** - ends conform with ASME B16.25.

## Reinforcement Requirements

ASME B31.1 Power Piping Code
ASME B31.3 Refinery Code

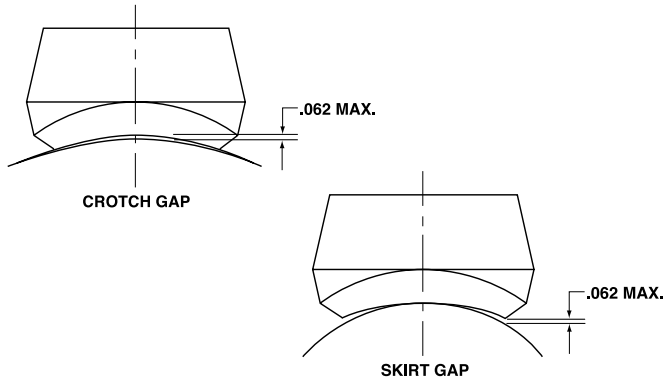
## Forging Markings

Anvil **Anvilets** are clearly marked with the following:

- Outlet size
- Range of run pipe sizes that the **Anvilet** will fit
- The weight, schedule number, or pressure class
- The material specification
- Steel heat code identification

## Installation Note

Anvil **Anvilets** are designed to have no more than a 1/16" gap *(1.6mm)* between the base or skirt of the **Anvilet** when it is seated directly upon the appropriate run pipe. However, it is recommended that the skirt of **Anvilets** be held slightly above the run pipe and tack welded to provide a small continuous root gap between the skirt and run pipe before completing the all-around welding beads or fillet.




## Specials

Your local Anvil Branch will be more than happy to assist you with specially machined outlets and those made of alloy material.

## Pressure Temperature Ratings

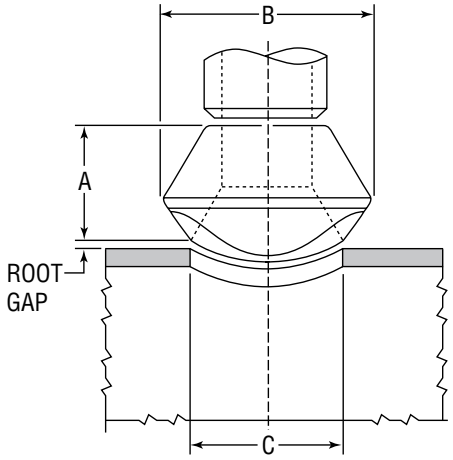
MSS standard Practice SP-97 gives the following correlation between fitting pressure class and pipe schedule number/wall thickness designation for calculation of pressure-temperature ratings:

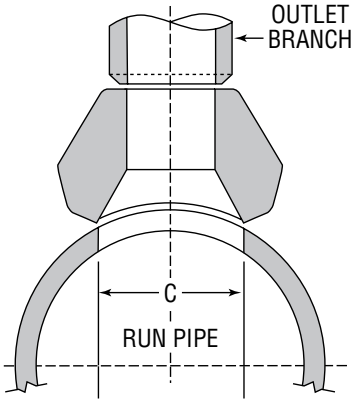
| Branch Connection Type | Pressure Class of Fitting | Branch Connection Size | | Pipe Wall for Rating Basis |
|---|---|---|---|---|
| | | NPS | *DN* | |
| Buttweld | STD | ⅛ - 24 | *6 - 600* | STD |
| | XS/XH | ⅛ - 24 | *6 - 600* | XS/XH |
| | SCH 160 | ½- 6 | *15 - 150* | SCH 160 |
| Threaded | 3,000 | ¼ - 4 | *8 - 100* | XS/XH |
| | 6,000 | ½- 2 | *15 - 50* | SCH 160 |
| Socket-Welding | 3,000 | ½- 2 | *15 - 50* | XS/XH |
| | 6,000 | ½- 2 | *15 - 50* | SCH 160 |

The maximum allowable pressure of a fitting is computed in accordance with the applicable piping code or regulation for straight seamless header (run) pipe or for material of equivalent composition and mechanical properties to the fitting. Any corrosion or mechanical allowances and any reduction in allowable stress due to temperature or other service conditions, must be applied to the pipe and fitting alike.

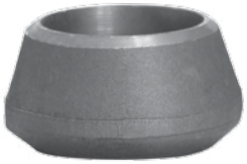
# Universal Forged Steel Anvilets

## Standard & Extra Strong Buttweld



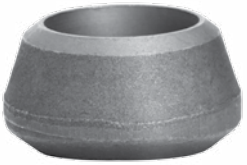




### BUTTWELD Standard



| Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | | |
| NPS | DN | in | mm | in | mm | in | mm | lbs | kg |
| 1/8 | 6 | 5/8 | 16 | 1 | 25 | 0.625 | 16 | 0.10 | 0.05 |
| 1/4 | 8 | 5/8 | 16 | 1 | 25 | 0.625 | 16 | 0.10 | 0.05 |
| 3/8 | 10 | 3/4 | 19 | 1 | 25 | 0.493 | 13 | 0.10 | 0.05 |
| 1/2 | 15 | 3/4 | 19 | 1 1/8 | 29 | 0.622 | 16 | 0.12 | 0.05 |
| 3/4 | 20 | 7/8 | 22 | 1 1/2 | 38 | 0.824 | 21 | 0.22 | 0.10 |
| 1 | 25 | 1 1/16 | 27 | 1 13/16 | 46 | 1.062 | 27 | 0.32 | 0.15 |
| 1 1/4 | 32 | 1 1/4 | 32 | 2 1/4 | 57 | 1.380 | 35 | 0.64 | 0.29 |
| 1 1/2 | 40 | 1 5/16 | 33 | 2 9/16 | 65 | 1.625 | 41 | 0.78 | 0.35 |
| 2 | 50 | 1 1/2 | 38 | 3 5/16 | 84 | 2.313 | 59 | 1.14 | 0.52 |
| 2 1/2 | 65 | 1 5/8 | 41 | 3 21/32 | 93 | 2.500 | 64 | 1.94 | 0.88 |
| 3 | 80 | 1 3/4 | 44 | 4 9/32 | 109 | 3.125 | 79 | 2.60 | 1.18 |
| 4 | 100 | 2 | 51 | 5 3/8 | 137 | 4.145 | 105 | 4.12 | 1.87 |
| 6 | 150 | 2 3/8 | 60 | 7 21/32 | 194 | 6.112 | 155 | 11.00 | 4.99 |
| 8 | 200 | 2 3/4 | 70 | 10 3/8 | 264 | 8.688 | 221 | 28.00 | 12.70 |
| 10 | 250 | 3 1/16 | 78 | 12 9/16 | 319 | 10.813 | 275 | 39.00 | 17.69 |
| 12* | 300 | 3 3/8 | 86 | 14 7/8 | 378 | 12.813 | 325 | 65.00 | 29.48 |
| 14* | 350 | 3 1/2 | 89 | 16 1/8 | 410 | 14.063 | 357 | 70.00 | 31.75 |
| 16* | 400 | 3 11/16 | 94 | 18 1/4 | 464 | 16.063 | 408 | 92.00 | 41.73 |
| 18* | 450 | 4 1/16 | 103 | 20 3/4 | 527 | 18.625 | 473 | 125.00 | 56.70 |
| 20* | 500 | 4 5/8 | 117 | 23 1/16 | 586 | 20.063 | 510 | 175.00 | 79.38 |
| 24* | 600 | 5 3/8 | 137 | 27 7/8 | 708 | 25.125 | 638 | 280.00 | 127.01 |

### BUTTWELD Extra Strong



| Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | | |
| NPS | DN | in | mm | in | mm | in | mm | lbs | kg |
| 1/8 | 6 | 5/8 | 16 | 1 | 25 | 0.625 | 16 | 0.10 | 0.05 |
| 1/4 | 8 | 5/8 | 16 | 1 | 25 | 0.625 | 16 | 0.10 | 0.05 |
| 3/8 | 10 | 3/4 | 19 | 1 | 25 | 0.423 | 11 | 0.10 | 0.05 |
| 1/2 | 15 | 3/4 | 19 | 1 1/8 | 29 | 0.546 | 14 | 0.12 | 0.05 |
| 3/4 | 20 | 7/8 | 22 | 1 1/2 | 38 | 0.742 | 19 | 0.18 | 0.08 |
| 1 | 25 | 1 1/16 | 27 | 2 13/16 | 71 | 1.062 | 27 | 0.36 | 0.16 |
| 1 1/4 | 32 | 1 1/4 | 32 | 2 1/4 | 57 | 1.278 | 32 | 0.55 | 0.25 |
| 1 1/2 | 40 | 1 5/16 | 33 | 2 9/16 | 65 | 1.625 | 41 | 0.68 | 0.31 |
| 2 | 50 | 1 1/2 | 38 | 3 5/16 | 84 | 2.313 | 59 | 1.24 | 0.56 |
| 2 1/2 | 65 | 1 5/8 | 41 | 3 21/32 | 93 | 2.500 | 64 | 2.26 | 1.02 |
| 3 | 80 | 1 3/4 | 44 | 4 9/32 | 109 | 3.125 | 79 | 2.84 | 1.29 |
| 4 | 100 | 2 | 51 | 5 3/8 | 137 | 4.145 | 105 | 4.56 | 2.07 |
| 6 | 150 | 3 1/16 | 78 | 7 23/32 | 196 | 5.800 | 147 | 15.00 | 6.80 |
| 8 | 200 | 3 7/8 | 98 | 10 5/8 | 270 | 8.688 | 221 | 32.00 | 14.51 |
| 10* | 250 | 3 1/2 | 89 | 12 7/8 | 327 | 10.738 | 273 | 46.00 | 20.87 |
| 12* | 300 | 3 15/16 | 100 | 15 3/16 | 386 | 13.000 | 330 | 61.00 | 27.67 |
| 14* | 350 | 4 1/8 | 105 | 16 11/16 | 424 | 14.313 | 364 | 75.00 | 34.02 |
| 16* | 400 | 4 7/16 | 113 | 18 7/8 | 479 | 16.500 | 419 | 115.00 | 52.16 |
| 18* | 450 | 4 11/16 | 119 | 21 1/8 | 537 | 18.625 | 473 | 130.00 | 58.97 |
| 20* | 500 | 5 | 127 | 23 3/8 | 594 | 20.813 | 529 | 187.00 | 84.82 |
| 24* | 600 | 5 1/2 | 140 | 27 7/8 | 708 | 25.125 | 638 | 316.00 | 143.34 |

* Anvilet supplied in accordance with Full height specification of MSS SP-97. Reduced height Anvilets are available upon request, dimensions and prices on application.

**Each outlet size listed is available to fit any run curvature. BW Ends per ASME B16.9 and ASME B16.25. Design per MSS-SP-97.**

**RUN PIPE SIZES** Outlet sizes 6" and less fit a number of run pipe sizes, and the fittings are marked accordingly. See page 118 for run pipe size combination table(s).

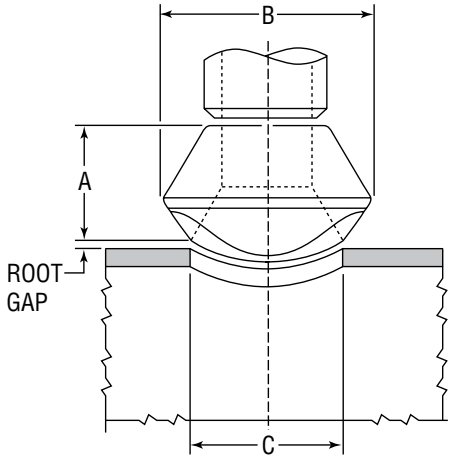
**SCHEDULES** Standard Buttweld Anvilets are designed for use on Schedule 40 pipe in accordance with MSS SP-97. Extra Strong Buttweld Anvilets are designed for use on Schedule 80 pipe in accordance with MSS SP-97. Pipe schedule numbers and weight designations are in accordance with ASME B36.10

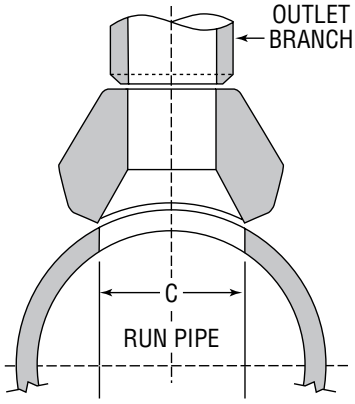
**FLATS** Flat butt-welded Universal Forged Steel Anvilet fittings for use on welding caps, elliptical heads and flat surfaces is available.

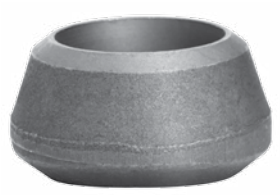
The A,B and C dimensions given for the Branch Connections in the above Table are for reference only and to be used as a guideline. Dimensions B and C are subject to change depending upon the manufacturing process utilized. Although every attempt has been made to insure that the information contained in this table is correct, Anvil reserves the right to change the C dimension as deemed necessary.

# Universal Forged Steel Anvilets

## XXS, SCH. 160 Buttweld




| BUTTWELD XXS, Sch. 160 | Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | | B | | C | | | |
| | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
|  | ½ | *15* | 1⅛ | *29* | 1⅜ | *35* | 0.563 | *14* | 0.25 | *0.11* |
| | ¾ | *20* | 1¼ | *32* | 1¾ | *44* | 0.750 | *19* | 0.70 | *0.32* |
| | 1 | *25* | 1½ | *38* | 2 | *51* | 1.000 | *25* | 0.85 | *0.39* |
| | 1¼ | *32* | 1¾ | *44* | 2 7/16 | *62* | 1.313 | *33* | 1.25 | *0.57* |
| | 1½ | *40* | 2 | *51* | 2¾ | *70* | 1.500 | *38* | 1.75 | *0.79* |
| | 2 | *50* | 2 3/16 | *56* | 3 3/16 | *81* | 1.688 | *43* | 2.15 | *0.98* |
| | 2½ | *65* | 2 7/16 | *62* | 3 13/16 | *97* | 2.125 | *54* | 3.40 | *1.54* |
| | 3 | *80* | 2⅞ | *73* | 4¾ | *121* | 2.875 | *73* | 6.30 | *2.86* |
| | 4 | *100* | 3 5/16 | *84* | 6 | *152* | 3.875 | *98* | 4.56 | *4.76* |

**Each outlet size listed is available to fit any run curvature. BW Ends per B16.9 and B16.25. Design per MSS-SP-97.**

**RUN PIPE SIZES** Outlet sizes 6" and less fit a number of run pipe sizes, and the fittings are marked accordingly. See page 118 for run pipe size combination table(s).

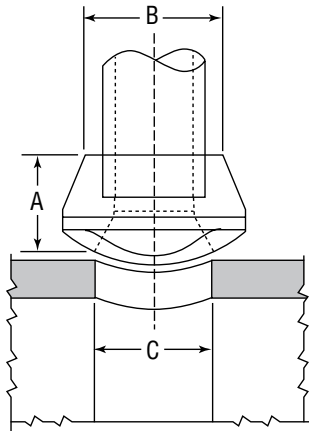
**SCHEDULES** Extra Extra Strong Buttweld Anvilets are designed for use on Schedule 160 pipe in accordance with MSS SP-97. Pipe schedule numbers and weight designations are in accordance with ASME B36.10.

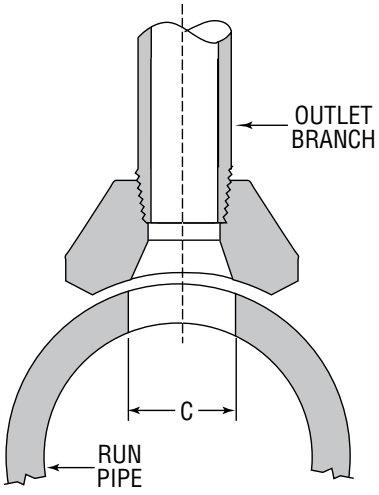
**FLATS** Flat butt-welded Universal Forged Steel Anvilet fittings for use on welding caps, elliptical heads and flat surfaces is available.

The A,B and C dimensions given for the Branch Connections in the above Table are for reference only and to be used as a guideline. Dimensions B and C are subject to change depending upon the manufacturing process utilized. Although every attempt has been made to insure that the information contained in this table is correct, Anvil reserves the right to change the C dimension as deemed necessary.

# Universal Forged Steel Anvilets

## Class 3000 & 6000 Threaded

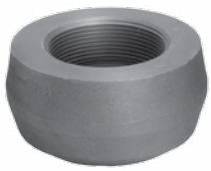



### THREADED Class 3000

| Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ⅛ | *6* | ¾ | *19* | 1 | *25* | 0.625 | *16* | 0.10 | *0.05* |
| ¼ | *8* | ¾ | *19* | 1 1/16 | *27* | 0.437 | *11* | 0.14 | *0.06* |
| ⅜ | *10* | 13/16 | *21* | 1 1/16 | *27* | 0.578 | *15* | 0.14 | *0.06* |
| ½ | *15* | 1 | *25* | 1 15/32 | *37* | 0.718 | *18* | 0.28 | *0.13* |
| ¾ | *20* | 1 1/16 | *27* | 1 45/64 | *43* | 0.922 | *23* | 0.39 | *0.18* |
| 1 | *25* | 1 5/16 | *33* | 2 3/32 | *53* | 1.156 | *29* | 0.73 | *0.33* |
| 1¼ | *32* | 1 5/16 | *33* | 2 17/32 | *64* | 1.500 | *38* | 0.96 | *0.44* |
| 1½ | *40* | 1 3/8 | *35* | 2 25/32 | *71* | 1.734 | *44* | 1.12 | *0.51* |
| 2 | *50* | 1½ | *38* | 3 5/16 | *84* | 2.218 | *56* | 1.66 | *0.75* |
| 2½ | *65* | 1 13/16 | *46* | 3 29/32 | *99* | 2.625 | *67* | 2.73 | *1.24* |
| 3 | *80* | 2 | *51* | 4 21/32 | *118* | 3.250 | *83* | 3.88 | *1.76* |
| 4 | *100* | 2¼ | *57* | 5 13/16 | *148* | 4.250 | *108* | 6.18 | *2.80* |

### THREADED Class 6000



| Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 1¼ | *32* | 1¾ | *44* | 0.718 | *19* | 0.28 | *0.13* |
| ¾ | *20* | 1 7/16 | *37* | 2 1/16 | *52* | 0.922 | *24* | 0.39 | *0.18* |
| 1 | *25* | 1 9/16 | *40* | 2 17/32 | *64* | 1.156 | *31* | 0.73 | *0.33* |
| 1¼ | *32* | 1⅝ | *41* | 2½ | *64* | 1.500 | *40* | 0.96 | *0.44* |
| 1½ | *40* | 1 11/16 | *43* | 3 5/16 | *84* | 1.734 | *46* | 1.12 | *0.51* |
| 2 | *50* | 2 1/16 | *52* | 3 31/32 | *101* | 2.218 | *59* | 1.66 | *0.75* |

**Each outlet size listed is available to fit any run curvature. Threaded ends are in accordance with ANSI/ASME B1.20.1. Design per MSS-SP-97.**

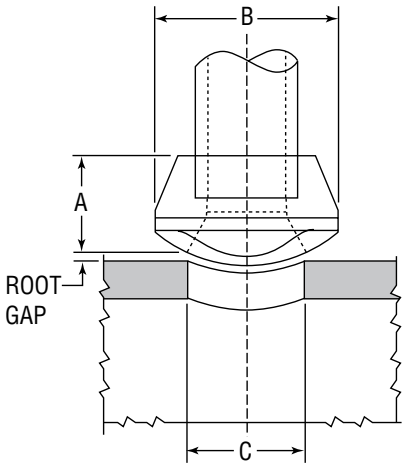
**RUN PIPE SIZES** Outlet sizes noted above fit a number of run pipe sizes, and the fittings are marked accordingly. See page 118 for run pipe size combination table(s).

