

# Pipe Fittings & Steel Nipples

[www.anvilintl.com](http://www.anvilintl.com)



**ANVIL**<sup>®</sup>  
INTERNATIONAL  
*Building Connections That Last*

**JUNE 2013**

For the most current product/pricing information on Anvil products, please visit our website at [www.anvilintl.com](http://www.anvilintl.com)

# BUILDING CONNECTIONS THAT LAST



For over 150 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.



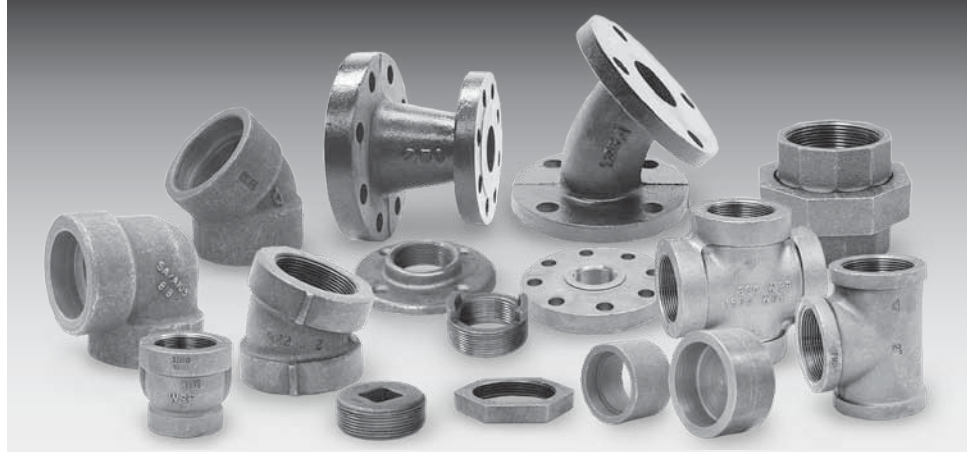
We provide expertise and product solutions for a wide range of applications, from plumbing, mechanical, HVAC, industrial and fire protection to mining, oil and gas. Our comprehensive line of products includes: grooved pipe couplings, grooved and plain-end fittings, valves, cast and malleable iron fittings, 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 150 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  
Class 2000  
Class 3000  
Class 6000  
Socket Weld Fittings  
Class 3000  
Class 6000
- Anvilets
- Catawissa Products
- J.B. Smith Products

# TABLE OF CONTENTS

## Malleable Iron through Forged Steel

### Malleable Iron

|                                                                             |         |
|-----------------------------------------------------------------------------|---------|
| Technical Data .....                                                        | 17      |
| <b>CLASS 150 (STANDARD)</b>                                                 |         |
| Fig. 1101 90° Elbow .....                                                   | 18      |
| Fig. 1101R Reducing Elbow .....                                             | 18      |
| Fig. 1102 45° Elbow .....                                                   | 19      |
| Fig. 1103 (Straight) & Fig. 1103R (Reducing)<br>90° Street Elbow .....      | 19      |
| Fig. 1104 45° Street Elbow .....                                            | 20      |
| Fig. 1105 Straight Tee .....                                                | 20      |
| Fig. 1105R Reducing Tee .....                                               | 21 - 23 |
| Fig. 1106 (Straight) & Fig. 1106R (Reducing)<br>Street or Service Tee ..... | 24      |
| Fig. 1107 Cross .....                                                       | 24      |
| Fig. 1108 45° Y-Branch or Lateral .....                                     | 24      |
| Fig. 1119 Return Bend Open Pattern, R.H. ....                               | 25      |
| Fig. 1121 Coupling .....                                                    | 25      |
| Fig. 1124 Cap .....                                                         | 25      |
| Fig. 1125 Reducer .....                                                     | 26      |
| Fig. 1134 Hex Locknut .....                                                 | 27      |
| Fig. 1190 Floor Flange (Ductile Iron) .....                                 | 27      |
| Fig. 1133 Waste Nut .....                                                   | 27      |
| Fig. 1138 Extension Piece .....                                             | 27      |
| <b>CLASS 300 (XS/XH)</b>                                                    |         |
| Fig. 1161 90° Elbow Straight .....                                          | 28      |
| Fig. 1161R 90° Reducing Elbow .....                                         | 28      |
| Fig. 1160 45° Street Elbow .....                                            | 28      |
| Fig. 1162 45° Elbow .....                                                   | 29      |
| Fig. 1170 90° Street Elbow .....                                            | 29      |
| Fig. 1164 Straight Tee .....                                                | 29      |
| Fig. 1164R Reducing Tee .....                                               | 30      |
| Fig. 1165 Cross .....                                                       | 30      |
| Fig. 1166 Coupling .....                                                    | 31      |
| Fig. 1167 Reducer .....                                                     | 31      |
| Fig. 1163 Cap .....                                                         | 32      |
| Fig. 390 Square Countersunk Plug .....                                      | 32      |
| <b>ALL IRON UNIONS</b>                                                      |         |
| Fig. J-3300 All Iron Union Class 300 .....                                  | 32      |
| <b>MALLEABLE IRON UNIONS – CLASS 150; 250; 300</b>                          |         |
| Fig. 463 Class 150 Union .....                                              | 33      |
| Fig. 554 Class 250 Union .....                                              | 33      |
| Fig. 459 Class 300 Union .....                                              | 33      |
| Fig. 551 Class 300 Union male & female .....                                | 33      |
| Fig. 552 Class 300 90° Female Union .....                                   | 34      |
| Fig. 832 Dart Union<br>Bronze Seat to Bronze Seat Union .....               | 34      |
| <b>MALLEABLE HEX AND FACE BUSHING</b>                                       |         |
| Fig. 383 Hex Bushing .....                                                  | 35      |
| Fig. 385 Face Bushing .....                                                 | 35      |