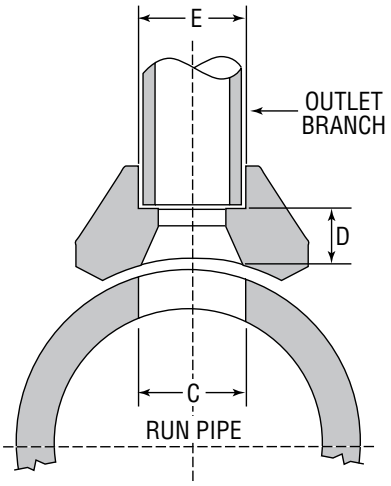
**FLATS** A flat Threaded Universal Forged Steel Anvilet for use on welding caps, elliptical heads and flat surfaces is available.

The A,B and C dimensions given for the Branch Connections in the above Table are for reference only and to be used as a guideline. Dimensions B and C are subject to change depending upon the manufacturing process utilized. Although every attempt has been made to insure that the information contained in this table is correct, Anvil reserves the right to change the C dimension as deemed necessary.

# Universal Forged Steel Anvilets

## Standard & Extra Strong Socket-Weld




### SOCKET-WELD Class 3000

| Outlet Size | | Dimensions | | | | | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | E | | | |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ⅛ | 6 | ¾ | 19 | 1 | 25 | 0.625 | 16 | 0.41 | 10 | 9/32 | 7 | 0.10 | 0.05 |
| ¼ | 8 | ¾ | 19 | 1 | 25 | 0.364 | 9 | 0.41 | 10 | ⅜ | 10 | 0.14 | 0.06 |
| ⅜ | 10 | 13/16 | 21 | 1 1/16 | 27 | 0.493 | 13 | 0.50 | 13 | 7/16 | 11 | 0.14 | 0.06 |
| ½ | 15 | 1 | 25 | 1 15/32 | 37 | 0.622 | 16 | 0.63 | 16 | 9/16 | 14 | 0.28 | 0.13 |
| ¾ | 20 | 1 1/16 | 27 | 1 45/64 | 43 | 0.824 | 21 | 0.63 | 16 | 9/16 | 14 | 0.39 | 0.18 |
| 1 | 25 | 1 5/16 | 33 | 2 3/32 | 53 | 1.049 | 27 | 0.88 | 22 | 25/32 | 20 | 0.73 | 0.33 |
| 1¼ | 32 | 1 5/16 | 33 | 2 17/32 | 64 | 1.380 | 35 | 0.88 | 22 | 23/32 | 18 | 0.96 | 0.44 |
| 1½ | 40 | 1⅜ | 35 | 2 25/32 | 71 | 1.610 | 41 | 0.94 | 24 | ¾ | 19 | 1.12 | 0.51 |
| 2 | 50 | 1½ | 38 | 3 5/16 | 84 | 2.067 | 53 | 0.94 | 24 | 13/16 | 21 | 1.66 | 0.75 |
| 2½ | 65 | 1 13/16 | 46 | 3 29/32 | 99 | 2.469 | 63 | 1.00 | 25 | ¾ | 19 | 2.73 | 1.24 |
| 3 | 80 | 2 | 51 | 4 21/32 | 118 | 3.068 | 78 | 1.19 | 30 | 15/16 | 24 | 3.88 | 1.76 |
| 4 | 100 | 2¼ | 57 | 5 13/16 | 148 | 4.026 | 102 | 1.19 | 30 | 1 1/16 | 27 | 6.60 | 2.99 |

### SOCKET-WELD Class 6000

| Outlet Size | | Dimensions | | | | | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | C | | D | | E | | | |
| NPS | DN | in | mm | in | mm | in | mm | in | mm | in | mm | lbs | kg |
| ½ | 15 | 1¼ | 32 | 1¾ | 44 | 0.464 | 12 | 0.94 | 24 | 13/16 | 21 | 0.28 | 0.13 |
| ¾ | 20 | 1 1/16 | 37 | 2 1/16 | 52 | 0.612 | 16 | 1.00 | 25 | 15/16 | 24 | 0.39 | 0.18 |
| 1 | 25 | 1 9/16 | 40 | 2 17/32 | 64 | 0.815 | 21 | 1.13 | 29 | 1 1/32 | 26 | 0.73 | 0.33 |
| 1¼ | 32 | 1⅝ | 41 | 2½ | 64 | 1.160 | 29 | 1.19 | 30 | 1 1/32 | 26 | 0.96 | 0.44 |
| 1½ | 40 | 1 11/16 | 43 | 3 5/16 | 84 | 1.338 | 34 | 1.25 | 32 | 1 1/16 | 27 | 1.63 | 0.74 |
| 2 | 50 | 2 1/16 | 52 | 3 31/32 | 101 | 1.687 | 43 | 1.44 | 37 | 1⅜ | 35 | 1.66 | 0.75 |

**Each outlet size listed is available to fit any run curvature. Socket dimensions are in accordance with ASME B16.11. Design per MSS-SP-97.**

**RUN PIPE SIZES** Outlet sizes noted above fit a number of run pipe sizes, and the fittings are marked accordingly. See page 118 for run pipe size combination table(s).

**FLATS** A flat Socket-welded Universal Forged Steel Anvilet for use on welding caps, elliptical heads and flat surfaces is available.

The A,B and C dimensions given for the Branch Connections in the above Table are for reference only and to be used as a guideline. Dimensions B and C are subject to change depending upon the manufacturing process utilized. Although every attempt has been made to insure that the information contained in this table is correct, Anvil reserves the right to change the C dimension as deemed necessary.

# Engineering Specifications

## Universal Forged Steel Anvilets Run Size Combinations

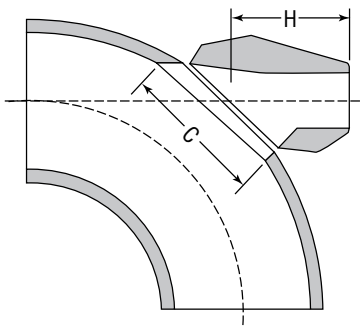
| | Outlet Size (in) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Buttweld Standard** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 | 6 |
| | ¼ | ½ – ⅜ | 1 – ½ | 2 – ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 | 6 |
| | 36 – ⅜ | 36 – ¾ | 36 – 1¼ | 36 – 2½ | 1½ – 1¼ | 2 – 1½ | 3½ – 2 | 3 – 2½ | 4 – 3 | 4 – 3½ | 6 – 5 | 8 |
| | | | | | 36 – 2 | 6 – 2½ | 36 – 4 | 6 – 3½ | 10 – 5 | 6 – 5 | 10 – 8 | 10 |
| | | | | | | 36 – 8 | | 36 – 8 | 36 – 12 | 14 – 8 | 20 – 12 | 14 – 12 |
| | | | | | | | | | | 36 – 16 | 36 – 22 | 18 – 16 |
| | | | | | | | | | | | | 24 – 20 |
| | | | | | | | | | | | | 34 – 26 |
| | | | | | | | | | | | | 42 – 36 |
| **Buttweld Extra Strong** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 | 6 |
| | 36 – ¼ | ⅜ | ¾ – ½ | 1½ – ¾ | 1 | 2 – 1¼ | 1½ | 2 | 2 ½ | 3 | 4 | 6 |
| | | 36 – ½ | 36 – 1 | 36 – 2 | 1½ – 1¼ | 5 – 2½ | 3½ – 2 | 3 – 2½ | 4 – 3 | 4 – 3½ | 6 – 5 | 8 |
| | | | | | 36 – 2 | 36 – 6 | 36 – 4 | 6 – 3½ | 10 – 5 | 6 – 5 | 10 – 8 | 10 |
| | | | | | | | | 36 – 8 | 36 – 12 | 14 – 8 | 20 – 12 | 14 – 12 |
| | | | | | | | | | | 36 – 1 | 36 – 22 | 18 – 16 |
| | | | | | | | | | | | | 24 – 20 |
| | | | | | | | | | | | | 34 – 26 |
| | | | | | | | | | | | | 42 – 36 |

| | Outlet Size (in) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Threaded Class 3000** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | ⅜ – ¼ | 1 – ⅜ | ½ | 1¼ – ¾ | 1 | 1½ – 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | 36 – ½ | 36 – 1¼ | 36 – ¾ | 36 – 1½ | 2½ – 1¼ | 3½ – 2 | 2½ – 2 | 3½ – 2½ | 3½ – 3 | 5 – 3½ | 6 – 5 |
| | | | | | 36 – 3 | 36 – 4 | 5 – 3 | 6 – 4 | 6 – 4 | 14 – 6 | 10 – 8 |
| | | | | | | | 36 – 6 | 36 – 8 | 36 – 8 | 36 – 16 | 20 – 12 |
| | | | | | | | | | | | 36 – 22 |
| **Threaded Class 6000** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | ⅜ – ¼ | 1 – ⅜ | ½ | ¾ | 1 | 1½ – 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | 36 – ½ | 36 – 1¼ | 36 – ¾ | 1¼ – 1 | 2½ – 1¼ | 3½ – 2 | 2½ – 2 | 3½ – 2½ | 3½ – 3 | 3½ | 5 |
| | | | | 36 – 1½ | 36 – 3 | 8 – 4 | 5 – 3 | 6 – 4 | 5 – 4 | 4 | 6 |
| | | | | | | 36 – 10 | 36 – 6 | 36 – 8 | 10 – 6 | 6 – 5 | 10 – 8 |
| | | | | | | | | | 26 – 12 | 12 – 8 | 18 – 12 |
| | | | | | | | | | 36 – 28 | 36 – 14 | 36 – 20 |

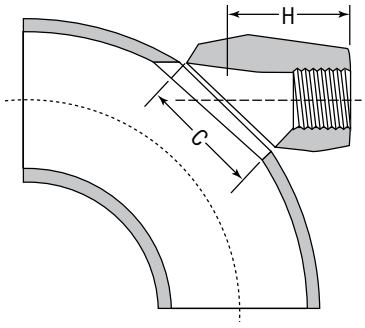
| | Outlet Size (in) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Socket-Weld Class 3000** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | ¼ | ½ – ⅜ | ½ | 1¼ – ¾ | 1 | 1½ – 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | 36 – ⅜ | 36 – ¾ | 36 – ¾ | 36 – 1½ | 2½ – 1¼ | 3½ – 2 | 2½ – 2 | 3½ – 2½ | 3½ – 3 | 5 – 3½ | 6 – 5 |
| | | | | | 36 – 3 | 36 – 4 | 5 – 3 | 6 – 4 | 6 – 4 | 14 – 6 | 10 – 8 |
| | | | | | | | 36 – 6 | 36 – 8 | 36 – 8 | 36 – 16 | 20 – 12 |
| | | | | | | | | | | | 36 – 22 |
| **Socket-Weld Class 6000** | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 4 |
| | 36 – ¼ | 36 – ⅜ | ½ | 1 – ¾ | 1 | 1¼ | 1½ | 2 | 3 – 2½ | 3½ – 3 | 4 |
| | | | 36 – ¾ | 36 – 1¼ | 2½ – 1¼ | 4 – 1½ | 2½ – 2 | 3½ – 2½ | 5 – 3½ | 5 – 4 | 5 |
| | | | | | 36 – 3 | 36 – 5 | 5 – 3 | 6 – 4 | 18 – 6 | 10 – 6 | 8 – 6 |
| | | | | | | | 36 – 6 | 36 – 8 | 36 – 20 | 26 – 12 | 14 – 10 |
| | | | | | | | | | | 36 – 28 | 36 – 16 |

# Universal Elbowlet

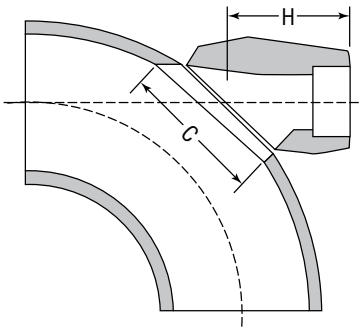
## Class 3000 and 6000 Buttweld, Threaded and Socket-Weld



BUTTWELD



THREADED



SOCKET-WELD

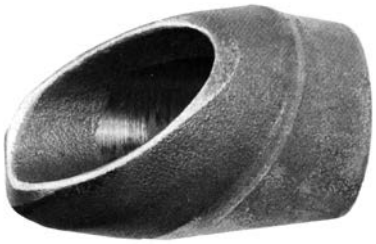
| CLASS 3000 THREADED AND SOCKET-WELD/STANDARD AND XS/XH BUTTWELD | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Outlet Size | | Nom. Elbow Size | | C | | H | | Unit Weight | |
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 36 – ¾ | *900 – 32* | 1½ | *38* | 1 19/32 | *40* | 0.65 | *0.29* |
| ¾ | *20* | 36 – 1 | *900 – 32* | 1 23/32 | *44* | 1⅞ | *48* | 0.75 | *0.34* |
| 1 | *25* | 36 – 2 | *900 – 32* | 2⅛ | *54* | 2 3/16 | *56* | 1.10 | *0.52* |
| 1¼ | *32* | 36 – 2 | *900 – 32* | 1 21/32 | *42* | 2⅜ | *60* | 1.90 | *0.86* |
| 1½ | *40* | 36 – 2 | *900 – 32* | 3 | *76* | 2⅝ | *67* | 2.60 | *1.20* |
| 2 | *50* | 36 – 3 | *900 – 32* | 4⅛ | *105* | 3 3/16 | *81* | 5.30 | *2.40* |
| **CLASS 6000 THREADED AND SOCKET-WELD** | | | | | | | | | |
| ½ | *15* | 36 – ¾ | *900 – 32* | 1 23/32 | *44* | 1⅞ | *48* | 0.85 | *0.39* |
| ¾ | *20* | 36 – 1 | *900 – 50* | 2⅛ | *54* | 2 3/16 | *56* | 1.30 | *0.57* |
| 1 | *25* | 36 – 2 | *900 – 50* | 2 21/32 | *67* | 2⅜ | *60* | 2.20 | *1.00* |
| 1¼ | *32* | 36 – 2 | *900 – 50* | 3 | *76* | 2⅝ | *67* | 3.90 | *1.80* |
| 1½ | *40* | 36 – 2 | *900 – 50* | 4⅛ | *105* | 3 3/16 | *81* | 6.20 | *2.80* |

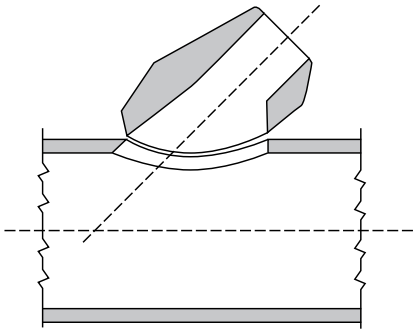
Universal elbowlets are welded to 90° long radius elbows as branch connections for pipes and fittings. They are also used as pipe hanger or support bosses.

# Lateral Anvilets

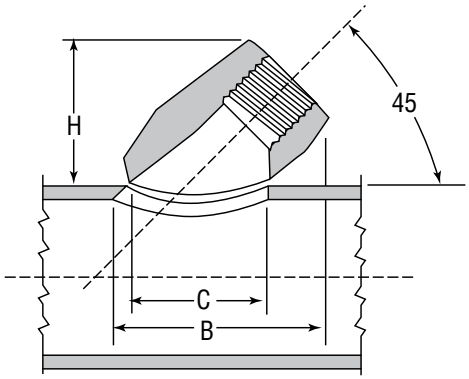
## Class 3000 Buttweld and Threaded

Lateral Anvilets provide a strong, readily attached 45° lateral outlet connection.





BUTTWELD




THREADED

### CLASS 3000 STANDARD/XS BUTTWELD

| Outlet Size | | Nominal Run Pipe Size | | H | | B | | C | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 2½ – 1¼ / 12 – 3 | *65 – 32 / 300 – 80* | 1⅜ | *35* | 2⁵⁄₃₂ | *55* | 1⁷⁄₁₆ | *37* | 0.65 | *0.29* |
| ¾ | *20* | 1½ – 1¼ / 5 – 2 / 12 – 6 | *40 – 32 / 125 – 50 / 300 – 150* | 1¹¹⁄₁₆ | *43* | 2¹⁷⁄₃₂ | *64* | 1¾ | *44* | 0.75 | *0.34* |
| 1 | *25* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 1³¹⁄₃₂ | *50* | 3 | *76* | 2⅛ | *54* | 1.10 | *0.52* |
| 1¼ | *32* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 2⁹⁄₃₂ | *58* | 3¹⁹⁄₃₂ | *91* | 2⅝ | *67* | 1.90 | *0.86* |
| 1½ | *40* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 2¹⁵⁄₃₂ | *63* | 3³¹⁄₃₂ | *101* | 3¹⁄₃₂ | *77* | 2.60 | *1.20* |
| 2 | *50* | 5 – 4 / 8 – 6 / 12 – 10 | *125 – 100 / 200 – 150 / 300 – 150* | 3³⁄₁₆ | *81* | 5¼ | *133* | 4⅛ | *105* | 5.30 | *2.40* |

### CLASS 3000 THREADED/STANDARD

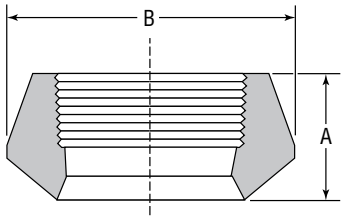
| Outlet Size | | Nominal Run Pipe Size | | H | | B | | C | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *DN* | NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ½ | *15* | 2½ – 1¼ / 12 – 3 | *65 – 32 / 300 – 80* | 1⁹⁄₁₆ | *40* | 2¹¹⁄₃₂ | *60* | 1⁷⁄₁₆ | *37* | 0.65 | *0.29* |
| ¾ | *20* | 1½ – 1¼ / 5 – 2 / 12 – 6 | *40 – 32 / 125 – 50 / 300 – 150* | 1⅞ | *48* | 2¾ | *70* | 1¾ | *44* | 0.75 | *0.34* |
| 1 | *25* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 2³⁄₁₆ | *56* | 3¼ | *83* | 2⅛ | *54* | 1.10 | *0.52* |
| 1¼ | *32* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 2½ | *64* | 3²⁷⁄₃₂ | *98* | 2⅝ | *67* | 1.90 | *0.86* |
| 1½ | *40* | 2½ – 2 / 5 – 3 / 12 – 6 | *65 – 50 / 125 – 80 / 300 – 150* | 2¾ | *70* | 4⁷⁄₃₂ | *107* | 3¹⁄₃₂ | *77* | 2.60 | *1.20* |
| 2 | *50* | 5 – 4 / 8 – 6 / 12 – 10 | *125 – 100 / 200 – 150 / 300 – 150* | 3⅜ | *86* | 5⁷⁄₁₆ | *138* | 4⅛ | *105* | 5.30 | *2.40* |

# Flat Anvilets

## Class 3000 Threaded, Buttweld and Socket-Weld

Flat Anvilets are designed to facilitate welding to a flat surface for the installation of branch pipes or fittings.

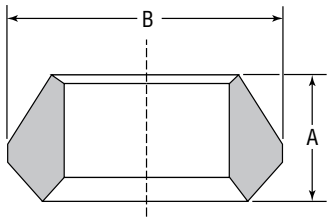
### THREADED
**Class 3000 Flat Anvilet**



THREADED

| Outlet Size | | Dimensions | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | A | | B | | | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ¾ | *19* | 1 | *25* | 0.10 | *0.05* |
| ⅜ | *10* | 13⁄16 | *21* | 1¼ | *32* | 0.20 | *0.09* |
| ½ | *15* | 1 | *25* | 1 13⁄32 | *36* | 0.25 | *0.11* |
| ¾ | *20* | 1 1⁄16 | *27* | 1 23⁄32 | *44* | 0.35 | *0.16* |
| 1 | *25* | 1 5⁄16 | *33* | 2 | *51* | 0.60 | *0.27* |
| 1¼ | *32* | 1 5⁄16 | *33* | 2 9⁄16 | *65* | 0.90 | *0.41* |
| 1½ | *40* | 1⅜ | *35* | 2 27⁄32 | *72* | 1.00 | *0.45* |
| 2 | *50* | 1½ | *38* | 3 15⁄32 | *88* | 1.75 | *0.79* |
| 2½ | *65* | 1 13⁄16 | *46* | 4 1⁄16 | *103* | 3.00 | *1.36* |
| 3 | *80* | 2 | *51* | 4 13⁄16 | *122* | 4.35 | *1.97* |

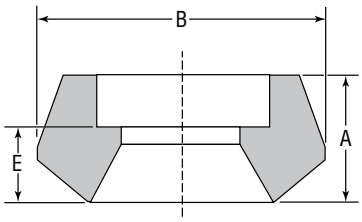
### BUTTWELD
**Class 3000 Flat Anvilet**



BUTTWELD

| Outlet Size | | Dimensions | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|
| | | A | | B | | | |
| NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ⅝ | *16* | 1 | *25* | 0.10 | *0.05* |
| ⅜ | *10* | ¾ | *19* | 1¼ | *32* | 0.15 | *0.07* |
| ½ | *15* | ¾ | *19* | 1⅜ | *35* | 0.20 | *0.09* |
| ¾ | *20* | ⅞ | *22* | 1¾ | *44* | 0.30 | *0.14* |
| 1 | *25* | 1 1⁄16 | *27* | 2⅛ | *54* | 0.50 | *0.23* |
| 1¼ | *32* | 1¼ | *32* | 2 9⁄16 | *65* | 0.90 | *0.41* |
| 1½ | *40* | 1 5⁄16 | *33* | 2⅞ | *73* | 1.10 | *0.50* |
| 2 | *50* | 1½ | *38* | 3½ | *89* | 1.75 | *0.79* |
| 2½ | *65* | 1⅝ | *41* | 4 1⁄16 | *103* | 2.60 | *1.18* |
| 3 | *80* | 1¾ | *44* | 4 13⁄16 | *122* | 4.10 | *1.86* |

### SOCKET-WELD
**Class 3000 Flat Anvilet**



SOCKET-WELD

| Outlet Size | | Dimensions | | | | | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | | B | | E | | | |
| NPS | *DN* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| ¼ | *8* | ¾ | *19* | 1 | *25* | 9⁄32 | *7* | 0.10 | *0.05* |
| ⅜ | *10* | 13⁄16 | *21* | 1¼ | *32* | 7⁄16 | *11* | 0.20 | *0.09* |
| ½ | *15* | 1 | *25* | 1 13⁄32 | *36* | 9⁄16 | *14* | 0.30 | *0.14* |
| ¾ | *20* | 1 1⁄16 | *27* | 1 23⁄32 | *44* | 9⁄16 | *14* | 0.35 | *0.16* |
| 1 | *25* | 1 5⁄16 | *33* | 2 | *51* | 25⁄32 | *20* | 0.60 | *0.27* |
| 1¼ | *32* | 1 5⁄16 | *33* | 2 9⁄16 | *65* | ¾ | *19* | 0.85 | *0.39* |
| 1½ | *40* | 1⅜ | *35* | 2 27⁄32 | *72* | ¾ | *19* | 1.00 | *0.45* |
| 2 | *50* | 1½ | *38* | 3 15⁄32 | *88* | 13⁄16 | *21* | 1.60 | *0.73* |
| 2½ | *65* | 1 9⁄16 | *40* | 4 1⁄16 | *103* | ¾ | *19* | 2.75 | *1.25* |
| 3 | *80* | 1¾ | *44* | 4 13⁄16 | *122* | 15⁄16 | *24* | 3.80 | *1.72* |


## Material
ASTM A29, A105

## Full Traceability:
All Catawissa Oilfield Hammer Unions are fully traceable and are available with complete mill certifications upon request.

## Interchangeability:
All Catawissa Oilfield Unions are machined to rigid quality standards ensuring that like components of the same size, figure number and pressure rating are fully interchangeable in the field. Catawissa Oilfield Unions are interchangeable with most leading union manufacturers.

## Full Range of End Connections:
Catawissa Oilfield Hammer Unions are available in threaded ends, as well as buttweld and non-pressure seal ends. When you choose Catawissa you receive the utmost in quality, the widest selection and unmatched on-time deliveries.

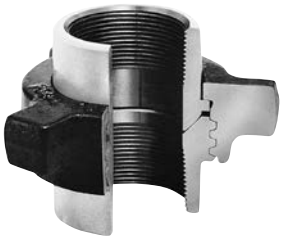
# Hammer Unions

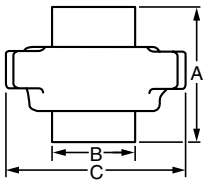
1,000 psi cwp – 1,500 psi test

Catawissa™ PERFORMANCE UNDER PRESSURE



## FIGURE 100
### Threaded Ends
### Black Nut/Yellow Subs

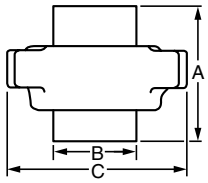





Low pressure service. Manifold and general service. NPT threaded female ends.

| Size NPS | Size DN | Item | Unit Weight lbs | Unit Weight kg | A in | A mm | B in | B mm | C in | C mm | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 50 | Union Complete | 6.25 | 2.83 | 3.940 | 100.08 | 2.840 | 72.14 | 6.250 | 158.75 | 3 MOD | SF | SF |
| | | Nut | 3.30 | 1.50 | | | | | | | | | |
| | | Male Sub | 1.30 | 0.59 | | | | | | | | | |
| | | Female Sub | 1.65 | 0.75 | | | | | | | | | |
| 2½ | 65 | Union Complete | 10.05 | 4.56 | 4.490 | 114.05 | 3.390 | 86.11 | 7.925 | 201.30 | 3 MOD | SF | SF |
| | | Nut | 5.30 | 2.40 | | | | | | | | | |
| | | Male Sub | 2.25 | 1.02 | | | | | | | | | |
| | | Female Sub | 2.50 | 1.13 | | | | | | | | | |
| 3 | 80 | Union Complete | 13.65 | 6.19 | 5.000 | 127.00 | 4.030 | 102.36 | 9.000 | 228.60 | 3 MOD | SF | SF |
| | | Nut | 7.15 | 3.24 | | | | | | | | | |
| | | Male Sub | 3.25 | 1.47 | | | | | | | | | |
| | | Female Sub | 3.25 | 1.47 | | | | | | | | | |
| 4 | 100 | Union Complete | 22.00 | 9.98 | 5.940 | 150.88 | 5.230 | 132.84 | 10.560 | 268.22 | 3 MOD | SF | SF |
| | | Nut | 9.80 | 4.44 | | | | | | | | | |
| | | Male Sub | 6.65 | 3.02 | | | | | | | | | |
| | | Female Sub | 5.55 | 2.52 | | | | | | | | | |
| 6 | 150 | Union Complete | 45.85 | 20.79 | 6.800 | 172.72 | 7.390 | 187.71 | 13.810 | 350.77 | 3 STD | SF | SF |
| | | Nut | 21.75 | 9.86 | | | | | | | | | |
| | | Male Sub | 11.10 | 5.03 | | | | | | | | | |
| | | Female Sub | 13.00 | 5.90 | | | | | | | | | |

## FIGURE 100
### 8Rd EUE Threaded Ends
### Black Nut/Yellow Subs




Low pressure service. Manifold and general service.

| Size NPS | Size DN | Item | Unit Weight lbs | Unit Weight kg | A in | A mm | B in | B mm | C in | C mm | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 50 | Union Complete | 6.25 | 2.83 | 3.940 | 100.08 | 2.840 | 72.14 | 6.250 | 158.75 | 3 MOD | SF | SF |
| | | Nut | 3.30 | 1.50 | | | | | | | | | |
| | | Male Sub | 1.30 | 0.59 | | | | | | | | | |
| | | Female Sub | 1.65 | 0.75 | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

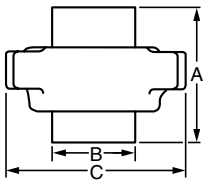
TPI = Threads per inch SF = Steel Forging

# Hammer Unions

2,000 psi cwp – 3,000 psi test

Catawissa™
PERFORMANCE UNDER PRESSURE

**FIGURE 200**
**Threaded Ends**
**Blue Nut/Gray Subs**




General purpose union. NPT thread ends standard.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *25* | Union Complete | 1.75 | *0.79* | 2.67 | *67.82* | 1.64 | *41.66* | 4.07 | *103.25* | 6 STD | SF | SF |
| | | Nut | 0.95 | *0.43* | | | | | | | | | |
| | | Male Sub | 0.40 | *0.18* | | | | | | | | | |
| | | Female Sub | 0.40 | *0.18* | | | | | | | | | |
| 1¼ | *32* | Union Complete | 2.25 | *1.02* | 2.73 | *69.34* | 1.94 | *49.15* | 4.64 | *117.73* | 6 STD | SF | SF |
| | | Nut | 1.20 | *0.54* | | | | | | | | | |
| | | Male Sub | 0.50 | *0.23* | | | | | | | | | |
| | | Female Sub | 0.55 | *0.25* | | | | | | | | | |
| 1½ | *40* | Union Complete | 2.75 | *1.25* | 2.77 | *70.36* | 2.25 | *57.15* | 4.75 | *120.65* | 6 STD | SF | SF |
| | | Nut | 1.30 | *0.59* | | | | | | | | | |
| | | Male Sub | 0.70 | *0.32* | | | | | | | | | |
| | | Female Sub | 0.75 | *0.34* | | | | | | | | | |
| 2 | *50* | Union Complete | 5.60 | *2.54* | 3.28 | *83.19* | 2.83 | *71.76* | 5.90 | *149.86* | 4 STD | SF | SF |
| | | Nut | 2.20 | *1.00* | | | | | | | | | |
| | | Male Sub | 1.20 | *0.54* | | | | | | | | | |
| | | Female Sub | 1.60 | *0.73* | | | | | | | | | |
| 2½ | *65* | Union Complete | 10.70 | *4.85* | 4.25 | *107.95* | 3.40 | *86.36* | 7.90 | *200.66* | 4 STD | SF | SF |
| | | Nut | 6.40 | *2.90* | | | | | | | | | |
| | | Male Sub | 2.00 | *0.91* | | | | | | | | | |
| | | Female Sub | 2.30 | *1.04* | | | | | | | | | |
| 3 | *80* | Union Complete | 12.85 | *5.83* | 4.66 | *118.36* | 4.17 | *105.92* | 8.10 | *205.74* | 4 STD | SF | SF |
| | | Nut | 6.00 | *2.72* | | | | | | | | | |
| | | Male Sub | 3.35 | *1.52* | | | | | | | | | |
| | | Female Sub | 3.50 | *1.59* | | | | | | | | | |
| 4 | *100* | Union Complete | 18.70 | *8.48* | 4.91 | *124.71* | 5.08 | *128.91* | 9.06 | *230.12* | 3 MOD | SF | SF |
| | | Nut | 7.40 | *3.36* | | | | | | | | | |
| | | Male Sub | 5.30 | *2.40* | | | | | | | | | |
| | | Female Sub | 6.00 | *2.72* | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

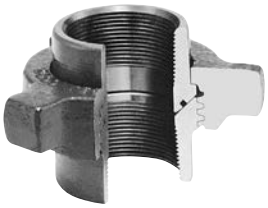
TPI = Threads per inch SF = Steel Forging

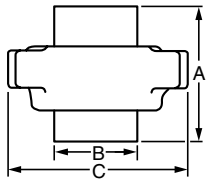
# Hammer Unions

2,000 psi cwp – 3,000 psi test

Catawissa™
PERFORMANCE UNDER PRESSURE

**FIGURE 206**
**Threaded Ends**
**Blue Nut/Gray Subs**
**with Seal Ring**






O-Ring in male sub for improved sealing. NPT thread ends standard.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *25* | Union Complete | 1.75 | *0.79* | 2.670 | *67.82* | 1.640 | *41.66* | 4.065 | *103.25* | 6 STD | SF | SF |
| | | Nut | 0.95 | *0.43* | | | | | | | | | |
| | | Male w/O-Ring | 0.40 | *0.18* | | | | | | | | | |
| | | Female Sub | 0.40 | *0.18* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |
| 1½ | *40* | Union Complete | 2.75 | *1.25* | 2.770 | *70.36* | 2.250 | *57.15* | 4.750 | *120.65* | 6 STD | SF | SF |
| | | Nut | 1.30 | *0.59* | | | | | | | | | |
| | | Male w/O-Ring | 0.70 | *0.32* | | | | | | | | | |
| | | Female Sub | 0.75 | *0.34* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |
| 2 | *50* | Union Complete | 4.75 | *2.15* | 3.275 | *83.19* | 2.825 | *71.76* | 5.900 | *149.86* | 4 STD | SF | SF |
| | | Nut | 2.20 | *1.00* | | | | | | | | | |
| | | Male w/O-Ring | 1.15 | *0.52* | | | | | | | | | |
| | | Female Sub | 1.40 | *0.63* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |
| 3 | *80* | Union Complete | 13.00 | *5.90* | 4.660 | *118.36* | 4.170 | *105.92* | 8.100 | *205.74* | 4 STD | SF | SF |
| | | Nut | 6.00 | *2.72* | | | | | | | | | |
| | | Male w/O-Ring | 3.35 | *1.52* | | | | | | | | | |
| | | Female Sub | 3.50 | *1.59* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |
| 4 | *100* | Union Complete | 18.70 | *8.48* | 4.910 | *124.71* | 5.075 | *128.91* | 9.060 | *230.12* | 3 MOD | SF | SF |
| | | Nut | 7.40 | *3.36* | | | | | | | | | |
| | | Male w/O-Ring | 5.30 | *2.40* | | | | | | | | | |
| | | Female Sub | 6.00 | *2.72* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |
| 6 | *150* | Union Complete | 46.10 | *20.91* | 6.610 | *167.89* | 7.410 | *188.21* | 12.800 | *325.12* | 3 STD | SF | SF |
| | | Nut | 18.18 | *8.24* | | | | | | | | | |
| | | Male w/O-Ring | 12.74 | *5.78* | | | | | | | | | |
| | | Female Sub | 15.18 | *6.88* | | | | | | | | | |
| | | O-Ring | – | – | | | | | | | | | |

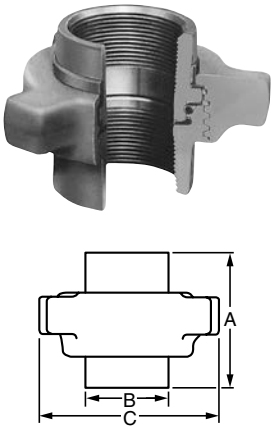
**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

# Hammer Unions

2,000 psi cwp – 3,000 psi test

Catawissa™
PERFORMANCE UNDER PRESSURE

| FIGURE 211<br>Insulating Union<br>Threaded Ends<br>Gray Nut/Light Blue Subs | Size | | Item | Unit Weight | | A | | B | | C | | TPI | Material | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *Dn* | | lbs | *kg* | in | *mm* | in | *mm* | in | *mm* | | Nuts | Subs |
|  | 1 | *25* | Union Complete | 2.34 | *1.06* | 2.830 | *71.88* | 1.560 | *39.62* | 4.660 | *118.36* | 6 STD | SF | SF |
| | | | Nut | 1.42 | *0.64* | | | | | | | | | |
| | | | Male Sub | 0.40 | *0.18* | | | | | | | | | |
| | | | Female Sub | 0.52 | *0.24* | | | | | | | | | |
| | | | Seal Ring Kit | – | – | | | | | | | | | |
| Insulating union. Laminated rings provide electrical isolation from galvanic corrosion, with a total of 35 million ohms resistance. An O-Ring in male sub and a seal ring in female sub provide primary and secondary seals. All seal rings are field-replaceable. | 2 | *50* | Union Complete | 6.24 | *2.83* | 3.510 | *89.15* | 2.880 | *73.15* | 6.250 | *158.75* | 6 STD | SF | SF |
| | | | Nut | 2.96 | *1.34* | | | | | | | | | |
| | | | Male Sub | 1.42 | *0.64* | | | | | | | | | |
| | | | Female Sub | 1.86 | *0.84* | | | | | | | | | |
| | | | Seal Ring Kit | – | – | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

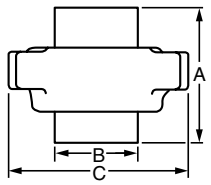
TPI = Threads per inch SF = Steel Forging

# Hammer Unions

2,000 psi cwp – 3,000 psi test

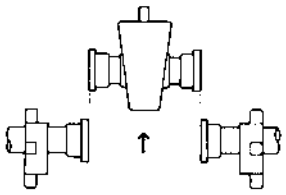
Catawissa™
PERFORMANCE UNDER PRESSURE

**FIGURE 300**
**Flat-Face Union**
**Gray Nut/Yellow Subs**




"Flat Face" design for straight breakout. Unlike standard unions, spreading of line is not required, allowing quick break-out. The unions seal equally well in low or high pressure liquid or vapor service.