### Cast Iron

|                                                                |         |
|----------------------------------------------------------------|---------|
| Technical Data .....                                           | 36      |
| <b>THREADED FITTINGS – CLASS 125 (STANDARD)</b>                |         |
| Fig. 351 90° Elbow .....                                       | 37      |
| Fig. 371 90° Elbow, Flange & Screw .....                       | 37      |
| Fig. 356 (Straight) &<br>Fig. 356R (Reducing) 45° Elbow .....  | 38      |
| Fig. 356A 22½° Elbow .....                                     | 38      |
| Fig. 352 90° Elbow, Reducing .....                             | 39      |
| Fig. 358 Tee .....                                             | 40      |
| Fig. 359 Tee, Reducing .....                                   | 40 - 44 |
| Fig. 360 Cross .....                                           | 45      |
| Fig. 361 Cross, Reducing .....                                 | 45      |
| Fig. 366 Screwed Hex Coupling .....                            | 46      |
| Fig. 487 Flanged Union Gasket Type .....                       | 46      |
| Fig. 367 Concentric Reducer .....                              | 47      |
| Fig. 368 Eccentric Reducer .....                               | 48      |
| Fig. 383 Hex Bushing .....                                     | 49 - 50 |
| Fig. 385 Face Bushing .....                                    | 50      |
| Fig. 387 Square Head Plug, Cored .....                         | 51      |
| Fig. 388 Square Head Plug, Solid .....                         | 51      |
| Fig. 389 Bar Plug, Cored .....                                 | 51      |
| Fig. 380 Bar Plug, Solid .....                                 | 51      |
| Fig. 390 Countersunk Plug .....                                | 51      |
| Fig. 381 Cap .....                                             | 51      |
| Fig. 370 Locknut .....                                         | 52      |
| <b>THREADED FITTINGS – CLASS 250 (EXTRA HEAVY)</b>             |         |
| Fig. 421 90° Elbow .....                                       | 52      |
| Fig. 424 45° Elbow .....                                       | 52      |
| Fig. 425 Tee .....                                             | 53      |
| Fig. 426 Reducing Tee .....                                    | 53      |
| <b>DRAINAGE FITTINGS</b>                                       |         |
| Technical Data .....                                           | 54, 57  |
| Fig. 701 90° Short Turn Elbow .....                            | 55      |
| Fig. 701R 90° Reducing Short Turn Elbow .....                  | 55      |
| Fig. 702 90° Long Turn Elbow .....                             | 55      |
| Fig. 702A 90° Extra Long Turn Elbow .....                      | 55      |
| Fig. 703 60° Short Turn Elbow .....                            | 55      |
| Fig. 705 45° Short Turn Elbow .....                            | 56      |
| Fig. 706 45° Long Turn Elbow .....                             | 56      |
| Fig. 707 22½° Elbow .....                                      | 56      |
| Fig. 708 11¼° Elbow .....                                      | 56      |
| Fig. 718 90° Street Elbow .....                                | 58      |
| Fig. 719 45° Street Elbow .....                                | 58      |
| Fig. 722 Tee .....                                             | 58      |
| Fig. 723 Reducing Tee .....                                    | 58      |
| Fig. 726 90° Short Turn Y-Branch Tee Pattern .....             | 59      |
| Fig. 727 90° Reducing Short Turn<br>Y-Branch Tee Pattern ..... | 59      |
| Fig. 729 Reducing Double Short Turn Tee .....                  | 59      |
| Fig. 730 90° Long Turn Y-Branch Tee Pattern .....              | 59      |
| Fig. 731 90° Reducing Long Turn<br>Y-Branch Tee Pattern .....  | 60      |

### Cast Iron (continued)

|                                                            |         |
|------------------------------------------------------------|---------|
| Fig. 734 45° Y-Branch .....                                | 60      |
| Fig. 735 45° Reducing Y-Branch .....                       | 60      |
| Fig. 736 45° Double Y-Branch .....                         | 60      |
| Fig. 753 Coupling .....                                    | 61      |
| Fig. 744 Tucker Connection .....                           | 61      |
| Fig. 752 P-Trap .....                                      | 61      |
| Fig. 754 Bath P-Trap .....                                 | 61      |
| <b>FLANGED FITTINGS – CLASS 125 (STANDARD)</b>             |         |
| Technical Data .....                                       | 62, 75  |
| Fig. 801 90° Flanged Elbow .....                           | 63      |
| Fig. 802 45° Flanged Elbow .....                           | 63      |
| Fig. 803 90° Reducing Flanged Elbow .....                  | 64      |
| Fig. 804 90° Long Radius Flanged Elbow .....               | 64      |
| Fig. 804R 90° Long Radius Reducing<br>Flanged Elbow .....  | 64      |
| Fig. 805 90° Flanged Base Elbow .....                      | 65      |
| Fig. 808 90° Flanged Side Outlet Elbow .....               | 65      |
| Fig. 811 Flanged Tee .....                                 | 66      |
| Fig. 812 Flanged Reducing Tee .....                        | 67      |
| Fig. 821 Flanged Cross .....                               | 68      |
| Fig. 823 Flanged Lateral .....                             | 68      |
| Fig. 825 Flanged Concentric Reducer .....                  | 69      |
| Fig. 826 Flanged Eccentric Reducer .....                   | 69      |
| <b>IRON FLANGES – CLASS 125 (STANDARD)</b>                 |         |
| Fig. 1011 Companion Flange .....                           | 70      |
| Fig. 1018 Blind Flange .....                               | 70      |
| Fig. 1016 Reducing Flange .....                            | 71      |
| <b>IRON FLANGES – CLASS 250 (EXTRA HEAVY)</b>              |         |
| Fig. 1025 Companion Flange .....                           | 72      |
| Fig. 1030 Reducing Flange .....                            | 72      |
| Fig. 1021 Blind Flange .....                               | 73      |
| <b>THREADED FITTING - SAFETY VALVE<br/>DISCHARGE ELBOW</b> |         |
| Fig. 1538 Screwed Cast Iron .....                          | 74      |
| <b>Small Steel Fittings</b>                                |         |
| <b>MERCHANT STEEL</b>                                      |         |
| Hex Bushings .....                                         | 76      |
| Countersunk Plugs (Square and Hex Socket) .....            | 76      |
| Flush Bushings .....                                       | 77      |
| Caps .....                                                 | 77      |
| Solid Square Head Plugs .....                              | 77      |
| <b>Pipe Nipples and Pipe Couplings</b>                     |         |
| Technical Data .....                                       | 78, 84  |
| Seamless Pipe Nipples .....                                | 79      |
| Welded Pipe Nipples .....                                  | 80 - 83 |
| Fig. 336 Standard, Full & Half Couplings .....             | 85      |
| Fig. 337 Extra Strong (XS),<br>Full & Half Couplings ..... | 86      |
| Fig. 346 Standard,<br>Right & Left Couplings .....         | 87      |