**Straight Away Breakout**
Flat Face Fig. 300 Unions permit lateral removal of valves and other fittings for easy replacement or inspection.



| Size | | Item | Unit Weight | | A | | B | | C | | Material | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPS | *Dn* | | lbs | *kg* | in | *mm* | in | *mm* | in | *mm* | Nuts | Subs |
| 1 | *25* | Union Complete | 2.21 | *1.00* | 2.625 | *66.68* | 1.560 | *39.62* | 4.250 | *107.95* | SF | SF |
| | | Nut | 1.50 | *0.68* | | | | | | | | |
| | | Male Sub | 0.31 | *0.14* | | | | | | | | |
| | | Female Sub w/O-Ring | 0.50 | *0.23* | | | | | | | | |
| | | Seal Ring | – | – | | | | | | | | |
| 2 | *50* | Union Complete | 6.00 | *2.72* | 3.750 | *95.25* | 2.780 | *70.61* | 5.750 | *146.05* | SF | SF |
| | | Nut | 3.31 | *1.50* | | | | | | | | |
| | | Male Sub | 1.25 | *0.57* | | | | | | | | |
| | | Female Sub w/O-Ring | 1.44 | *0.65* | | | | | | | | |
| | | Seal Ring | – | – | | | | | | | | |
| 2½ | *65* | Union Complete | 10.88 | *4.93* | 4.625 | *117.48* | 3.410 | *86.61* | 7.000 | *177.8* | SF | SF |
| | | Nut | 6.19 | *2.81* | | | | | | | | |
| | | Male Sub | 2.13 | *0.97* | | | | | | | | |
| | | Female Sub w/O-Ring | 2.56 | *1.16* | | | | | | | | |
| | | Seal Ring | – | – | | | | | | | | |
| 3 | *80* | Union Complete | 14.25 | *6.46* | 5.000 | *127.00* | 4.300 | *109.22* | 8.000 | *203.2* | SF | SF |
| | | Nut | 6.31 | *2.86* | | | | | | | | |
| | | Male Sub | 3.50 | *1.59* | | | | | | | | |
| | | Female Sub w/O-Ring | 4.44 | *2.01* | | | | | | | | |
| | | Seal Ring | – | – | | | | | | | | |
| 4 | *100* | Union Complete | 20.69 | *9.38* | 5.750 | *146.05* | 5.110 | *129.79* | 8.875 | *225.43* | SF | SF |
| | | Nut | 8.31 | *3.77* | | | | | | | | |
| | | Male Sub | 5.57 | *2.53* | | | | | | | | |
| | | Female Sub w/O-Ring | 6.63 | *3.01* | | | | | | | | |
| | | Seal Ring | – | – | | | | | | | | |

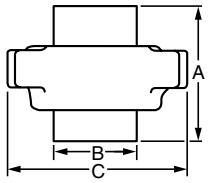
**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

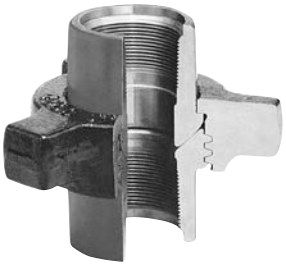
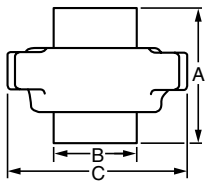
# Hammer Unions

## 3,000 psi cwp – 4,500 psi test

Catawissa™ PERFORMANCE UNDER PRESSURE

| FIGURE 301 Steam Service Union Black Nut/Green Subs | Size | | Item | Unit Weight | | A | | B | | C | | TPI | Material | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *Dn* | | lbs | *kg* | in | *mm* | in | *mm* | in | *mm* | | Nuts | Subs |
|    Ideal steam service union. | 1 | *25* | Union Complete | 1.75 | *0.79* | 2.670 | *67.82* | 1.640 | *41.66* | 4.065 | *103.38* | 6 STD | SF | SF |
| | | | Nut | – | – | | | | | | | | | |
| | | | Male Sub | – | – | | | | | | | | | |
| | | | Female Sub | – | – | | | | | | | | | |
| | | | Seal Ring | – | – | | | | | | | | | |
| | 2 | *50* | Union Complete | 4.90 | *2.22* | 3.275 | *83.31* | 2.825 | *71.88* | 5.900 | *149.86* | 3½ STD | SF | SF |
| | | | Nut | – | – | | | | | | | | | |
| | | | Male Sub | – | – | | | | | | | | | |
| | | | Female Sub | – | – | | | | | | | | | |
| | | | Seal Ring | – | – | | | | | | | | | |

## 4,000 psi cwp – 6,000 psi test

| FIGURE 400 Threaded Ends Black Nut/Red Subs | Size | | Item | Unit Weight | | A | | B | | C | | TPI | Material | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *Dn* | | lbs | *kg* | in | *mm* | in | *mm* | in | *mm* | | Nuts | Subs |
|    Ideal for manifold and pumping service. | 2 | *50* | Union Complete | 11.05 | *5.01* | 5.225 | *132.72* | 3.000 | *76.20* | 7.125 | *180.98* | 3 STD | SF | SF |
| | | | Nut | 5.60 | *2.54* | | | | | | | | | |
| | | | Male Sub | 2.65 | *1.20* | | | | | | | | | |
| | | | Female Sub | 2.80 | *1.27* | | | | | | | | | |
| | 3 | *80* | Union Complete | 20.00 | *9.07* | 6.110 | *155.19* | 4.250 | *107.95* | 8.750 | *222.25* | 3 STD | SF | SF |
| | | | Nut | 8.50 | *3.85* | | | | | | | | | |
| | | | Male Sub | 5.50 | *2.49* | | | | | | | | | |
| | | | Female Sub | 6.00 | *2.72* | | | | | | | | | |
| | 4 | *100* | Union Complete | 29.15 | *13.22* | 8.200 | *208.28* | 5.275 | *133.99* | 9.160 | *232.66* | 3 STD | SF | SF |
| | | | Nut | 10.15 | *4.60* | | | | | | | | | |
| | | | Male Sub | 8.85 | *4.01* | | | | | | | | | |
| | | | Female Sub | 10.15 | *4.60* | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

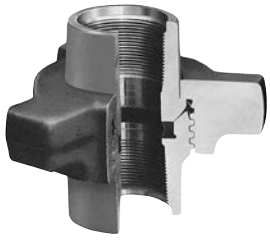
# Hammer Unions

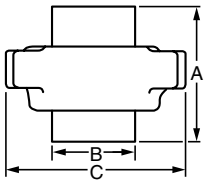
6,000 psi cwp – 9,000 psi test

Catawissa™ PERFORMANCE UNDER PRESSURE



## FIGURE 602
### Threaded Ends
### Black Nut/Orange Subs

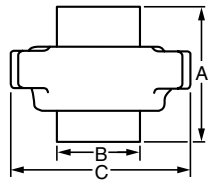





Compact design is well-suited for manifold service. Employs a double seal that combines an elastomeric gasket with a metal-to-metal connection.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *25* | Union Complete | 3.55 | *1.61* | 6.625 | *168.28* | 1.750 | *44.45* | 4.500 | *114.30* | 6 STD | SF | SF |
| | | Nut | 1.95 | *0.88* | | | | | | | | | |
| | | Male Sub | 0.60 | *0.27* | | | | | | | | | |
| | | Female Sub w/Ring | 1.00 | *0.45* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |
| 1½ | *40* | Union Complete | 9.54 | *4.33* | 4.600 | *116.84* | 2.570 | *65.28* | 5.520 | *140.21* | 4 STD | SF | SF |
| | | Nut | 4.98 | *2.26* | | | | | | | | | |
| | | Male Sub | 1.98 | *0.90* | | | | | | | | | |
| | | Female Sub w/Ring | 2.58 | *1.17* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |
| 2 | *50* | Union Complete | 12.40 | *5.62* | 5.300 | *134.62* | 2.970 | *75.44* | 6.875 | *174.63* | 3 MOD | SF | SF |
| | | Nut | 6.50 | *2.95* | | | | | | | | | |
| | | Male Sub | 2.85 | *1.29* | | | | | | | | | |
| | | Female Sub w/Ring | 3.05 | *1.38* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |
| 3 | *80* | Union Complete | 22.30 | *10.11* | 6.310 | *160.27* | 4.250 | *107.95* | 8.875 | *225.43* | 3 MOD | SF | SF |
| | | Nut | 9.95 | *4.51* | | | | | | | | | |
| | | Male Sub | 5.20 | *2.36* | | | | | | | | | |
| | | Female Sub w/Ring | 7.15 | *3.24* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |

## FIGURE 602
### Buttweld Ends
### Schedule XXH
### Black Nut/Orange Subs




Compact design is well-suited for manifold service. Employs a double seal that combines an elastomeric gasket with a metal-to-metal connection.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | *80* | Union Complete | 21.25 | *9.64* | 6.310 | *160.27* | 4.250 | *107.95* | 8.875 | *225.43* | 3 MOD | SF | SF |
| | | Nut | 9.95 | *4.51* | | | | | | | | | |
| | | Male Sub | 5.75 | *2.61* | | | | | | | | | |
| | | Female Sub w/Ring | 6.00 | *2.72* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |

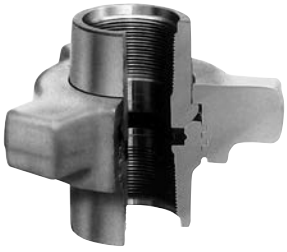
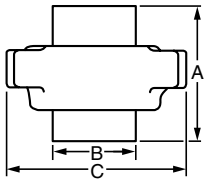
**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

# Hammer Unions

6,000 psi cwp – 9,000 psi test

Catawissa™
PERFORMANCE UNDER PRESSURE

| FIGURE 607<br>Well Service Union<br>Threaded Ends<br>Yellow Nut/Silver Subs | Size | | Item | Unit Weight | | A | | B | | C | | TPI | Material | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *Dn* | | lbs | *kg* | in | *mm* | in | *mm* | in | *mm* | | Nuts | Subs |
|  <br>  <br>Ideal for hot oil trucks and manifold service. Extended subs allow for quick breakout on trucks and manifolds. Employs a double seal that combines an elastomeric gasket with a metal-to-metal connection. | 1½ | *40* | Union Complete | 8.96 | 4.06 | 4.15 | *105.41* | 2.6 | *66.04* | 6.53 | *165.74* | 5 STD | SF | SF |
| | | | Nut | 5.34 | 2.42 | | | | | | | | | |
| | | | Male Sub | 1.52 | 0.69 | | | | | | | | | |
| | | | Female Sub w/Ring | 2.10 | 0.95 | | | | | | | | | |
| | | | Seat Ring | – | – | | | | | | | | | |
| | 2 | *50* | Union Complete | 14.64 | 6.64 | 5.85 | *148.59* | 3.08 | *78.23* | 7.33 | *186.18* | 5 STD | SF | SF |
| | | | Nut | 7.68 | 3.48 | | | | | | | | | |
| | | | Male Sub | 2.82 | 1.28 | | | | | | | | | |
| | | | Female Sub w/Ring | 4.14 | 1.88 | | | | | | | | | |
| | | | Seat Ring | – | – | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

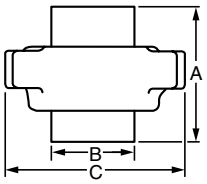
# Hammer Unions

15,000 psi cwp – 22,500 psi test

Catawissa™ PERFORMANCE UNDER PRESSURE



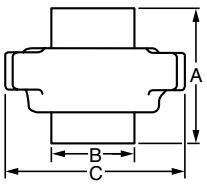
## FIGURE 1502
**Threaded Ends**
**Blue Nut/Red Subs**




Alloy steel forgings for high-pressure manifold and treating connections. Employs a double seal that combines an elastomeric gasket with a metal-to-metal connection.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | *50* | Union Complete | 19.46 | *8.83* | 7.060 | *179.32* | 3.230 | *82.04* | 7.860 | *199.64* | 3 STD | All Alloy Steel Forging | |
| | | Nut | 9.78 | *4.44* | | | | | | | | | |
| | | Male Sub | 4.82 | *2.19* | | | | | | | | | |
| | | Female Sub w/Ring | 4.86 | *2.20* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |
| 3 | *80* | Union Complete | 30.48 | *13.82* | 7.630 | *193.8* | 4.400 | *111.76* | 9.900 | *251.46* | 3½ STD | | |
| | | Nut | 14.18 | *6.43* | | | | | | | | | |
| | | Male Sub | 8.00 | *3.63* | | | | | | | | | |
| | | Female Sub w/Ring | 8.30 | *3.76* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |

## FIGURE 1502
**Buttweld Ends**
**Schedule XXH**
**Blue Nut/Red Subs**




Alloy steel forgings for high-pressure manifold and treating connections. Employs a double seal that combines an elastomeric gasket with a metal-to-metal connection.

| Size NPS | Size *Dn* | Item | Unit Weight lbs | Unit Weight *kg* | A in | A *mm* | B in | B *mm* | C in | C *mm* | TPI | Material Nuts | Material Subs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | *50* | Union Complete | 20.58 | *9.33* | 7.060 | *179.32* | 3.230 | *82.04* | 7.860 | *199.64* | 3 STD | All Alloy Steel Forging | |
| | | Nut | 9.78 | *4.44* | | | | | | | | | |
| | | Male Sub | 5.32 | *2.41* | | | | | | | | | |
| | | Female Sub w/Ring | 5.48 | *2.49* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |
| 3 | *80* | Union Complete | 27.98 | *12.69* | 7.630 | *193.8* | 4.400 | *111.76* | 9.900 | *251.46* | 3½ STD | | |
| | | Nut | 14.18 | *6.43* | | | | | | | | | |
| | | Male Sub | 6.96 | *3.16* | | | | | | | | | |
| | | Female Sub w/Ring | 7.76 | *3.52* | | | | | | | | | |
| | | Seat Ring | – | – | | | | | | | | | |

**Warnings:** 1. Do not make up or break out Unions in pressurized lines.
2. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

TPI = Threads per inch SF = Steel Forging

# Catawissa Quick Reference Chart

Catawissa™
PERFORMANCE UNDER PRESSURE

| STANDARD SERVICE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fig No. | CWP | TEST | API Color Code | | Pipe Size (in.) | | | | | | | |
| | | | SUB | NUT | 1" | 1¼" | 1½" | 2" | 2½" | 3" | 4" | 6" |
| 100 | 1,000 | 1,500 | Yellow | Black | | | | ■ | ■ | ■ | ■ | ■ |
| 200 | 2,000 | 3,000 | Gray | Blue | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| 206 | 2,000 | 3,000 | Gray | Blue | ■ | | ■ | ■ | | ■ | ■ | ■ |
| 211 | 2,000 | 3,000 | Light Blue | Gray | ■ | | | ■ | | | | |
| 300 | 2,000 | 3,000 | Yellow | Gray | ■ | | | ■ | ■ | ■ | ■ | |
| 301 | 3,000 | 4,500 | Green | Black | ■ | | | ■ | | | | |
| 400 | 4,000 | 6,000 | Red | Black | | | | ■ | | ■ | ■ | |
| 602 | 6,000 | 9,000 | Orange | Black | ■ | | ■ | ■ | | ■ | | |
| 607 | 6,000 | 9,000 | Silver | Yellow | | | ■ | ■ | | | | |
| 1502 | 15,000 | 22,500 | Red | Blue | | | | ■ | | ■ | | |

# J.B. SMITH PRODUCTS


J.B. Smith oil country tubular fittings, swages and bull plugs add an important dimension to the industry's leading line of flow control products offered by Anvil. J.B. Smith is a respected name and its products are well known for high quality and consistency.

## Full Traceability

All J.B. Smith swages, bull plugs, tubing and casing nipples, and chambers are traceable to the original mill test report. To ensure traceability, all fittings are steel stamped as follows:

## Material Specification

- Material Grade WPB (ASTM A234 - Line Pipe)
- Material Grade J-55, K-55, L-80, N-80 (API 5CT - Oil Country Sizes)

## Raw Material Code

Each is stamped with unique JBS material code for traceability to material type, details of purchase and mill test report.

## Heat Treatment

Items made to specification grades requiring final heat treatment bear an additional two letter code for heat treatment traceability.

All J.B. Smith products conform to the following applicable specifications:

- **API 5B** – Threading Oil Country size
- **API 5CT** – Raw material, Process, End Finish (Oil Country Sizes)
- **ASME B1.20.1** – Threading Line Pipe
- **ASME B16.9** – Weld Bevels
- **MSS SP-95** Swage and Bull Plug
- **ASTM A234 WPB** – Raw material, Process, End Finish (Line Pipe High Temp)
- **ASTM A420 WPL6** – Raw material, Process, End Finish (Line Pipe Low Temp)
- **ASTM B633 Type III Class III** – Zinc Electroplate
- **NACE MR-01-75** – As Applicable

# Swage Nipples, Bull Plugs, Oil Country Fittings, Couplings, Stainless Swages

## Manufacturing Specification

J.B. Smith manufactures swage nipples and bull plugs in accordance to the applicable specification, API 5CT, ASTM A234, MSS SP-95. Materials include ASTM A106, GR B seamless pipe, A-1000 low to medium carbon, fine grain bar stock, API grades J-55 through N-80 tubing and casing, processed and heat treated to applicable specification requirements. Fitting chemical and physical properties fall within the ranges listed below.

All fittings are manufactured in the U.S.A.

## Traceability

All material purchased by J.B. Smith is fully traceable to the mill source. A unique JBS material code appears on all products made since the institution of this program. As a result, mill test reports are now available at any time on products so coded (See EXTRAS for MTR charges.)

## Pressure Ratings

Due to the wide variation in service conditions, temperature, vibrations, etc., J.B. Smith Mfg. can make no recommendations as to allowable working pressure of swage nipples and bull plugs. There are a number of working pressure formulas from which the end user may choose to determine the required wall thickness of the piping system. It is our responsibility only to furnish a fitting with end dimensions equal to those of the pipe size and schedule ordered.

## Material Certification – Carbon Steel

J.B Smith certifies that the material used to manufacture line pipe sizes of swage nipples and bull plugs has be processed to comply with the requirements of ASTM A234 grade WPB and the chemical and physical properties of the fittings fall within the ranges listed below.

## Marking

All J.B. Smith fittings are permanently marked as follows:

- **Manufacturer's symbol** - JBS
- **Material Specification or Grade**
  WBP (Line Pipe Sizes)
  J-55, K-55, L-80, N-80 (Oil Country Sizes)
- **Raw Material Code** - Each part is die stamped with unique JBS material code for traceability to material type, details of purchase and mill test report.
- **Heat Treatment** - Heat treatments are performed to ASTM A234 WPB or API 5CT specification grade requirement as applicable. Fittings bear a two letter code provide traceability to final heat treatment.

## Threading

Line Pipe, Tubing and Casing threads conform to ASME B1.20.1 B or API 5B as applicable.

## Oil Country Industry Thread Color Code

Industry Color Codes as follows:

8R - Red  10R - Yellow  10V - Blue  11½V - Green  LP - Silver

## Coatings

- **Zinc Electroplate** - ASTM B633 Type III Class III
- **Paint** (Weld Bevel Ends)

## Weld Bevels

Weld bevels are machined per ASME B16.9 specifications.

# Chemical and Physical Requirements

**API 5CT MATERIAL**

**Chemical Requirements**

| Grp | Gr | C | Mn | Mo | Cr | Ni | Cu | P | S | Si |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J55 | — | — | — | — | — | — | 0.030 Max | 0.030 Max | — |
| 1 | K55 | — | — | — | — | — | — | 0.030 Max | 0.030 Max | — |
| 1 | N80 Type1 | — | — | — | — | — | — | 0.030 Max | 0.030 Max | — |
| 2 | L80 Type1 | 0.43 Max | 1.90 Max | — | — | 0.25 Max | 0.35 Max | 0.030 Max | 0.030 Max | 0.45 Max |

**Physical Requirements**

| Grp | Gr | Total Elongation under load % | Yield Strength ksi | Tensile Strength ksi | Hardness | |
|---|---|---|---|---|---|---|
| 1 | J55 | 0.5 | 55-80 | 75 | — | — |
| 1 | K55 | 0.5 | 55-80 | 95 | — | — |
| 1 | N80 Type1 | 0.5 | 80-110 | 100 | — | — |
| 2 | L80 Type1 | 0.5 | 80-110 | 95 | 23 | 241 |

**Note:**

- Fittings made from bar or plate may have 0.35 Max Carbon.
- Fittings made from forgings may have a 0.35 Max Carbon and 0.35 Max Silicon.
- For each reduction of 0.01% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted, up to a maximum of 1.35%.
- The sum of Copper, Nickel Chromium and Molybdenum shall not exceed 1.00%.
- The sum of Chromium and Molybdenum shall not exceed 0.32%.

# Carbon Steel
## Swage Nipples

### Line Pipe Swages

- Nominal Pipe Size range 1/8 – 8 NPS *(6 – 200 DN)*
- Manufactured from A106 Gr. B seamless pipe or hex bar and processed in accordance to ASTM A234 Gr. WPB
- Choice of material depends upon size and reduction
- Available in standard, extra heavy, double extra heavy or schedule 160
- End finishes available: NPT, weld beveled, squared cut (for socket weld) or grooved
- Available concentric and eccentric
- 1" *(25mm)* and smaller are made from hex bar
- 1 1/4" *(32mm)* and larger are made from pipe

| Concentric Swage Nipples | Size | | | | | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | API or O.D. | | Reduced to Size | | | | | | | | | |
| | NPS | *DN* | in | *mm* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | ¼ | *8* | 0.540 | *14* | ⅛ | *6* | 2¼ | *57* | – | – | – | – | 0.25 | *0.11* |
| | ⅜ | *10* | 0.675 | *17* | ⅛ | *6* | 2½ | *64* | – | – | 0.25 | *0.11* | 0.38 | *0.17* |
| | | | | | ¼ | *8* | 2½ | *64* | – | – | 0.25 | *0.11* | 0.38 | *0.17* |
| | ½ | *15* | 0.840 | *21* | ⅛ | *6* | 2¾ | *70* | – | – | 0.33 | *0.15* | 0.50 | *0.23* |
| | | | | | ¼ and ⅜ | *8 and 10* | 2¾ | *70* | – | – | 0.33 | *0.15* | 0.50 | *0.23* |
| | ¾ | *20* | 1.050 | *27* | ⅛ | *6* | 3 | *76* | – | – | 0.50 | *0.23* | 0.75 | *0.34* |
| | | | | | ¼ and ⅜ | *8 and 10* | 3 | *76* | – | – | 0.50 | *0.23* | 0.75 | *0.34* |
| | | | | | ½ | *15* | 3 | *76* | – | – | 0.50 | *0.23* | 0.75 | *0.34* |
| | 1 | *25* | 1.315 | *33* | ⅛ | *6* | 3½ | *89* | – | – | 0.66 | *0.30* | 1.00 | *0.45* |
| | | | | | ¼ and ⅜ | *8 and 10* | 3½ | *89* | – | – | 0.66 | *0.30* | 1.00 | *0.45* |
| | | | | | ½ and ¾ | *15 and 20* | 3½ | *89* | – | – | 0.66 | *0.30* | 1.00 | *0.45* |

Note: See page 135 for certification of raw material and marking.

Select sizes of 1 NPS *(25 DN)* and smaller swages in XS/XH and Schedule 160 weights available in A106.
All sizes on this page have been processed in a manner strictly conforming to the requirements of ASTM A234 from material fully meeting all requirements of that specification. The correct marking for swage nipples to denote conformance with this specification is "WPB".
All sizes 1 NPS *(25 DN)* and smaller will be made from hex barstock. Most sizes 1¼ NPS *(32 DN)* and larger will be made from pipe, and where pipe is not a practical raw material, round barstock will be used. No sacrifice of properties will result from such practice.

# Carbon Steel
## Swage Nipples



| Concentric Swage Nipples | Size | | | | | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | API or O.D. | | Reduced to Size | | | | | | | | | |
| | NPS | DN | in | mm | NPS | DN | in | mm | lbs | kg | lbs | kg | lbs | kg |
|  | 1¼ | 32 | 1.660 | 42 | ¼ and ⅜ | 8 and 10 | 4 | 102 | – | – | 1.00 | 0.45 | 1.5 | 0.68 |
| | | | | | ½ and ¾ | 15 and 20 | 4 | 102 | – | – | 1.00 | 0.45 | 1.5 | 0.68 |
| | | | | | 1 | 25 | 4 | 102 | – | – | 1.00 | 0.45 | 1.5 | 0.68 |
| | 1½ | 40 | 1.900 | 48 | ¼ and ⅜ | 8 and 10 | 4½ | 114 | – | – | 1.2 | 0.53 | 2.0 | 0.91 |
| | | | | | ½ and ¾ | 15 and 20 | 4½ | 114 | – | – | 1.2 | 0.53 | 2.0 | 0.91 |
| | | | | | 1 | 25 | 4½ | 114 | – | – | 1.2 | 0.53 | 2.0 | 0.91 |
| | | | | | 11/4 | 32 | 4½ | 114 | – | – | 1.2 | 0.53 | 2.0 | 0.91 |
| | 2 | 50 | 2⅜ | 60 | ¼ and ⅜ | 8 and 10 | 6½ | 165 | – | – | 3.0 | 1.4 | 4.3 | 1.9 |
| | | | | | ½ and ¾ | 15 and 20 | 6½ | 165 | – | – | 3.0 | 1.4 | 4.3 | 1.9 |
| | | | | | 1 | 25 | 6½ | 165 | 2.0 | 0.91 | 2.3 | 1.1 | 4.3 | 1.9 |
| | | | | | 1¼ | 32 | 6½ | 165 | 2.0 | 0.91 | 2.3 | 1.1 | 4.3 | 1.9 |
| | | | | | 1½ | 40 | 6½ | 165 | 2.0 | 0.91 | 2.3 | 1.1 | 4.3 | 1.9 |
| | 2½ | 65 | 2⅞ | 73 | ½ and ¾ | 15 and 20 | 7 | 178 | – | – | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 1 | 25 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 1¼ | 32 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 1½ | 40 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 2 | 50 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | 3 | 80 | 3½ | 89 | ½ and ¾ | 15 and 20 | 8 | 203 | – | – | 6.0 | 2.7 | 11 | 5.0 |
| | | | | | 1 | 25 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | | | | | 1¼ | 32 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | | | | | 1½ | 40 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | | | | | 2 and 2½ | 50 and 65 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | 3½ | 90 | 4 | 100 | ½ thru 1½ | 15 thru 40 | 8 | 203 | 5.5 | 2.5 | 7.5 | 3.4 | 14 | 6.1 |
| | 3½ | 90 | 4 | 100 | ½ thru 1½ | 15 thru 40 | 8 | 203 | 5.5 | 2.5 | 7.5 | 3.4 | 14 | 6.1 |
| | | | | | 2 thru 3 | 50 thru 80 | 8 | 203 | 5.5 | 2.5 | 7.5 | 3.4 | 14 | 6.1 |
| | 4 | 100 | 4½ | 114 | ½ and ¾ | 15 and 20 | 9 | 229 | – | – | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 1 | 25 | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 1¼ and 1½ | 32 and 40 | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 2 | 50 | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 2½ | 65 | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 3 and 3½ | 80 and 90 | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | 5 | 125 | 5⁹⁄₁₆ | 140 | 1 thru 1½ | 25 thru 40 | 11 | 279 | 12 | 5.2 | 17 | 7.7 | 33 | 15 |
| | | | | | 2 and 2½ | 50 and 65 | 11 | 279 | 12 | 5.2 | 17 | 7.7 | 33 | 15 |
| | | | | | 3 and 3½ | 80 and 90 | 11 | 279 | 12 | 5.2 | 17 | 7.7 | 33 | 15 |
| | | | | | 4 | 100 | 11 | 279 | 12 | 5.2 | 17 | 7.7 | 33 | 15 |
| | 6 | 150 | 6⅝ | 168 | 1 thru 1½ | 25 thru 40 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 2 and 2½ | 50 and 65 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 3 and 3½ | 80 and 90 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 4 | 100 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 5 | 125 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | 8 | 200 | 8⅝ | 219 | 2 thru 3 | 50 thru 80 | 13 | 330 | 29 | 13 | 44 | 20 | 78 | 35 |
| | | | | | 4 and 5 | 100 and 125 | 13 | 330 | 29 | 13 | 44 | 20 | 78 | 35 |
| | | | | | 6 | 150 | 13 | 330 | 29 | 13 | 44 | 20 | 78 | 35 |

Note: See page 135 for certification of raw material and marking.

# Carbon Steel

## Swage Nipples

| Eccentric Swage Nipples | Size | | | | | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | API or O.D. | | Reduced to Size | | | | | | | | | |
| | NPS | *DN* | in | *mm* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | ¼ | *8* | 0.540 | *14* | ⅛ | *6* | 2¼ | *57* | – | – | 0.16 | *0.07* | 0.25 | *0.11* |
| | ⅜ | *10* | 0.675 | *17* | ⅛ | *6* | 2½ | *64* | – | – | 0.25 | *0.11* | 0.38 | *0.17* |
| | | | | | ¼ | *8* | 2½ | *64* | – | – | 0.25 | *0.11* | 0.38 | *0.17* |
| | ½ | *15* | 0.840 | *21* | ¼ and ⅜ | *8 and 10* | 2¾ | *70* | – | – | 0.33 | *0.15* | 0.50 | *0.23* |
| | ¾ | *20* | 1.050 | *27* | ¼ and ⅜ | *8 and 10* | 3 | *76* | – | – | 0.50 | *0.23* | 0.75 | *0.34* |
| | | | | | ½ | *15* | 3 | *76* | – | – | 0.50 | *0.23* | 0.75 | *0.34* |
| | 1 | *25* | 1.315 | *33* | ¼ and ⅜ | *8 and 10* | 3½ | *89* | – | – | 0.66 | *0.30* | 1.00 | *0.45* |
| | | | | | ½ and ¾ | *15 and 20* | 3½ | *89* | – | – | 0.60 | *0.27* | 1.00 | *0.45* |
| | 1¼ | *32* | 1.660 | *42* | ½ and ¾ | *15 and 20* | 4 | *102* | – | – | 1.00 | *0.45* | 1.5 | *0.68* |
| | | | | | 1 | *25* | 4 | *102* | – | – | 1.00 | *0.45* | 1.5 | *0.68* |
| | 1½ | *40* | 1.900 | *48* | ½ and ¾ | *15 and 20* | 4½ | *114* | – | – | 1.2 | *0.53* | 2.0 | *0.91* |
| | | | | | 1 | *25* | 4½ | *114* | – | – | 1.2 | *0.53* | 2.0 | *0.91* |
| | | | | | 1¼ | *32* | 4½ | *114* | – | – | 1.2 | *0.53* | 2.0 | *0.91* |
| | 2 | *50* | 2⅜ | *60* | ¼ and ⅜ | *8 and 10* | 6½ | *165* | – | – | 3.0 | *1.4* | 4.3 | *1.9* |
| | | | | | ½ and ¾ | *15 and 20* | 6½ | *165* | – | – | 3.0 | *1.4* | 4.3 | *1.9* |
| | | | | | 1 | *25* | 6½ | *165* | 2.0 | *0.91* | 2.3 | *1.1* | 4.3 | *1.9* |
| | | | | | 1¼ | *32* | 6½ | *165* | 2.0 | *0.91* | 2.3 | *1.1* | 4.3 | *1.9* |
| | | | | | 1½ | *40* | 6½ | *165* | 2.0 | *0.91* | 2.3 | *1.1* | 4.3 | *1.9* |
| | 2½ | *65* | 2⅞ | *73* | 1 | *25* | 7 | *178* | – | – | 3.5 | *1.6* | 8.0 | *3.6* |
| | | | | | 1¼ | *32* | 7 | *178* | 3.0 | *1.4* | 3.5 | *1.6* | 8.0 | *3.6* |
| | | | | | 1½ | *40* | 7 | *178* | 3.0 | *1.4* | 3.5 | *1.6* | 8.0 | *3.6* |
| | | | | | 2 | *50* | 7 | *178* | – | – | 3.5 | *1.6* | 8.0 | *3.6* |
| | 3 | *80* | 3½ | *89* | ½ and ¾ | *15 and 20* | 8 | *203* | – | – | 6.0 | *2.7* | 11 | *5.0* |
| | | | | | 1 | *25* | 8 | *203* | 4.5 | *2.0* | 6.0 | *2.7* | 11 | *5.0* |
| | | | | | 1¼ | *32* | 8 | *203* | 4.5 | *2.0* | 6.0 | *2.7* | 11 | *5.0* |
| | | | | | 1½ | *40* | 8 | *203* | 4.5 | *2.0* | 6.0 | *2.7* | 11 | *5.0* |
| | | | | | 2 and 2½ | *50 and 65* | 8 | *203* | 4.5 | *2.0* | 6.0 | *2.7* | 11 | *5.0* |
| | 3½ | *90* | 4 | *102* | All reductions | *All reductions* | 8 | *203* | 5.5 | *2.5* | 7.5 | *3.4* | 14 | *6.1* |
| | 4 | *100* | 4½ | *114* | 1 | *25* | 9 | *229* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |
| | | | | | 1¼ and 1½ | *32 and 40* | 9 | *229* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |
| | | | | | 2 | *50* | 9 | *229* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |
| | | | | | 2½ | *65* | 9 | *229* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |
| | | | | | 3 and 3½ | *80 and 90* | 9 | *229* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |

Note: See page 135 for certification of raw material and marking. Sizes not shown - P.O.A.