## Forged Steel through Technical Data

### Pipe Nipples and Pipe Couplings (continued)

|                                                            |    |
|------------------------------------------------------------|----|
| Fig. 347 Extra Strong (XS),<br>Right & Left Couplings..... | 87 |
| Fig. 348 API Line Pipe Coupling.....                       | 88 |
| Fig. 349 Water Well Reamed &<br>Drifted Coupling.....      | 89 |
| Fig. 350 #9 Drive Coupling.....                            | 89 |
| Fig. 379 Shallow Well Coupling.....                        | 89 |

### Forged Steel

|                     |    |
|---------------------|----|
| Technical Data..... | 90 |
|---------------------|----|

### THREADED – CLASS 2000

|                          |    |
|--------------------------|----|
| Fig. 2101 90° Elbow..... | 91 |
| Fig. 2102 45° Elbow..... | 91 |
| Fig. 2103 Tee.....       | 92 |
| Fig. 2104 Cross.....     | 92 |

### THREADED – CLASS 3000

|                                  |    |
|----------------------------------|----|
| Fig. 2111 90° Elbow.....         | 93 |
| Fig. 2112 45° Elbow.....         | 93 |
| Fig. 2114 Tee.....               | 93 |
| Fig. 2115 Cross.....             | 94 |
| Fig. 2113 90° Street Elbow.....  | 94 |
| Fig. 2116 Lateral.....           | 94 |
| Fig. 2117 Coupling.....          | 95 |
| Fig. 2119 Half Coupling.....     | 95 |
| Fig. 2118 Reducing Coupling..... | 96 |
| Fig. 2120 Pipe Cap.....          | 96 |

### THREADED – CLASS 6000

|                                  |     |
|----------------------------------|-----|
| Fig. 2131 90° Elbow.....         | 97  |
| Fig. 2132 45° Elbow.....         | 97  |
| Fig. 2134 Tee.....               | 97  |
| Fig. 2135 Cross.....             | 98  |
| Fig. 2133 90° Street Elbow.....  | 98  |
| Fig. 2136 Lateral.....           | 98  |
| Fig. 2137 Coupling.....          | 99  |
| Fig. 2141 Half Coupling.....     | 99  |
| Fig. 2138 Reducing Coupling..... | 100 |
| Fig. 2143 Pipe Cap.....          | 100 |

### SOCKET WELD – CLASS 3000

|                                  |     |
|----------------------------------|-----|
| Fig. 2150 90° Elbow.....         | 101 |
| Fig. 2151 45° Elbow.....         | 101 |
| Fig. 2152 Tee.....               | 102 |
| Fig. 2153 Cross.....             | 102 |
| Fig. 2158 Lateral.....           | 103 |
| Fig. 2154 Coupling.....          | 103 |
| Fig. 2155 Half Coupling.....     | 104 |
| Fig. 2156 Reducing Coupling..... | 104 |
| Fig. 2157 Pipe Cap.....          | 105 |

### SOCKET WELD – CLASS 6000

|                          |     |
|--------------------------|-----|
| Fig. 2170 90° Elbow..... | 106 |
| Fig. 2171 45° Elbow..... | 106 |
| Fig. 2172 Tee.....       | 107 |
| Fig. 2173 Cross.....     | 107 |

### Forged Steel (continued)

|                                  |     |
|----------------------------------|-----|
| Fig. 2178 Lateral.....           | 107 |
| Fig. 2174 Coupling.....          | 108 |
| Fig. 2175 Half Coupling.....     | 108 |
| Fig. 2176 Reducing Coupling..... | 109 |
| Fig. 2177 Pipe Cap.....          | 109 |

### HIGH PRESSURE PLUGS & BUSHINGS

|                                 |     |
|---------------------------------|-----|
| Fig. 2122 Square Head Plug..... | 110 |
| Fig. 2142 Hex Head Plug.....    | 110 |
| Fig. 2121 Round Head Plug.....  | 110 |
| Fig. 2139 Hex Head Bushing..... | 111 |
| Fig. 2140 Flush Bushing.....    | 111 |

### SOCKET-WELD REDUCER INSERTS

|                 |     |
|-----------------|-----|
| Class 3000..... | 112 |
| Class 6000..... | 113 |

### FORGED STEEL UNIONS

|                                             |     |
|---------------------------------------------|-----|
| Fig. 2125 Class 3000 Threaded Union.....    | 114 |
| Fig. 2126 Class 3000 Socket-Weld Union..... | 114 |
| Fig. 2127 Class 6000 Threaded Union.....    | 115 |
| Fig. 2128 Class 6000 Socket-Weld Union..... | 115 |