# Stainless Steel

## Stainless Swages



| Stainless & Alloy Steel Swage Nipples | 304 Stainless Steel | | | | 316 Stainless Steel | | | |
|---|---|---|---|---|---|---|---|---|
| | Size | | Length | | Size | | Length | |
| | NPS | *DN* | in | *mm* | NPS | *DN* | in | *mm* |
|  | ¼ x ⅛ | *8 x 6* | 2¼ | *57* | ¼ x ⅛ | *8 x 6* | 2¼ | *57* |
| | ⅜ x ¼ | *10 x 8* | 2½ | *64* | ⅜ x ¼ | *10 x 8* | 2½ | *64* |
| | ½ x ¼ | *15 x 8* | 2¾ | *70* | ½ x ¼ | *15 x 8* | 2¾ | *70* |
| | ½ x ⅜ | *15 x 10* | 2¾ | *70* | ½ x ⅜ | *15 x 10* | 2¾ | *70* |
| | ¾ x ¼ | *20 x 8* | 3 | *76* | ¾ x ¼ | *20 x 8* | 3 | *76* |
| | ¾ x ⅜ | *20 x 10* | 3 | *76* | ¾ x ⅜ | *20 x 10* | 3 | *76* |
| | ¾ x ½ | *20 x 15* | 3 | *76* | ¾ x ½ | *20 x 15* | 3 | *76* |
| | 1 x ¼ | *25 x 8* | 3½ | *89* | 1 x ¼ | *25 x 8* | 3½ | *89* |
| | 1 x ½ | *25 x 15* | 3½ | *89* | 1 x ½ | *25 x 15* | 3½ | *89* |
| | 1 x ¾ | *25 x 20* | 3½ | *89* | 1 x ¾ | *25 x 20* | 3½ | *89* |
| | 1¼ x ½ | *32 x 15* | 4 | *102* | 1¼ x ½ | *32 x 15* | 4 | *102* |
| | 1¼ x ¾ | *32 x 20* | 4 | *102* | 1¼ x ¾ | *32 x 20* | 4 | *102* |
| | 1¼ x 1 | *32 x 25* | 4 | *102* | 1¼ x 1 | *32 x 25* | 4 | *102* |
| | 1½ x ½ | *40 x 15* | 4½ | *114* | 1½ x ½ | *40 x 15* | 4½ | *114* |
| | 1½ x ¾ | *40 x 20* | 4½ | *114* | 1½ x ¾ | *40 x 20* | 4½ | *114* |
| | 1½ x 1 | *40 x 25* | 4½ | *114* | 1½ x 1 | *40 x 25* | 4½ | *114* |
| | 1½ x 1¼ | *40 x 32* | 4½ | *114* | 1½ x 1¼ | *40 x 32* | 4½ | *114* |
| | 2 x ½ | *50 x 15* | 6½ | *165* | 2 x ½ | *50 x 15* | 6½ | *165* |
| | 2 x ¾ | *50 x 20* | 6½ | *165* | 2 x ¾ | *50 x 20* | 6½ | *165* |
| | 2 x 1 | *50 x 25* | 6½ | *165* | 2 x 1 | *50 x 25* | 6½ | *165* |
| | 2 x 1¼ | *50 x 32* | 6½ | *165* | 2 x 1¼ | *50 x 32* | 6½ | *165* |
| | 2 x 1½ | *50 x 40* | 6½ | *165* | 2 x 1½ | *50 x 40* | 6½ | *165* |
| | 2½ x 1 | *65 x 25* | 7 | *178* | 2½ x 1 | *65 x 25* | 7 | *178* |
| | 2½ x 1¼ | *65 x 32* | 7 | *178* | 2½ x 1¼ | *65 x 32* | 7 | *178* |
| | 2½ x 1½ | *65 x 40* | 7 | *178* | 2½ x 1½ | *65 x 40* | 7 | *178* |
| | 2½ x 2 | *65 x 50* | 7 | *178* | 2½ x 2 | *65 x 50* | 7 | *178* |
| | 3 x 1 | *80 x 25* | 8 | *203* | 3 x 1 | *80 x 25* | 8 | *203* |
| | 3 x 1¼ | *80 x 32* | 8 | *203* | 3 x 1¼ | *80 x 32* | 8 | *203* |
| | 3 x 1½ | *80 x 40* | 8 | *203* | 3 x 1½ | *80 x 40* | 8 | *203* |
| | 3 x 2 | *80 x 50* | 8 | *203* | 3 x 2 | *80 x 50* | 8 | *203* |
| | 3 x 2½ | *80 x 65* | 8 | *203* | 3 x 2½ | *80 x 65* | 8 | *203* |
| | 4 x 1 | *100 x 25* | 9 | *229* | 4 x 1 | *100 x 25* | 9 | *229* |
| | 4 x 1¼ | *100 x 32* | 9 | *229* | 4 x 1¼ | *100 x 32* | 9 | *229* |
| | 4 x 1½ | *100 x 40* | 9 | *229* | 4 x 1½ | *100 x 40* | 9 | *229* |
| | 4 x 2 | *100 x 50* | 9 | *229* | 4 x 2 | *100 x 50* | 9 | *229* |
| | 4 x 2½ | *100 x 65* | 9 | *229* | 4 x 2½ | *100 x 65* | 9 | *229* |
| | 4 x 3 | *100 x 80* | 9 | *229* | 4 x 3 | *100 x 80* | 9 | *229* |
| | 4 x 3½ | *100 x 90* | 9 | *229* | 4 x 3½ | *100 x 90* | 9 | *229* |

Note: See page 135 for certification of raw material and marking. Other types and sizes available on application. For other alloy raw material, Consult factory. Mill test reports furnished upon request only.
Options: E.L.C. Grades of Stainless; Eccentrics; Schedule 10 (no threads) - XXH; Schedule 160 & XXS/XXH; Concentric; Schedule 10, 40, 80, 160 and XXH (Including Eccentric)

# Carbon Steel
## Bull Plugs

### Line Pipe Bull Plugs

- Nominal Pipe Size range 1/8 – 8 NPS *(6 – 200 DN)*
- Nominal Pipe Size 2 *(50 DN)* and smaller bull plugs are manufactured from bar which is processed in accordance with ATM A234 Gr. WPB
- Nominal Pipe Size 2 1/2 – 8 *(65 – 200 DN)* bull plugs are manufactured from A106 Gr. B seamless pipe using J.B. Smith's unique forming process which ensures uniform wall thickness
- Bull Plugs available in standard, extra heavy, double extra heavy, schedule 160 or solid
- All J.B. Smith bull plugs can be tapped
- End finishes available: NPT, weld beveled, squared cut (for socket weld) or grooved

| Carbon Steel Bull Plugs | Size | | | | Length | | Standard Weight | | XS/XH Weight | | Solid Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | API or O.D. | | | | | | | | | | | |
| | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | 1/8 | *6* | 0.405 | *10* | 2 | *51* | – | – | 0.10 | *0.05* | 0.20 | *0.09* | 0.40 | *0.18* |
| | 1/4 | *8* | 0.540 | *14* | 2 | *51* | – | – | 0.11 | *0.05* | 0.20 | *0.09* | 0.40 | *0.18* |
| | 3/8 | *10* | 0.675 | *17* | 2 1/4 | *57* | – | – | 0.14 | *0.06* | 0.33 | *0.15* | 0.28 | *0.13* |
| | 1/2 | *15* | 0.840 | *21* | 2 1/2 | *64* | – | – | 0.33 | *0.15* | 0.50 | *0.23* | 0.50 | *0.23* |
| | 3/4 | *20* | 1.050 | *27* | 2 3/4 | *70* | – | – | 0.50 | *0.23* | 0.80 | *0.36* | 0.75 | *0.34* |
| | 1 | *25* | 1.315 | *33* | 3 | *76* | – | – | 0.66 | *0.30* | 1.4 | *0.63* | 1.00 | *0.45* |
| | 1 1/4 | *32* | 1.660 | *42* | 3 1/4 | *83* | – | – | 1.00 | *0.45* | 2.3 | *1.0* | 1.5 | *0.68* |
| | 1 1/2 | *40* | 1.900 | *48* | 3 1/2 | *89* | – | – | 1.2 | *0.53* | 3.0 | *1.4* | 2.0 | *0.91* |
| | 2 | *50* | 2 3/8 | *60* | 4 | *102* | 2.3 | *1.0* | 2.5 | *1.1* | 5.0 | *2.3* | 3.5 | *1.6* |
| | 2 1/2 | *65* | 2 7/8 | *73* | 5 | *127* | 3.0 | *1.4* | 3.5 | *1.6* | – | – | 8.0 | *3.6* |
| | 3 | *80* | 3 1/2 | *89* | 6 | *152* | 4.5 | *2.0* | 6.0 | *2.7* | – | – | 11 | *5.0* |
| | 3 1/2 | *90* | 4 | *102* | 6 1/2 | *165* | 5.5 | *2.5* | 7.5 | *3.4* | – | – | 14 | *6.1* |
| | 4 | *100* | 4 1/2 | *114* | 7 | *178* | 7.5 | *3.4* | 10.0 | *4.5* | – | – | 18 | *8.2* |
| | 5 | *125* | 5 9/16 | *141* | 8 1/2 | *216* | 13 | *5.7* | 17 | *7.7* | – | – | 33 | *15* |
| | 6 | *150* | 6 5/8 | *168* | 10 | *254* | 17 | *7.7* | 25 | *11* | – | – | 46 | *21* |
| | 8 | *200* | 8 5/8 | *219* | 11 | *279* | 29 | *13* | 44 | *20* | – | – | 78 | *35* |

| Solid Refinery Plugs Black (non-plated) Carbon Steel | Size | | Length | |
|---|---|---|---|---|
| | NPS | *DN* | in | *mm* |
|   | 1/8 | *6* | 3 | *76* |
| | 1/4 | *8* | 3 | *76* |
| | 3/8 | *10* | 3 | *76* |
| | 1/2 | *15* | 3 | *76* |
| | 3/4 | *20* | 3 | *76* |
| | 1 | *25* | 3 | *76* |
| | 1 1/4 | *32* | 3 | *76* |
| | 1 1/2 | *40* | 3 | *76* |
| | 2 | *50* | 3 | *76* |

Smith solid black refinery plugs have been especially designed for refinery use. The body length leaves sufficient length for easy wrench application. Material conforms to ASTM-A 234 Grade WPB. Hex Heads 1¼" thru 2" are available.

# Adapter Nipples

- J.B. Smith manufactures a full line of adapter nipples in sizes 1" NPS *(25 DN)* through 12" NPS *(300 DN)* from seamless A106 pipe.
- Adapter Nipples available in threaded, beveled, grooved and virtually all combinations of these end connections.
- Nipples manufactured in schedule 40, schedule 80, schedule 160 and double extra heavy wall thickness
- Full Traceability and mill certification available upon request at time of order

| Adapter Nipples Seamless Schedule 40, 80, 160, XXH | | | |
|---|---|---|---|
| Size | | Weight | |
| NPS | *DN* | lbs/ft | *kg* |
| ¾ | *20* | — | — |
| 1 | *25* | — | — |
| 1¼ | *32* | — | — |
| 1½ | *40* | — | — |
| 2 | *50* | 3.6 | *1.7* |
| 2½ | *65* | 5.8 | *2.6* |
| 3 | *80* | 7.6 | *3.4* |
| 4 | *100* | 11 | *4.9* |
| 5 | *125* | 15 | *6.6* |
| 6 | *150* | 19 | *8.6* |
| 8 | *200* | 29 | *13* |
| 10 | *250* | 40 | *18* |
| 12 | *300* | 50 | *22* |

# Oil Country Fittings

## Current API Thread Standards

| Current API Thread Standards | | | | | |
|---|---|---|---|---|---|
| Size | | O.D. | | Pipe | Tubing & Casing |
| NPS | *DN* | in | *mm* | | |
| ¾ | *20* | 1.050 | *27* | 14 | – |
| ¾ EUE | *20* | 1.050 | *27* | – | 10 Rd. |
| 1 | *25* | 1.315 | *33* | 11½ | 10 Rd. |
| 1 EUE | *25* | 1.315 | *33* | – | 10 Rd. |
| 1¼ | *32* | 1.660 | *42* | 11½ | 10 Rd. |
| 1¼ EUE | *32* | 1.660 | *42* | – | 10 Rd. |
| 1½ | *40* | 1.900 | *48* | 11½ | 10 Rd. |
| 1½ EUE | *40* | 1.900 | *48* | – | 10 Rd. |
| 2 | *50* | 2⅜ | *60* | 11½ | 10 Rd. |
| 2 EUE | *50* | 2⅜ | *60* | – | 8 Rd. |
| 2½ | *65* | 2⅞ | *73* | 8V | 10 Rd. |
| 2½ EUE | *65* | 2⅞ | *73* | – | 8 Rd. |
| 3 | *80* | 3½ | *89* | 8V | 10 Rd. |
| 3 EUE | *80* | 3½ | *89* | – | 8 Rd. |
| 31/2 | *90* | 4 | *102* | 8V | 8 Rd. |
| 3½ EUE | *90* | 4 | *102* | 8V | 8 Rd. |
| 4 | *100* | 4½ | *114* | 8V | 8 Rd. |
| 4 EUE | *100* | 4½ | *114* | – | 8 Rd. |
| – | – | 5 | *127* | – | 8 Rd. |
| – | – | 5½ | *140* | – | 8 Rd. |
| 5 | *125* | 5⁹⁄₁₆ | *141* | 8V | – |
| – | – | 6 | *152* | – | 8 Rd. |
| 6 | *150* | 6⅝ | *168* | 8V | 8 Rd. |
| – | – | 7 | *178* | – | 8 Rd. |
| – | – | 7⅝ | *194* | – | 8 Rd. |
| 8 | *200* | 8⅝ | *219* | 8V | 8 Rd. |
| – | – | 9⅝ | *244* | – | 8 Rd. |
| 10 | *250* | 10¾ | *273* | 8V | 8 Rd. |
| – | – | 11¾ | *298* | – | 8 Rd. |
| 12 | *300* | 12¾ | *324* | 8V | – |
| – | – | 13⅜ | *340* | – | 8 Rd. |
| – | – | 14 | *356* | 8V | – |
| – | – | 16 | *406* | 8V | 8 Rd. |
| – | – | 18 | *457* | 8V | – |
| – | – | 20 | *508* | 8V | 8 Rd. |

# Oil Country Fittings

## Tubing Swages & Casing Swages

- Tubing Nominal Sizes 1 – 4 *(25 – 100 DN)* upset and non-upset ends are available with any combination of API 5B threads (8Rd, l0Rd, 11 ½ V, 8V, etc) and are available in grades J-55, K-55, N-80 and L-80 API 5CT material grades
- Wall thicknesses available are standard through double extra heavy
- For different grades of material (stainless, brass, etc.) and different threads, consult factory
- Thread types are color-coded for easy identification. See page 135.

### SWAGE NIPPLES – OIL COUNTRY SIZES

| Large End Upset Reduced to Regular or Upset | Size | | Pipe O.D | | Reduced to Size | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *DN* | in | *mm* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | 1 | *25* | 1.315 | *33* | ¾ | *20* | 3½ | *89* | 0.66 | *0.30* | 0.66 | *0.30* | – | – |
| | 1¼ | *32* | 1.660 | *42* | ¾–1 | *20–25* | 4 | *102* | 1.00 | *0.45* | 1.00 | *0.45* | – | – |
| | 1½ | *40* | 1.900 | *48* | ¾–1¼ | *20–32* | 4½ | *114* | 1.3 | *0.57* | 1.3 | *0.57* | – | – |
| | 2 | *50* | 2⅜ | *60* | ¼–½–¾ | *8–15–20* | 8 | *203* | 2.5 | *1.1* | 4.0 | *1.8* | 6.0 | *2.7* |
| | | | | | 1–1¼–1½ | *25–32–40* | 8 | *203* | 2.5 | *1.1* | 4.0 | *1.8* | 6.0 | *2.7* |
| | | | | | 2 1/16 O.D. | *52 O.D.* | 8 | *203* | 2.5 | *1.1* | 4.0 | *1.8* | 6.0 | *2.7* |
| | 2½ | *65* | 2⅞ | *73* | 1–1¼–1½ | *25–32–40* | 8 | *203* | 5.0 | *2.3* | 6.0 | *2.7* | 10.0 | *4.5* |
| | | | | | 2 | *50* | 8 | *203* | 6.0 | *2.7* | 6.0 | *2.7* | 10.0 | *4.5* |
| | 3 | *80* | 3½ | *89* | 1–¼–1½ | *25–8–40* | 8 | *203* | 7.5 | *3.4* | 9.0 | *4.1* | 14 | *6.4* |
| | | | | | 2–2½ | *50–65* | 8 | *203* | 7.5 | *3.4* | 9.0 | *4.1* | 14 | *6.4* |
| | 4 | *100* | 4½ | *114* | 1–¼–1½ | *25–8–40* | 9 | *229* | 11 | *5.0* | 14 | *6.4* | 23 | *10* |
| | | | | | 2–2½ | *50–65* | 9 | *229* | 11 | *5.0* | 14 | *6.4* | 23 | *10* |
| | | | | | 3–3½ | *80–90* | 9 | *229* | 11 | *5.0* | 14 | *6.4* | 23 | *10* |

Swage Nipples are made from J-55, K-55, N-80 or the most appropriate material available.

### SWAGE NIPPLES – OIL COUNTRY SIZES

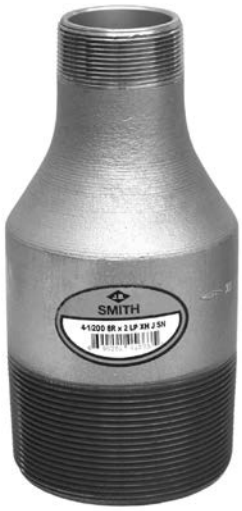
| Large End Non-Upset Reduced to Upset | Size | | Pipe O.D | | Reduced to Size | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NPS | *DN* | in | *mm* | NPS | *DN* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | 1 | *25* | 1.315 | *33* | ¾ | *20* | 3½ | *89* | 0.66 | *0.30* | 0.66 | *0.30* | – | – |
| | 1¼ | *32* | 1.660 | *42* | ¾–1 | *20–25* | 4 | *102* | 1.00 | *0.45* | 1.00 | *0.45* | – | – |
| | 1½ | *40* | 1.900 | *48* | ¾–1¼ | *20–32* | 4½ | *114* | 1.3 | *0.57* | 1.3 | *0.57* | – | – |
| | 2 | *50* | 2⅜ | *60* | ¾ | *20* | 6½ | *165* | 2.5 | *1.1* | 3.5 | *1.6* | 5.0 | *2.3* |
| | | | | | 1–1¼–1½ | *25–32–40* | 6½ | *165* | 2.5 | *1.1* | 3.5 | *1.6* | 5.0 | *2.3* |
| | 2½ | *65* | 2⅞ | *73* | 1–1¼–1½ | *25–32–40* | 7 | *178* | 4.0 | *1.8* | 6.0 | *2.7* | 9.0 | *4.1* |
| | | | | | 2 | *50* | 7 | *178* | 4.0 | *1.8* | 6.0 | *2.7* | 9.0 | *4.1* |
| | 3 | *80* | 3½ | *89* | 1–1¼–1½ | *25–32–40* | 8 | *203* | 6.0 | *2.7* | 9.0 | *4.1* | 12 | *5.4* |
| | | | | | 2–21/2 | *50–65* | 8 | *203* | 6.0 | *2.7* | 9.0 | *4.1* | 12 | *5.4* |
| | 4 | *100* | 4½ | *114* | 1–1¼–1½ | *25–32–40* | 9 | *229* | 8.0 | *3.6* | 12 | *5.4* | 20 | *9.1* |
| | | | | | 2–2½ | *50–65* | 9 | *229* | 8.0 | *3.6* | 12 | *5.4* | 20 | *9.1* |
| | | | | | 3–3½ | *80–90* | 9 | *229* | 8.0 | *3.6* | 12 | *5.4* | 20 | *9.1* |
| | | | 5½ | *140* | 2-3 | *50* | 11 | *279* | 13 | *5.7* | 17 | *7.7* | 33 | *15* |
| | | | 7 | *178* | 2-3 | *50* | 12 | *305* | 17 | *7.7* | 25 | *11* | 50 | *23* |

Swage Nipples are made from J-55, K-55, N-80 or the most appropriate material available.

# Oil Country Fittings

## Tubing Swages & Casing Swages

J.B. SMITH

| Swage Nipples Oil Country Tubing & Casing non EUE ends | Size | | | | | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | O.D. | | Reduced to | | | | | | | | | |
| | NPS | DN | in | mm | NPS | DN | in | mm | lbs | kg | lbs | kg | lbs | kg |
|  | 1 | 25 | 1.315 | 33 | ¼ - ¾ | 8 - 20 | 3½ | 89 | 0.66 | 0.30 | 0.66 | 0.30 | 1.00 | 0.45 |
| | 1¼ | 32 | 1.660 | 42 | ¼ - ½ | 8 - 15 | 4 | 102 | 1.00 | 0.45 | 1.00 | 0.45 | 1.5 | 0.68 |
| | | | | | ¾ & 1 | 20 & 25 | 4 | 102 | 1.00 | 0.45 | 1.00 | 0.45 | 1.5 | 0.68 |
| | 1½ | 40 | 1.900 | 48 | ¼ - ¾ | 8 - 20 | 4½ | 114 | 1.2 | 0.53 | – | – | 2.0 | 0.91 |
| | | | | | 1 & 1¼ | 25 & 32 | 4½ | 114 | 1.2 | 0.53 | 1.00 | 0.45 | 2.0 | 0.91 |
| | 2 | 50 | 2⅜ | 60 | ¼ - ¾ | 8 - 20 | 6½ | 165 | 2.5 | 1.1 | 3.0 | 1.4 | 4.3 | 1.9 |
| | | | | | 1 - 2 O.D. | 25 - 50 O.D. | 6½ | 165 | 2.0 | 0.91 | 2.3 | 1.1 | 4.3 | 1.9 |
| | 2½ | 65 | 2⅞ | 73 | ¼ - ¾ | 8 - .75 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 1 - 1½ | 25 - 40 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | | | | | 2 & 2 1/16 | 50 - 52 | 7 | 178 | 3.0 | 1.4 | 3.5 | 1.6 | 8.0 | 3.6 |
| | 3 | 80 | 3½ | 89 | 1 - 1½ | 25 - 40 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | | | | | 2 & 2½ | 50 - 65 | 8 | 203 | 4.5 | 2.0 | 6.0 | 2.7 | 11 | 5.0 |
| | 4 | 100 | 4½ | 114 | 1 - 1½ | 25 - 40 | 9 | 229 | 7.0 | 3.2 | 10.0 | 4.5 | 18 | 8.2 |
| | | | | | 2 - 4 O.D. | 50 - 100 O.D. | 9 | 229 | 7.5 | 3.4 | 10.0 | 4.5 | 18 | 8.2 |
| | | | 5 | 127 | 1 - 1½ | 25 - 40 | 10 | 254 | 9.5 | 4.3 | 15 | 6.8 | 24 | 11 |
| | | | | | 2 - 4½ O.D. | 50 - 100 O.D. | 10 | 254 | 9.5 | 4.3 | 15 | 6.8 | 24 | 11 |
| | | | 5½ | 140 | 1 - 1½ | 25 - 40 | 11 | 279 | 13 | 5.7 | 17 | 7.7 | 33 | 15 |
| | | | | | 2 & 2½ | 50 & 65 | 11 | 279 | 13 | 5.7 | 17 | 7.7 | 33 | 15 |
| | | | | | 3 - 50.D. | 80 - 125 O.D. | 11 | 279 | 13 | 5.7 | 17 | 7.7 | 33 | 15 |
| | | | 6⅝ | 168 | 1 - 1½ | 25 - 40 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 2 & 2½ | 50 & 65 | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 3 - 4 O.D. | 80 - 100 O.D. | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | | | 4 - 6 O.D. | 100 - 150 O.D. | 12 | 305 | 17 | 7.7 | 25 | 11 | 46 | 21 |
| | | | 7 | 178 | 1 - 1½ | 25 - 40 | 12 | 305 | 17 | 7.7 | 25 | 11 | – | – |
| | | | | | 2 - 2½ | 50 - 65 | 12 | 305 | 17 | 7.7 | 25 | 11 | – | – |
| | | | | | 3 - 5 O.D. | 80 - 125 O.D. | 12 | 305 | 17 | 7.7 | 25 | 11 | – | – |
| | | | | | 5½ O.D. & 6 O.D. | 140 O.D. & 150 O.D. | 12 | 305 | 17 | 7.7 | 25 | 11 | – | – |
| | | | 7⅝ | 194 | 2 - 3 | 5 - 750 | 13 | 330 | 24 | 11 | 32 | 15 | – | – |
| | | | | | 4 O.D. - 6 O.D. | 100 O.D. - 150 O.D. | 13 | 330 | 24 | 11 | 32 | 15 | – | – |
| | | | | | 6⅝ O.D. - 7 O.D. | 168 O.D. - 175 O.D. | 13 | 330 | 24 | 11 | 32 | 15 | – | – |
| | | | 8⅝ | 219 | 2 - 3 | 50 - 75 | 13 | 330 | 29 | 13 | 44 | 20 | – | – |
| | | | | | 4 - 6 O.D. | 100 - 150 O.D. | 13 | 330 | 29 | 13 | 44 | 20 | | |
| | | | | | 6⅝ O.D. & 7⅝ O.D. | 168 O.D. - 194 O.D. | 13 | 330 | 29 | 13 | 44 | 20 | – | – |
| | | | 9⅝ | 244 | 2 - 3 | 50 - 75 | 14 | 356 | 38 | 17 | 48 | 22 | – | – |
| | | | | | 4 - 6 O.D. | 100 - 150 O.D. | 14 | 356 | 38 | 17 | 48 | 22 | – | – |
| | | | | | 6⅝ O.D. & 8⅝ O.D. | 168 O.D. - 219 O.D. | 14 | 356 | 38 | 17 | 48 | 22 | – | – |
| | | | 10¾ | 273 | 2 - 3 | 50 - 75 | 15 | 381 | 48 | 22 | 68 | 31 | – | – |
| | | | | | 4 - 6 O.D. | 100 - 150 O.D. | 15 | 381 | 48 | 22 | 68 | 31 | – | – |
| | | | | | 6⅝ O.D - 7⅝ O.D. | 168 O.D. - 194 O.D. | 15 | 381 | 48 | 22 | 68 | 31 | – | – |
| | | | | | 8⅝ O.D. & 9⅝ O.D. | 219 O.D. - 245 O.D. | 15 | 381 | 48 | 22 | 68 | 31 | – | – |

All swage nipples on this page are made from J-55, K-55, N-80 or the most appropriate material available. Casing threads (8 Rd.) on one end with any thread or finish (beveled) on the other end. Also includes casing sizes where no thread is specified

# Oil Country Fittings

## Bull Plugs

### Casing Bull Plugs

- 4 1/2" O.D. – 10 3/4" O.D. *(114 O.D. – 273 O.D. DN)* casing bull plugs available with all current API threads or beveled for welding
- Casing bull plugs available in standard, extra heavy or double extra

| Tubing Bull Plugs | Size | | | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pipe | | API or O.D. | | | | | | | | | |
| | NPS | *DN* | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | ¾ EUE | *20* | | | 3 | *76* | 1.5 | *0.68* | 0.50 | *0.23* | — | — |
| | 1 | *25* | 1.315 | *33* | 3 | *76* | 1.5 | *0.68* | 0.66 | *0.30* | — | — |
| | 1 EUE | *25* | | | 3 | *76* | 1.5 | *0.68* | — | — | — | — |
| | 1¼ | *32* | 1.660 | *42* | 3¼ | *83* | 1.5 | *0.68* | 1.00 | *0.45* | — | — |
| | 1¼ EUE | *32* | | | 3¼ | *83* | 1.5 | *0.68* | — | — | — | — |
| | 1½ | *40* | 1.900 | *48* | 3½ | *89* | 1.5 | *0.68* | 1.1 | *0.48* | — | — |
| | 1½ EUE | *40* | | | 3½ | *89* | 2.0 | *0.91* | 2.3 | *1.0* | — | — |
| | 2 | *50* | 2⅜ | *60* | 4 | *102* | 2.0 | *0.91* | 3.0 | *1.4* | 4.3 | *1.9* |
| | 2 EUE | *50* | | | 5 | *127* | 3.5 | *1.6* | 4.0 | *1.8* | 9.0 | *4.1* |
| | 2½ | *65* | 2⅞ | *73* | 5 | *127* | 3.0 | *1.4* | 3.5 | *1.6* | 8.0 | *3.6* |
| | 2½ EUE | *65* | | | 5½ | *140* | 4.3 | *1.9* | 6.0 | *2.7* | 14 | *6.4* |
| | 3 | *80* | 3½ | *89* | 6 | *152* | 4.5 | *2.0* | 5.0 | *2.3* | 11 | *5.0* |
| | 3 EUE | *80* | | | 6½ | *165* | 10.0 | *4.5* | 15 | *6.8* | 25 | *11* |

Note: Also available in solid.

| Casing Bull Plugs | API or O.D. | | Length | | Standard Weight | | XS/XH Weight | | XXS/XXH & Sch. 160 Weight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | in | *mm* | in | *mm* | lbs | *kg* | lbs | *kg* | lbs | *kg* |
|  | 4½ | *114* | 7 | *178* | 7.5 | *3.4* | 10.0 | *4.5* | 18 | *8.2* |
| | 5 | *127* | 8 | *203* | 9.5 | *4.3* | 15 | *6.8* | 24 | *11* |
| | 5½ | *140* | 8½ | *216* | 13 | *5.7* | 17 | *7.7* | 33 | *15* |
| | 6⅝ | *168* | 10 | *254* | 17 | *7.7* | 25 | *11* | 46 | *21* |
| | 7 | *178* | 10 | *254* | 17 | *7.7* | 25 | *11* | 50 | *23* |
| | 7⅝ | *194* | 11 | *279* | 24 | *11* | 32 | *15* | 53 | *24* |
| | 8⅝ | *219* | 11 | *279* | 29 | *13* | 44 | *20* | 78 | *35* |
| | 9⅝ | *244* | 12 | *305* | 36 | *16* | 47 | *21* | 76 | *34* |
| | 10¾ | *273* | 13 | *330* | 41 | *18* | 56 | *25* | 85 | *39* |

| API Bull Plugs Female | Size | | | | Length | | Size | | | | Length | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tubing Size | | O.D. | | | | Tubing Size | | O.D. | | | |
| | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* |
|  | ¾ | *20* | 1.313 | *33* | 3 3/16 | *81* | 2 | *50* | 2.875 | *73* | 4¼ | *108* |
| | ¾ EUE | *20* | 1.660 | *42* | 3¼ | *83* | 2 EUE | *50* | 3.063 | *78* | 4⅛ | *124* |
| | 1 | *25* | 1.660 | *42* | 3¼ | *83* | 2½ | *65* | 3.500 | *89* | 5⅛ | *130* |
| | 1 EUE | *25* | 1.900 | *48* | 3½ | *89* | 2½ EUE | *65* | 3.668 | *93* | 5¼ | *133* |
| | 1¼ | *32* | 2.054 | *52* | 3½ | *89* | 3 | *80* | 4.250 | *108* | 5⅝ | *143* |
| | 1¼ EUE | *32* | 2.200 | *56* | 3¾ | *95* | 3 EUE | *80* | 4.500 | *114* | 5¾ | *146* |
| | 1½ | *40* | 2.200 | *56* | 3¾ | *95* | 4 | *100* | 5.200 | *132* | 6⅛ | *156* |
| | 1½ EUE | *40* | 2.500 | *64* | 3⅞ | *98* | 4 EUE | *100* | 5.563 | *141* | 6¼ | *159* |

# Oil Country Fittings

## Bell Nipples and Tubing Nipples

## Bell Nipples

- J.B. Smith manufactures a full line of Bell Nipples in sizes 4 1/2" - 8 5/8" NPS from K55 raw materials
- Bell Nipples are 8 RD threaded (short or long) by slip joint end connections.
- Full traceability and mill certification available upon request at time of order.

| Bell Nipples | O.D. Size | | Weight | |
|---|---|---|---|---|
|  | NPS | *DN* | lbs | *kg* |
| | 4½ | *114* | 4.5 | *2.0* |
| | 5½ | *140* | 9.0 | *4.1* |
| | 7 | *175* | 13.0 | *6.0* |
| | 8⅝ | *219* | 15.0 | *6.8* |

## Tubing Nipples

- Tubing Nominal Sizes 1 – 4 *(25 – 100 DN)* upset and non-upset ends
- Lengths are 4" – 18" *(102mm–457mm)*
- Tubing nipples are available with any combination of API 5B threads (8Rd, l0Rd, 11 1/2 V, 8V, etc) and are available in grades J-55, K-55, N-80 and L-80 API 5CT material grades
- Wall thicknesses available: standard, extra heavy, double extra heavy
- For different grades of material (stainless, brass, etc.) and different threads, consult factory

| Tubing Nipples Standard Weight | Size | | End Connection |
|---|---|---|---|
| 18" and shorter upset and non-upset  | NPS | *DN* | |
| | 1 | *25* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 1¼ | *32* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 1½ | *40* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 2 | *50* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 2½ | *65* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 3 | *80* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 4 | *100* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |

| Tubing Nipples Extra Heavy Weight | Size | | End Connection |
|---|---|---|---|
| 18" and shorter upset and non-upset  | NPS | *DN* | |
| | 1 | *25* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 1¼ | *32* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 1½ | *40* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 2 | *50* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 2½ | *65* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 3 | *80* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |
| | 4 | *100* | Upset A.P.I. Thds, One or Both Ends |
| | | | Non-upset (Regular) |

Standard and XH Weight available in standard lengths 4", 6", 8", 10", 12", 14", 16", 18." Also, available in non-standard lengths.

# Oil Country Fittings

## Casing Nipples


| Oil Country Casing Nipples | Size O.D. | | Weight Per Foot | | API Material Grade |
|---|---|---|---|---|---|
| | NPS | *DN* | lbs | *kg* | |
| | 4½ | *114* | 10.5 | *4.8* | K |
| | | | 11.6 | *5.3* | K-N-P |
| | 5 | *125* | 11.5 | *5.2* | K |
| | | | 13.0 | *5.9* | K |
| | | | 15.0 | *6.8* | K-N-P |
| | | | 18.0 | *8.2* | N-P |
| | 5½ | *140* | 14.0 | *6.4* | K |
| | | | 15.5 | *7.0* | K |
| | | | 17.0 | *7.7* | K-N-P |
| | | | 20.0 | *9.1* | N-P |
| | 6⅝ | *168* | 20.0 | *9.1* | K |
| | | | 24.0 | *11* | K-N-P |
| | | | 28.0 | *13* | N-P |
| | 7 | *175* | 20.0 | *9.1* | K |
| | | | 23.0 | *10* | K-N |
| | | | 26.0 | *12* | K-N-P |
| | | | 29.0 | *13* | N-P |
| | 7⅝ | *194* | 26.4 | *12* | K-N |
| | | | 29.7 | *13* | N-P |
| | 8⅝ | *219* | 24.0 | *11* | K |
| | | | 32.0 | *15* | K |
| | | | 36.0 | *16* | K-N |
| | | | 44.0 | *20* | N-P |
| | | | 49.0 | *22* | N-P |
| | 9⅝ | *245* | 36.0 | *16* | K |
| | | | 40.0 | *18* | K-N |
| | | | 43.5 | *20* | N-P |
| | | | 47.0 | *21* | N-P |
| | 10¾ | *273* | 40.5 | *18* | K |
| | | | 45.5 | *21* | K |
| | | | 55.5 | *25* | N-P |
| | 11¾ | *298* | 60.0 | *27* | K |
| | 13⅜ | *340* | 54.5 | *25* | K |
| | | | 61.0 | *28* | K |
| | | | 68.0 | *31* | K |
| | | | 72.0 | *33* | K |
| | 16 | *400* | 75.0 | *34* | K |
| | | | 84.0 | *38* | K |

Available in standard lengths 8", 10'", 12", 18", 24", 36". Also, available in non-standard lengths.
Casing nipples in steel grades other than those noted above are also available.

# Oil Country Couplings

## Casing Couplings

| API Casing Couplings Short Thread | Casing O.D. | | Weight/100 | | Length of Round Thread Coupling | |
|---|---|---|---|---|---|---|
|  | NPS | *DN* | lbs | *kg* | in | *mm* |
| | 4½ | *114* | 805 | *365* | 6¼ | *159* |
| | 5 | *125* | 1018 | *462* | 6½ | *165* |
| | 5½ | *140* | 1144 | *519* | 6¾ | *171* |
| | 6⅝ | *168* | 1997 | *906* | 7¼ | *184* |
| | 7 | *175* | 1834 | *832* | 7¼ | *184* |
| | 7⅝ | *194* | 2693 | *1222* | 7½ | *191* |
| | 8⅝ | *219* | 3558 | *1614* | 7¾ | *197* |
| | 9⅝ | *144* | 3951 | *1792* | 7¾ | *197* |
| | 10¾ | *273* | 4553 | *2065* | 8 | *203* |
| | 11¾ | *298* | – | – | 8 | *203* |
| | 13⅜ | *340* | 5623 | *2551* | 8 | *203* |
| | 16 | *400* | 7898 | *3582* | 9 | *229* |
| | 20 | *500* | 9500 | *4309* | 9 | *229* |

| API Casing Couplings Long Thread | Casing O.D. | | Weight/100 | | Length of Coupling | |
|---|---|---|---|---|---|---|
|  | NPS | *DN* | lbs | *kg* | in | *mm* |
| | 4½ | *114* | 907 | *411* | 7 | *178* |
| | 5 | *125* | 1256 | *570* | 7¾ | *197* |
| | 5½ | *140* | 1403 | *636* | 8 | *203* |
| | 6⅝ | *168* | 1829 | *830* | 8¾ | *222* |
| | 7 | *175* | 2367 | *1074* | 9 | *229* |
| | 7⅝ | *194* | 3423 | *1553* | 9¼ | *235* |
| | 8⅝ | *219* | 4748 | *2154* | 10 | *254* |
| | 9⅝ | *244* | 5577 | *2530* | 10½ | *267* |
| | 10¾ | *273* | 6202 | *2813* | 10½ | *267* |
| | 13⅜ | *340* | 7663 | *3476* | 10½ | *267* |

| Combination Couplings J-55 | Size | O.D |
|---|---|---|
|  | in | in |
| | 2 | 2⅜ |
| | 2½ | 2⅞ |
| | 3 | 3 |
| | 4 | 4 |

# Oil Country Couplings

## Tubing Couplings



| Sub Tubing Couplings J-55 | Size | Weight Each |
|---|---|---|
|  | 2 EUE x 2 Reg | 5 |
| | 2½ Reg x 2 Reg | 5 |
| | 2½ Reg x 2 EUE | 5 |
| | 2½ EUE x 2 Reg | 8 |
| | 2½ EUE x 2 EUE | 8 |
| | 2½ EUE x 21/2 Reg | 7 |
| | 3 Reg x 2 Reg | 11 |
| | 3 Reg x 2 EUE | 11 |
| | 3 Reg x 2½ Reg | 10 |
| | 3 Reg x 2½ EUE | 10 |
| | 3 EUE x 2 Reg | 15 |
| | 3 EUE x 2 EUE | 14 |
| | 3 EUE x 2½ Reg | 16 |
| | 3 EUE x 2½ EUE | 15 |
| | 3 EUE x 3 Reg | 13 |
| | 4 Reg x 3 Reg | 10 |
| | 4 Reg x 3 EUE | 12 |
| | 4 EUE x 3 Reg | 11 |
| | 4 EUE x 3 EUE | 11 |
| | 4 EUE x 4 Reg | 10 |

| API Tubing Couplings | Size Nominal Inches | Tubing O.D. | Non-Upset | | | External Upset | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | J-55 | N-80 | Lbs. Per 100 | J-55 | N-80 | C-75 | Lbs. Per 100 |
|  | 2" | 2⅜" | POA | POA | 282 | POA | POA | POA | 342 |
| | 2½" | 2⅞" | POA | POA | 515 | POA | POA | POA | 529 |
| | 3" | 3½" | POA | POA | 817 | POA | POA | POA | 902 |
| | 3½" | 4" | POA | POA | 957 | POA | POA | POA | 1,056 |
| | 4 | 4½" | POA | POA | 1,076 | POA | POA | POA | 1,331 |

| Special Clearance Tubing Couplings | Size Nominal Inches | Tubing O.D. | External Upset | | | Lbs. Per 100 | Actual O.D. Inches |
|---|---|---|---|---|---|---|---|
| | | | J-55 | N-80 | C-75 L-80 | | |
|  | 2" | 2⅜" | POA | POA | POA | 240 | 2.91 |
| | 2½" | 2⅞" | POA | POA | POA | 348 | 3.46 |
| | 3" | 3½" | POA | POA | POA | 540 | 4.18 |

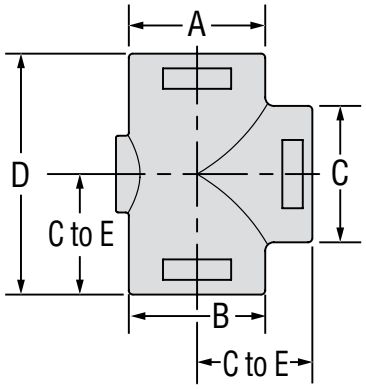
# Chambers / Pressure Vessels

- Chambers are available in 2" – 8" inch diameter and up to 2 feet long.
- Material is A106 Grade B seamless, unless otherwise specified.
- Solid, bored, or tapped Ends are available.