### Anvilets

|                                                     |           |
|-----------------------------------------------------|-----------|
| Technical Data.....                                 | 116, 121  |
| Universal Forged Steel<br>Buttweld Anvilets.....    | 117 - 118 |
| Universal Forged Steel<br>Threaded Anvilets.....    | 119       |
| Universal Forged Steel<br>Socket-Weld Anvilets..... | 120       |
| Universal Elbowlet.....                             | 122       |
| Lateral Anvilet.....                                | 123       |
| Flat Anvilet.....                                   | 124       |

### Catawissa

|                                                    |     |
|----------------------------------------------------|-----|
| Technical Data.....                                | 125 |
| Fig. 100 Wing Union.....                           | 126 |
| Fig. 100C Wing Union.....                          | 126 |
| Fig. 200 Wing Union.....                           | 127 |
| Fig. 200 Wing Union (Buttweld Ends).....           | 128 |
| Fig. 200C Wing Union.....                          | 128 |
| Fig. 206 Wing Union.....                           | 129 |
| Fig. 206 Wing Union (Buttweld Ends).....           | 130 |
| Fig. 202 Blanking Cap Only with O-Ring.....        | 130 |
| Fig. 211 Insulating Union.....                     | 131 |
| Fig. 300 Flat-Face Union.....                      | 131 |
| Fig. 301 Steam Service Union.....                  | 132 |
| Fig. 400 Wing Union.....                           | 132 |
| Fig. 400 Wing Union (Buttweld Ends).....           | 133 |
| Fig. 600 Wing Union.....                           | 133 |
| Fig. 602 Wing Union.....                           | 134 |
| Fig. 602 Wing Union (Buttweld Ends).....           | 135 |
| Fig. 607 Well Service Union.....                   | 135 |
| Fig. 1002 Wing Union.....                          | 136 |
| Fig. 1002 Wing Union (Buttweld Ends-Sch. 160)..... | 137 |

### Catawissa (continued)

|                                                    |     |
|----------------------------------------------------|-----|
| Fig. 1002 Wing Union (Buttweld Ends-Sch. XXH)..... | 137 |
| Fig. 1502 Wing Union.....                          | 138 |
| Fig. 1502 Wing Union (Buttweld Ends-Sch. 160)..... | 138 |
| Fig. 1502 Wing Union (Buttweld Ends-Sch. XXH)..... | 138 |
| Fig. S1A High Speed Union.....                     | 139 |
| Fig. 3L S1A Tri-Lug High Speed Union.....          | 139 |
| Catawissa Quick Reference Chart.....               | 140 |

### J.B. Smith Products

|                                           |               |
|-------------------------------------------|---------------|
| Technical Data.....                       | 141, 142, 149 |
| Concentric Swage Nipples.....             | 143 - 144     |
| Eccentric Swage Nipple.....               | 145           |
| Stainless & Alloy Steel Swage Nipple..... | 146           |
| Carbon Steel Bull Plug.....               | 147           |
| Solid Refinery Plug.....                  | 147           |
| Adapter Nipples.....                      | 148           |

### OIL COUNTRY FITTINGS

|                                                               |     |
|---------------------------------------------------------------|-----|
| Large End Upset Reduced to Regular<br>Swage Nipple.....       | 150 |
| Large End Non-Upset Reduced to Upset<br>Swage Nipple.....     | 150 |
| Swage Nipple Oil Country Tubing & Casing<br>non EUE ends..... | 151 |
| Tubing Bull Plug.....                                         | 152 |
| Casing Bull Plug.....                                         | 152 |
| API Bull Plug Female.....                                     | 152 |
| Bell Nipple.....                                              | 153 |
| Tubing Nipple (Standard Weight).....                          | 153 |
| Tubing Nipple (Extra Heavy Weight).....                       | 153 |
| Oil Country Casing Nipple.....                                | 154 |
| API Casing Coupling (Short Thread).....                       | 155 |
| API Casing Coupling (Long Thread).....                        | 155 |
| Combination Coupling J-55.....                                | 155 |
| Sub Tubing Couplings J-55.....                                | 156 |
| API Tubing Coupling.....                                      | 156 |
| Special Clearance Tubing Coupling.....                        | 156 |
| Chambers/Pressure Vessels.....                                | 157 |
| Coated Products.....                                          | 158 |

### Technical Data

|                                            |     |
|--------------------------------------------|-----|
| General Assembly of Threaded Fittings..... | 159 |
| Standards & Specifications.....            | 159 |
| Conditions and Terms of Sale.....          | 160 |
| Engineering Information.....               | 161 |
| Figure Number Index.....                   | 162 |

Anvil reserves the right to make specification changes without notice. While every effort has been made to assure the accuracy of information contained in this catalog at the time of publication, we cannot accept responsibility for inaccuracies resulting from undetected errors or omissions.

# PICTORIAL TABLE OF CONTENTS

## Malleable Iron

### MALLEABLE IRON FITTINGS – CLASS 150 (STANDARD)

|                                                                                                                                                                                          |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 1101</b><br/>90° Elbow<br/>Size Range: 1/8" thru 6"<br/>Page 18</p>                         |  <p><b>Fig. 1101R</b><br/>90° Reducing Elbow<br/>Size Range: 1/4" x 1/8" thru 4" x 3"<br/>Page 18</p>                |  <p><b>Fig. 1102</b><br/>45° Elbow<br/>Size Range: 1/8" thru 6"<br/>Page 19</p>                                                                                                      |  <p><b>Fig. 1103 &amp; 1103R</b><br/>90° Street Elbow<br/>(Straight &amp; Reducing)<br/>Size Range: 1/8" thru 4" (Straight)<br/>1/2" x 3/8" thru 2" x 1 1/2" (Reducing)<br/>Page 19</p> |  <p><b>Fig. 1104</b><br/>45° Street Elbow<br/>Size Range: 1/8" thru 2"<br/>Page 20</p>        |
|  <p><b>Fig. 1105</b><br/>Straight Tee<br/>Size Range: 1/8" thru 6"<br/>Page 20</p>                      |  <p><b>Fig. 1105R</b><br/>Reducing Tee<br/>Size Range:<br/>1/8" x 1/8" x 1/4" thru 4" x 4" x 3"<br/>Page 21 - 23</p> |  <p><b>Fig. 1106 &amp; 1106R</b><br/>Street or Service Tee<br/>(Straight &amp; Reducing)<br/>Size Range: 1/4" thru 2" (Straight)<br/>1 1/4" x 1" x 1 1/4" (Reducing)<br/>Page 24</p> |  <p><b>Fig. 1107</b><br/>Cross<br/>Size Range: 1/8" thru 4"<br/>Page 24</p>                                                                                                              |  <p><b>Fig. 1108</b><br/>45° Y-Branch or Lateral<br/>Size Range: 3/8" thru 4"<br/>Page 24</p> |
|  <p><b>Fig. 1119</b><br/>Return Bend - Open Pattern, R.H.<br/>Size Range: 1/2" thru 2"<br/>Page 25</p> |  <p><b>Fig. 1121</b><br/>Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 25</p>                                      |  <p><b>Fig. 1124</b><br/>Cap<br/>Size Range: 1/2" thru 6"<br/>Page 25</p>                                                                                                           |  <p><b>Fig. 1125</b><br/>Reducer<br/>Size Range: 1/4" x 1/8" thru 6" x 4"<br/>Page 26</p>                                                                                               |  <p><b>Fig. 1134</b><br/>Hex Locknut<br/>Size Range: 1/4" thru 2"<br/>Page 27</p>           |
|  <p><b>Fig. 1190</b><br/>Floor Flange (Ductile Iron)<br/>Size Range: 1/4" thru 2"<br/>Page 27</p>     |  <p><b>Fig. 1133</b><br/>Waste Nut<br/>Size Range: 1/2" &amp; 3/4"<br/>Page 27</p>                                 |  <p><b>Fig. 1138</b><br/>Extension Piece<br/>Size Range: 1/2" thru 1"<br/>Page 27</p>                                                                                              |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                  |

### MALLEABLE HEX AND FACE BUSHING

|                                                                                                                                                                                     |                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 383</b><br/>Hex Bushing<br/>Size Range: 3/4" x 1/8" thru 2 1/2" x 2"<br/>Page 35</p> |  <p><b>Fig. 385</b><br/>Face Bushing<br/>Size Range: 3/4" x 3/8" thru 3" x 2 1/2"<br/>Page 35</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Malleable Iron *(Continued)*

### MALLEABLE IRON FITTINGS – CLASS 300 (XS/XH)

|                                                                                                                                                                     |                                                                                                                                                                                                  |                                                                                                                                                                         |                                                                                                                                                                    |                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 1161</b><br/>90° Elbow<br/>Size Range: 1/4" thru 4"<br/>Page 28</p>    |  <p><b>Fig. 1161R</b><br/>90° Reducing Elbow<br/>Size Range: 3/8" x 1/4" thru 2" x 1 1/2"<br/>Page 28</p>       |  <p><b>Fig. 1160</b><br/>45° Street Elbow<br/>Size Range: 1/2" thru 2"<br/>Page 28</p> |  <p><b>Fig. 1162</b><br/>45° Elbow<br/>Size Range: 1/4" thru 4"<br/>Page 29</p> |  <p><b>Fig. 1170</b><br/>90° Street Elbow<br/>Size Range: 1/4" thru 3"<br/>Page 29</p>    |
|  <p><b>Fig. 1164</b><br/>Straight Tee<br/>Size Range: 1/4" thru 4"<br/>Page 29</p> |  <p><b>Fig. 1164R</b><br/>Reducing Tee<br/>Size Range:<br/>3/8" x 3/8" x 1/4" thru 3" x 3" x 2"<br/>Page 30</p> |  <p><b>Fig. 1165</b><br/>Cross<br/>Size Range: 1/4" thru 2"<br/>Page 30</p>            |  <p><b>Fig. 1166</b><br/>Coupling<br/>Size Range: 1/4" thru 3"<br/>Page 31</p>  |  <p><b>Fig. 1167</b><br/>Reducer<br/>Size Range: 3/8" x 1/4" thru 4" x 3"<br/>Page 31</p> |
|  <p><b>Fig. 1163</b><br/>Cap<br/>Size Range: 1/4" thru 3"<br/>Page 32</p>          |  <p><b>Fig. 390</b><br/>Square Countersunk Plugs<br/>Size Range: 1/2" &amp; 3/4"<br/>Page 32</p>                |                                                                                                                                                                         |                                                                                                                                                                    |                                                                                                                                                                              |

### MALLEABLE IRON UNIONS (CLASS 150; 250, 300)

|                                                                                                                                                                                           |                                                                                                                                                                                          |                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 463</b><br/>Class 150 Union<br/>Size Range: 1/8" thru 2"<br/>Page 33</p>                   |  <p><b>Fig. 554</b><br/>Class 250 Union<br/>Size Range: 1/8" thru 4"<br/>Page 33</p>                  |  <p><b>Fig. 459</b><br/>Class 300 Union<br/>Size Range: 1/8" thru 4"<br/>Page 33</p>                        |
|  <p><b>Fig. 551</b><br/>Class 300 Union Male &amp; Female<br/>Size Range: 1/2" thru 2"<br/>Page 33</p> |  <p><b>Fig. 552</b><br/>Class 300 90° Elbow Female Union<br/>Size Range: 3/8" thru 1"<br/>Page 34</p> |  <p><b>Fig. 832</b><br/>Dart Union Bronze to Bronze Seat Union<br/>Size Range: 3/8" thru 2"<br/>Page 34</p> |

### ALL IRON UNION

|                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. J-3300</b><br/>All Iron Union Class 300<br/>Size Range: 1/4" thru 3"<br/>Page 32</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# PICTORIAL TABLE OF CONTENTS