Phone: 713-928-5711
Email: webmgr@jbsmith.com

# Pumping Tee

Made in the U.S.A. • Bare and IPC in stock


## Material Options

Ductile Iron per ASTM A395 Gr. 60-40-18

## Finish Options

- Rust Inhibiting Paint – RED (Standard)
- Scotchkote 134
- Corvel 1660

**PUMPING TEE**

| Size | | Working Pressure | | OD A | | OD B | | OD C | | C TO E | | D | | Unit Weight | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | | PSI | *bar* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | in | *mm* | lbs | *kg* |
| 2" 8RD EUE | x 2" 8RD EUE x 2" 11½V REG | | | | | | | | | | | | | 10.0 | *4.5* |
| | x 2" 11½V REG x 2" 11½V REG | | | 3⅝ | *92* | 3⅝ | *92* | 3⅝ | *92* | 3 | *76* | 6 | *152* | 10.0 | *4.5* |
| 2" 11½V REG | x 2" 11½V REG x 2" 11½V REG | | | | | | | | | | | | | 11.0 | *5.0* |
| 2½" 8RD EUE | x 2½" 8RD EUE x 2" 11½V REG | | | | | | | | | | | | | 13.0 | *5.9* |
| | x 2½" 8V LP x 2" 11½V REG | | | | | | | | | | | | | 14.0 | *6.4* |
| | x 2" 8RD EUE x 2" 11½V REG | 3,000 | *206.8* | 4 | *102* | 4 | *102* | 4 | *102* | 3 17/32 | *90* | 7 1/16 | *179* | 14.0 | *6.4* |
| | x 2½" 8RD EUE x 2½" 8V LP | | | | | | | | | | | | | 13.0 | *5.9* |
| | x 2½" 8RD LP x 2½" 8V LP | | | | | | | | | | | | | 13.0 | *5.9* |
| | x 2½" 8RD EUE x 3" 8V LP | | | | | | | | | | | | | 22.0 | *10.0* |
| | x 3" 8V LP x 3" 8V LP | | | 4¾ | *121* | 4¾ | *121* | 4½ | *114* | 4 1/16 | *103* | 8⅛ | *206* | 20.0 | *9.1* |
| 3" 8RD EUE | x 3" 8RD EUE x 3" 8V LP | | | | | | | | | | | | | 18.0 | *8.2* |

Last thread in each combination is the side outlet.
All Pumping Tees have a 1" NPT bleeder port.

# Coated Products


Anvil's coated products protect pipes against the corrosive conditions found in oil and gas pipelines. They are effective on all grades of pipe, and can be used to coat malleable, cast iron, forged steel, and ductile metals.

Anvil provides two stock coatings, Scotchkote 134 and Corvel 1660, which are durable, reliable and field-tested. ***Scotchkote 134*** is a fusion-bonded epoxy coating designed to protect metal surfaces from corrosion. It is resistant to wastewater, corrosive acids, hydrocarbons, harsh chemicals, brine, and saltwater.

***Corvel 1660*** is specially designed to protect the inside diameter of tubular goods in applications such as fittings, valves, drill pipes, sucker rods, and metering systems. Corvel 1660 is resistant to $H_2S$, $CO_2$, harsh chemicals, brine, and salt water.

Anvil also offers a range of specialty coatings, available upon request, including nickel coating, chrome plating, Teflon coating, Nap-Guard coating, and powder coating.

# General Assembly of Threaded Fittings

1) Inspect both male and female components prior to assembly.
   - Threads should be free from mechanical damage, dirt, chips and excess cutting oil.
   - Clean or replace components as necessary.

2) Application of thread sealant
   - Use a thread sealant that is fast drying, sets-up to a semi hard condition and is vibration resistant. Alternately, an anaerobic sealant may be utilized.
   - Thoroughly mix the thread sealant prior to application.
   - Apply a thick even coat to the male threads only. Best application is achieved with a brush stiff enough to force sealant down to the root of the threads.

3) Joint Makeup
   - For sizes up to and including 2" pipe, wrench tight makeup is considered three full turns past handtight. Handtight engagement for 1/2" through 2" thread varies from 4 1/2 turns to 5 turns.
   - For 2 1/2" through 4" sizes, wrench tight makeup is considered two full turns past handtight. Handtight engagement for 2 1/2" through 4" thread varies from 5 1/2 turns to 6 3/4 turns.

# Conditions and Terms of Sale

1. **CONTROLLING PROVISIONS:** These terms and conditions shall control with respect to any purchase order or sale of Seller's products. 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.

2. **DELIVERY:** Seller will make every effort to complete delivery of products as indicated on Seller's acceptance of an order, but Seller assumes no responsibility or liability, and will accept no back-charge, for loss or damage due to delay or inability to deliver caused by acts of God, war, labor difficulties, accident, delays of carriers, by contractors or suppliers, inability to obtain materials, shortages of fuel and energy, or any other causes of any kind whatever beyond the control of Seller. Seller may terminate any contract of sale of its products 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 sixty (60) days. Under no circumstances shall Seller be liable for any special or consequential damages or for loss, damage, or expense (whether or not based on negligence) directly or indirectly arising from delays or failure to give notice of delay.

3. **WARRANTY:** Seller warrants for one year from the date of shipment Seller's manufactured products to the extent that Seller will replace those having defects in materials or workmanship when used for the purpose and in the manner which Seller recommends. If Seller's examination shall disclose to its satisfaction that the products are defective, and an adjustment is required, the amount of such adjustment shall not exceed the net sales price of the defective products only and no allowance will be made for labor or expense of repairing or replacing defective products or workmanship or damage resulting from the same. Seller warrants the products which it sells of other manufacturers to the extent of the warranties of their respective makers. 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, other than as expressed in Seller's product warranty. THIS IS 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 AFORE STATED 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 products. This warranty shall not apply to any products or parts of products which (a) have been repaired or altered outside of Seller's factory, in any manner; or (b) have been subjected to misuse, negligence or accidents; or (c) have been used in a manner contrary to Seller's instructions or recommendations. Seller shall not be responsible for design errors due to inaccurate or incomplete information supplied by Buyer or its representatives.

4. **SELLER'S LIABILITY:** Seller will not be liable for any loss, damage, cost of repairs, 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 products or of the engineering designs supplied to Buyer.

5. **RETURNS:** Seller cannot accept return of any products unless its written permission has been first obtained, in which case same 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 percent (20%) will be made from all credit memoranda issued for material returned. (c) Transportation charges, if not prepaid, will be deducted from credit memoranda.

6. **SHIPMENTS:** All products 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 products damaged or lost in transit should be made on the carrier, as Seller's responsibility ceases, and title passes, on delivery to the carrier.

7. **SPECIAL PRODUCTS:** Orders covering special or non-standard products are not subject to cancellation except on such terms as Seller many specify on application.

8. **PRICES and DESIGNS:** Prices and designs are subject to change without notice. All prices are F.O.B. Point of Shipment, unless otherwise stated.

9. **TAXES:** The amount of any sales, excise or other taxes, if any, applicable to the products 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.

10. **NUCLEAR PLANTS:** Where the products, engineering design or fabrication is for nuclear plant applications, Buyer agrees: (a) to take all necessary steps to add Seller as an insured under the American Nuclear Insurers' (ANI) pool and under the Mutual Atomic Energy Reinsurance Pool (MAERP) for property damage and liability insurance and if necessary steps could have been taken, but are not taken, Buyer shall hold Seller harmless against all such losses which could have been thus covered, (b) to hold Seller harmless with respect to any personal injury (or death), property damage or other loss in a nuclear incident which is caused directly or indirectly by defective design, material, or workmanship furnished by Seller and which is covered by insurance maintained by Buyer (or which could be so covered but with respect to which Buyer has elected to self-insure), and further agrees to waive subrogation by its carriers of such insurance against Seller, and (c) as to nuclear hazards for which Buyer cannot obtain insurance coverage, the liability of Seller for any personal injury (or death), property damage or other loss directly caused by defective design, material, or workmanship furnished by Seller shall not exceed the value of the material furnished by Seller at the time of the loss occurrence.

11. **MINIMUM INVOICE:** $25.00 plus transportation.

12. **TERMS:** Cash, net 30 days unless otherwise specified.

# Engineering Information





| MULTIPLY | BY | TO OBTAIN |
|---|---|---|
| Atmosphere | 0.001316 | Torrs |
| Atmospheres | 76 | Cms. of mercury |
| " | 29.92 | Inches of mercury |
| " | 33.9 | Feet of water |
| " | 14.7 | Lbs./sq. inch |
| Barrels—Oil | 42 | Gallons |
| Barrels—Cement | 376 | Lbs.—cement |
| Bags or Sacks—Cement | 94 | Lbs—cement |
| Board—feet | 144 sq. in. x 1 in | Cubic in. |
| British Thermal Units | 777.5 | Foot lbs. |
| " " " | 0.0003927 | Horsepower—hrs. |
| " " " | 0.0002928 | Kilowatt—hrs. |
| " " " | 0.00001 | Therms |
| B.T.U./min | 12.96 | Foot lbs./sec |
| | 0.02356 | Horsepower |
| " " | 0.01757 | Kilowatts |
| " " | 17.57 | Watts |
| Centimeters | 0.3937 | Inches |
| Cubic centimeters | 0.00003531 | Cubic ft. |
| " " | 0.06102 | Cubic inches |
| " " | 0.000001308 | Cubic yards |
| " " | 0.0002642 | Gallons |
| " " | 0.03381 | Ounces (Fluid) |
| Cubic Cm./min | 0.002118 | Cu. ft./hr. |
| " " / " | 0.0002641 | Gal./min. |
| Cubic feet | 1728 | Cubic in. |
| " " | 7.48052 | Gallons |
| Cubic inches | 0.0005787 | Cubic feet |
| " " | 0.00002143 | Cubic yards |
| " " | 0.004329 | Gallons |
| Cubic meters | 35.31 | Cu. ft. |
| " " | 61.023 | Cu. In. |
| " " | 1.308 | Cu. yds. |
| " " | 264.2 | Gallons |
| Cubic yards | 27 | Cu. ft. |
| Degrees (angle) | 60 | Minutes |
| " " | 0.01745 | Radians |
| " " | 3600 | Seconds |
| Degrees/sec | 0.01745 | Radians/sec. |
| " " | 0.1667 | Revolutions/min. |
| " / " | 0.002778 | Revolutions/sec. |
| English Viscosity Units | 14.88 | Poises |
| Feet | 30.48 | Centimeters |
| " | 12 | Inches |
| " | 0.3048 | Meters |
| Feet of water | 0.0295 | Atmosphere |
| " " " | 0.8826 | In. of mercury |
| | 62.43 | Lbs./sq. ft. |
| " " " | 0.4335 | Lbs./sq. in. |
| Feet/sec | 0.6818 | Miles/hr. |
| Foot lbs | 0.001286 | Br. Thermal Units |
| " " | 0.000000505 | Horsepower hrs. |
| " " | 3.766E-07 | Kilowatt hrs. |
| Foot lbs./min | 0.001286 | B.T.U./min. |
| " " / " | 0.01667 | Ft. lbs./sec. |
| " " / " | 0.0000303 | Horsepower |
| " " / " | 0.0000266 | Kilowatts |
| Foot lbs./sec | 0.0717 | B.T.U./min. |
| " " / " | 0.001818 | Horsepower |
| " " / " | 0.001356 | Kilowatts |
| Gallons | 3785 | Cubic centimeters |
| " | 0.1337 | Cubic feet |
| " | 231 | Cubic inches |
| Gallons (Imperial) | 1.20095 | U.S. gallons |
| " (U.S.) | 0.83267 | Imperial gallons |
| Gallons water | 8.3453 | Pounds of water |
| Gallons/min | 0.002228 | Cu. ft./sec. |
| " / " | 8.0208 | Cu. ft./hr. |
| Grams | 0.03527 | Ounces |
| " | 0.002205 | Pounds |
| Grams/cu. cm | 62.43 | Pounds/cu. ft. |
| " / " " | 0.03613 | Pounds/cu.in. |
| Horsepower | 42.44 | B.T.U./min. |
| " | 33000 | Ft. lbs./min. |
| " | 0.55 | Ft. lbs./sec. |
| | 0.7457 | Kilowatts |
| Horsepower (boiler) | 33,479 . | B.T.U./hr. |
| " " | 9.803 | Kilowatts |

| MULTIPLY | BY | TO OBTAIN |
|---|---|---|
| Horsepower hours | 0.2547 | British Thermal Units |
| " " | 7457 | Kilowatt hours |
| Inches | 2.54 | Centimeters |
| Inches of mercury | 0.03342 | Atmospheres |
| " " " | 1.133 | Ft. of water |
| " " " | 70.73 | Lbs./sq. ft. |
| " " " | 0.4912 | Lbs./sq. in. |
| Inches of water | 0.002458 | Atmospheres |
| " " " | 0.07355 | Inches of mercury |
| " " " | 5.202 | Lbs./sq. ft. |
| " " " | 0.03613 | Lbs./sq. in. |
| " " " | 0.5781 | Ounces/sq.in. |
| Kilograms | 2.205 | Lbs. |
| Kgs./meter | 0.672 | Lbs./ft. |
| Kgs./sq. meter | 0.003281 | Feet of water |
| " / " " | 0.2048 | Lbs./sq. ft. |
| " /" " | 0.001422 | Lbs./sq. in. |
| Kilometers | 3281 | Feet |
| " | 0.6214 | Miles |
| " | 0.1094 | Yards |
| Kilometers/hr | 27.78 | Centimeters/sec. |
| " /" | 54.68 | Feet/min. |
| " /" | 0.9113 | Feet/sec. |
| " /" | 0.6214 | Miles/hr. |
| Kilowatts | 56.92 | B.T.Units/min. |
| " | 44250 | Ft. lbs./min. |
| " | 737.6 | Ft. lbs./sec. |
| " | 1.341 | Horsepower |
| " | 0.1 | Watts |
| Kilowatt hrs | 0.3415 | B.T.U. |
| " " | 0.000002655 | Ft. lbs. |
| " " | 1.341 | Horsepower-hrs. |
| Liters | 0.03531 | Cu. ft. |
| " | 61.02 | Cu. in. |
| " | 0.2642 | Gallons |
| Meters | 100 | Centimeters |
| " | 3.281 | Feet |
| " | 39.37 | Inches |
| " | 1.094 | Yards |
| Meters/sec | 196.8 | Ft./min. |
| Millimeters | 0.1 | Centimeters |
| " | 0.03937 | Inches |
| Ounces . | 437.5 | Grains |
| " | 28.349527 | Grams |
| " | 0.0625 | Pounds |
| Pounds . | 16 | Ounces |
| " | 7 | Grains |
| " | 453.5924 | Grams |
| Pounds of water | 0.01602 | Cu. ft. |
| " " " | 27.68 | Cu. in. |
| " " " | 0.1198 | Gallons |
| Pounds/cu. ft | 0.0005787 | Lbs./cu. in. |
| Pounds/cu. in | 1728 | Lbs./cu. ft. |
| Radians | 57.3 | Degrees |
| " | 0.3438 | Minutes |
| " | 0.637 | Quadrants |
| Radians / sec | 57.3 | Degrees/sec. |
| " / " | 0.1592 | Revolutions/sec. |
| " / " | 9.549 | Revolutions/min. |
| Revolutions | 360 | Degrees |
| " | 4 | Quadrants |
| " | 6.283 | Radians |
| Revolutions/min | 6 | Degrees/sec |
| " / " | 0.1047 | Radians/sec. |
| / " | 0.01667 | Revolutions/sec. |
| Temp. (°C) +273 | 1 | Abs. temp. Co |
| " +17.78 | 1.8 | Temp. (°F) |
| Temp. (°F) +460 | 1 | Abs. temp. (°F) |
| " -32 | 39942 | Temp. (°C) |
| Torr | 760 | Atmospheres |
| Torr | 1 | mm Hg |
| Watts | 0.05692 | B.T. Units/min. |
| " | 44.26 | Ft. lbs./min. |
| " | 0.001341 | Horsepower |
| " | 0.01 | Kilowatts |
| Yards | 91.44 | Centimeters |
| " | 3 | Feet |
| " | 36 | Inches |
| " | 0.9144 | Meters |

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