## Cast Iron

### CAST IRON THREADED FITTINGS – CLASS 125 (STANDARD)

|                                                                                                                                                                                  |                                                                                                                                                                                                 |                                                                                                                                                                                                                                              |                                                                                                                                                                                                       |                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 351</b><br/>90° Elbow<br/>Size Range: 1/4" thru 8"<br/>Page 37</p>                  |  <p><b>Fig. 371</b><br/>90° Elbow - Flange &amp; Screw<br/>Size Range: 2 1/2" thru 6"<br/>Page 37</p>          |  <p><b>Fig. 356 &amp; 356R</b><br/>45° Elbow<br/>(Straight &amp; Reducing)<br/>Size Range: 1/4" thru 8" (Straight)<br/>1" x 1/2" (Reducing)<br/>Page 38</p> |  <p><b>Fig. 356A</b><br/>22 1/2° Street Elbow<br/>Size Range: 3/4" thru 2 1/2"<br/>Page 38</p>                     |  <p><b>Fig. 352</b><br/>90° Reducing Elbow<br/>Size Range: 1/2" x 1/4" thru 6" x 5"<br/>Page 39</p> |
|  <p><b>Fig. 358</b><br/>Tee<br/>Size Range: 1/4" thru 8"<br/>Page 40</p>                        |  <p><b>Fig. 359</b><br/>Reducing Tee<br/>Size Range: 1/2" x 1/2" x 1/4" thru 6" x 6" x 5"<br/>Page 40 - 44</p> |  <p><b>Fig. 360</b><br/>Cross<br/>Size Range: 1/2" thru 6"<br/>Page 45</p>                                                                                  |  <p><b>Fig. 361</b><br/>Cross Reducing<br/>Size Range: 1" x 1" x 3/4" x 3/4" thru 4" x 4" x 2" x 2"<br/>Page 45</p> |  <p><b>Fig. 366</b><br/>Screwed Hex Coupling<br/>Size: 1"<br/>Page 46</p>                           |
|  <p><b>Fig. 487</b><br/>Flanged Union Gasket Type<br/>Size Range: 1/2" thru 8"<br/>Page 46</p> |  <p><b>Fig. 367</b><br/>Concentric Reducer<br/>Size Range: 3/4" x 1/2" thru 8" x 6"<br/>Page 47</p>           |  <p><b>Fig. 368</b><br/>Eccentric Reducer<br/>Size Range: 3/4" x 1/2" thru 6" x 4"<br/>Page 48</p>                                                         |  <p><b>Fig. 383</b><br/>Hex Bushing<br/>Size Range: 1 1/2" x 1/4" thru 10" x 8"<br/>Page 49 - 50</p>               |  <p><b>Fig. 385</b><br/>Face Bushing<br/>Size Range: 3" x 2" thru 4" x 3"<br/>Page 50</p>          |
|  <p><b>Fig. 387</b><br/>Square Head Plugs, Cored<br/>Size Range: 3/4" thru 4"<br/>Page 51</p> |  <p><b>Fig. 388</b><br/>Square Head Plugs, Solid<br/>Size Range: 1/2" thru 3 1/2"<br/>Page 51</p>            |  <p><b>Fig. 389</b><br/>Bar Plugs, Cored<br/>Size Range: 4" thru 8"<br/>Page 51</p>                                                                       |  <p><b>Fig. 380</b><br/>Bar Plugs, Solid<br/>Size Range: 4" thru 8"<br/>Page 51</p>                               |  <p><b>Fig. 390</b><br/>Countersunk Plugs<br/>Size Range: 1" thru 4"<br/>Page 51</p>              |
|  <p><b>Fig. 381</b><br/>Cap<br/>Size Range: 2 1/2" thru 8"<br/>Page 51</p>                    |  <p><b>Fig. 370</b><br/>Locknut<br/>Size Range: 2 1/2" thru 4"<br/>Page 52</p>                               |                                                                                                                                                                                                                                              |                                                                                                                                                                                                       |                                                                                                                                                                                        |

### CAST IRON THREADED FITTINGS – CLASS 250 (EXTRA HEAVY)

|                                                                                                                                                                   |                                                                                                                                                                       |                                                                                                                                                              |                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 421</b><br/>90° Elbow<br/>Size Range: 1/4" thru 3"<br/>Page 52</p> |  <p><b>Fig. 424</b><br/>45° Elbow<br/>Size Range: 1/2" thru 2 1/2"<br/>Page 52</p> |  <p><b>Fig. 425</b><br/>Tee<br/>Size Range: 1/4" thru 4"<br/>Page 53</p> |  <p><b>Fig. 426</b><br/>Reducing Tee<br/>Size Range: 3/4" x 3/4" x 1/2" thru 2" x 2" x 1 1/2"<br/>Page 53</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Cast Iron *(Continued)*

### CAST IRON DRAINAGE FITTINGS

|                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                                |                                                                                                                                                                                             |                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 701</b><br/>90° Short Turn Elbow<br/>Size Range: 1½" thru 4"<br/>Page 55</p>    |  <p><b>Fig. 701R</b><br/>90° Reducing Short Turn Elbow<br/>Sizes: 1½" x 1¼" &amp; 2" x 1½"<br/>Page 55</p> |  <p><b>Fig. 702</b><br/>90° Long Turn Elbow<br/>Size Range: 1½" thru 4"<br/>Page 55</p>                       | <p><b>Fig. 702A</b><br/>90° Extra Long Turn Elbow<br/>Sizes: 1½" &amp; 2"<br/>Page 55</p>                                                                                                   |  <p><b>Fig. 703</b><br/>60° Short Turn Elbow<br/>Size: 1½"<br/>Page 55</p>                                                          |
|  <p><b>Fig. 705</b><br/>45° Short Turn Elbow<br/>Size Range: 1½" thru 2"<br/>Page 56</p>    |  <p><b>Fig. 706</b><br/>45° Long Turn Elbow<br/>Size: 1½"<br/>Page 56</p>                                  |  <p><b>Fig. 707</b><br/>22½° Elbow<br/>Sizes: 1½" &amp; 2"<br/>Page 56</p>                                    |  <p><b>Fig. 708</b><br/>11¼° Elbow<br/>Sizes: 1½" &amp; 2"<br/>Page 56</p>                               |  <p><b>Fig. 718</b><br/>90° Street Elbow<br/>Sizes: 1½" &amp; 2"<br/>Page 58</p>                                                    |
|  <p><b>Fig. 719</b><br/>45° Street Elbow<br/>Sizes: 1½" &amp; 2"<br/>Page 58</p>           |  <p><b>Fig. 722</b><br/>Tee<br/>Sizes: 1½" &amp; 2"<br/>Page 58</p>                                       |  <p><b>Fig. 723</b><br/>Reducing Tee<br/>Size: 2" x 2" x 1½"<br/>Page 58</p>                                 |  <p><b>Fig. 726</b><br/>90° Short Turn Y-Branch Tee Pattern<br/>Size Range: 1½" thru 4"<br/>Page 59</p> |  <p><b>Fig. 727</b><br/>90° Reducing Short Turn Y-Branch Tee Pattern<br/>Sizes: 2" x 2" x 1½" &amp; 2" x 1½" x 1½"<br/>Page 59</p> |
|  <p><b>Fig. 729</b><br/>Reducing Double Short Turn Tee<br/>Size: 2" x 1½"<br/>Page 59</p> |  <p><b>Fig. 730</b><br/>90° Long Turn Y-Branch Tee Pattern<br/>Sizes: 1½" &amp; 2"<br/>Page 59</p>       |  <p><b>Fig. 731</b><br/>90° Reducing Long Turn Y-Branch Tee Pattern<br/>Size: 2" x 2" x 1½"<br/>Page 60</p> |  <p><b>Fig. 734</b><br/>45° Y-Branch<br/>Size Range: 1½" thru 4"<br/>Page 60</p>                       |  <p><b>Fig. 735</b><br/>45° Reducing Y-Branch<br/>Sizes: 2" x 2" x 1½" &amp; 4" x 4" x 3"<br/>Page 60</p>                         |
|  <p><b>Fig. 736</b><br/>45° Double Y-Branch<br/>Size: 1½"<br/>Page 60</p>                 |  <p><b>Fig. 753</b><br/>Coupling<br/>Size: 1½"<br/>Page 61</p>                                           |  <p><b>Fig. 744</b><br/>Tucker Connection<br/>Size Range: 1½" thru 4"<br/>Page 61</p>                       |  <p><b>Fig. 752</b><br/>P-Trap<br/>Size Range: 1½" &amp; 3"<br/>Page 61</p>                            |  <p><b>Fig. 754</b><br/>Bath P-Trap<br/>Sizes: 1½" &amp; 2"<br/>Page 61</p>                                                       |

# PICTORIAL TABLE OF CONTENTS

## Cast Iron *(Continued)*

### CAST IRON FLANGED FITTINGS – CLASS 125 (STANDARD)

|                                                                                                                                                                             |                                                                                                                                                                                              |                                                                                                                                                                                             |                                                                                                                                                                                                       |                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 801</b><br/>90° Flanged Elbow<br/>Size Range: 1½" thru 12"<br/>Page 63</p>     |  <p><b>Fig. 802</b><br/>45° Flanged Elbow<br/>Size Range: 1½" thru 12"<br/>Page 63</p>                      |  <p><b>Fig. 803</b><br/>90° Reducing Flanged Elbow<br/>Size Range: 2½" x 2" thru 12" x 10"<br/>Page 64</p> |  <p><b>Fig. 804</b><br/>90° Long Radius Flanged Elbow<br/>Size Range: 2" thru 12"<br/>Page 64</p>                   |  <p><b>Fig. 804R</b><br/>90° Long Radius Reducing Flanged Elbow<br/>Size Range: 4" x 3" thru 10" x 8"<br/>Page 64</p> |
|  <p><b>Fig. 805</b><br/>90° Flanged Base Elbow<br/>Size Range: 3" thru 12"<br/>Page 65</p> |  <p><b>Fig. 808</b><br/>90° Flanged Side Outlet Elbow<br/>Size Range: 4" thru 8"<br/>Page 65</p>            |  <p><b>Fig. 811</b><br/>Flanged Tee<br/>Size Range: 1½" thru 12"<br/>Page 66</p>                           |  <p><b>Fig. 812</b><br/>Flanged Reducing Tee<br/>Size Range:<br/>3" x 2" x 3" thru 12" x 12" x 10"<br/>Page 67</p> |  <p><b>Fig. 821</b><br/>Flanged Cross<br/>Sizes: 2" thru 10"<br/>Page 68</p>                                          |
|  <p><b>Fig. 823</b><br/>Flanged Lateral<br/>Size Range: 2" thru 8"<br/>Page 68</p>        |  <p><b>Fig. 825</b><br/>Flanged Concentric Reducer<br/>Size Range: 2" x 1½" thru 12" x 10"<br/>Page 69</p> |  <p><b>Fig. 826</b><br/>Flanged Eccentric Reducer<br/>Size Range: 3" x 2" thru 12" x 10"<br/>Page 69</p>  |                                                                                                                                                                                                       |                                                                                                                                                                                                          |

### IRON FLANGES – CLASS 125 (STANDARD)

|                                                                                                                                                                                      |                                                                                                                                                                                   |                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 1011</b><br/>Companion Flange<br/>Size Range: ¾" x 3⅞" thru 12" x 19"<br/>Page 70</p> |  <p><b>Fig. 1016</b><br/>Reducing Flange<br/>Size Range: 1" x 5" thru 8" x 19"<br/>Page 71</p> |  <p><b>Fig. 1018</b><br/>Blind Flange<br/>Size Range: 1" x 4¼" thru 12" x 19"<br/>Page 70</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### IRON FLANGES – CLASS 250 (EXTRA HEAVY)

|                                                                                                                                                                                          |                                                                                                                                                                                        |                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 1025</b><br/>Companion Flange<br/>Size Range:<br/>1¼" x 5¼" thru 8" x 15"<br/>Page 72</p> |  <p><b>Fig. 1030</b><br/>Reducing Flange<br/>Size Range:<br/>2" x 8¼" thru 4" x 11"<br/>Page 72</p> | <p><b>Fig. 1021</b><br/>Blind Flange<br/>Size Range:<br/>1½" x 6⅞" thru 8" x 15"<br/>Page 73</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|

### CAST IRON THREADED FITTING

|                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Safety Valve Discharge Elbow – Fig. 1538</b><br/>Screwed Cast Iron<br/>Size Range: 2½" thru 4"<br/>Page 74</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Merchant Steel – Steel Pipe Couplings

### MERCHANT STEEL BUSHINGS, CAPS & PLUGS

|                                                                                                                                                                    |                                                                                                                                                                                        |                                                                                                                                                                         |                                                                                                                                                   |                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Hex Bushing</b><br/>Size Range: 1/4" x 1/8" thru 1" x 3/4"<br/>Page 76</p> |  <p><b>Countersunk Plugs</b><br/>(Square and Hex Socket)<br/>Size Range: 1/8" thru 2"<br/>Page 76</p> |  <p><b>Flush Bushings</b><br/>Size Range: 1/4" x 1/8" thru 1/2" x 3/8"<br/>Page 77</p> |  <p><b>Caps</b><br/>Size Range: 1/8" thru 3/4"<br/>Page 77</p> |  <p><b>Solid Square Head Plugs</b><br/>Size Range: 1/8" thru 2"<br/>Page 77</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### PIPE NIPPLES – BLACK & GALVANIZED

|                                                                                                                                                                                                            |                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Seamless Pipe Nipples</b><br/>Std. Sch. 40, XH Sch. 80, Sch. 160, XXH<br/>Size Range: 1/8" thru 6"<br/>Page 79</p> |  <p><b>Welded Pipe Nipples</b><br/>Std. Sch. 40, XH Sch. 80<br/>Size Range: 1/8" thru 6"<br/>Page 80 - 83</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### STEEL PIPE COUPLINGS

|                                                                                                                                                                                   |                                                                                                                                                                                                     |                                                                                                                                                                                     |                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 336</b><br/>Standard, Full &amp; Half<br/>Size Range: 1/8" thru 6"<br/>Page 85</p> |  <p><b>Fig. 337</b><br/>Extra Strong(XS), Full &amp; Half<br/>Size Range: 1/8" thru 6"<br/>Page 86</p>           |  <p><b>Fig. 346</b><br/>Standard, Right &amp; Left<br/>Size Range: 1/2" thru 2"<br/>Page 87</p> |  <p><b>Fig. 347</b><br/>Extra Strong (XS), Right &amp; Left<br/>Size Range: 1/2" thru 2"<br/>Page 87</p> |
|  <p><b>Fig. 348</b><br/>API Line Pipe Coupling<br/>Size Range: 1/8" thru 12"<br/>Page 88</p>   |  <p><b>Fig. 349</b><br/>Water Well Reamed &amp; Drifted Coupling<br/>Size Range: 1 1/4" thru 12"<br/>Page 89</p> |  <p><b>Fig. 350</b><br/>#9 Drive Coupling<br/>Size Range: 1 1/4" thru 2"<br/>Page 89</p>        |  <p><b>Fig. 379</b><br/>Shallow Well Coupling<br/>Size Range: 1 1/4" thru 2"<br/>Page 89</p>             |

# PICTORIAL TABLE OF CONTENTS

## Forged Steel

### FORGED STEEL FITTINGS – CLASS 2000 THREADED

|                                                                                                                                                                  |                                                                                                                                                                  |                                                                                                                                                             |                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2101</b><br/>90° Elbow<br/>Size Range: 1/4" thru 4"<br/>Page 91</p> |  <p><b>Fig. 2102</b><br/>45° Elbow<br/>Size Range: 1/4" thru 3"<br/>Page 91</p> |  <p><b>Fig. 2103</b><br/>Tee<br/>Size Range: 1/4" thru 4"<br/>Page 92</p> |  <p><b>Fig. 2104</b><br/>Cross<br/>Size Range: 1/4" thru 3"<br/>Page 92</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|

### FORGED STEEL FITTINGS – CLASS 3000 THREADED

|                                                                                                                                                                  |                                                                                                                                                                  |                                                                                                                                                                       |                                                                                                                                                                                            |                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2111</b><br/>90° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 93</p> |  <p><b>Fig. 2112</b><br/>45° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 93</p> |  <p><b>Fig. 2114</b><br/>Tee<br/>Size Range: 1/8" thru 4"<br/>Page 93</p>            |  <p><b>Fig. 2115</b><br/>Cross<br/>Size Range: 1/8" thru 4"<br/>Page 94</p>                              |  <p><b>Fig. 2113</b><br/>90° Street Elbow<br/>Size Range: 1/8" thru 2"<br/>Page 94</p> |
|  <p><b>Fig. 2116</b><br/>Lateral<br/>Size Range: 1/2" thru 2"<br/>Page 94</p>  |  <p><b>Fig. 2117</b><br/>Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 95</p> |  <p><b>Fig. 2119</b><br/>Half Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 95</p> |  <p><b>Fig. 2118</b><br/>Reducing Coupling<br/>Size Range: 1/4" x 1/8" thru 4" x 1 1/2"<br/>Page 96</p> |  <p><b>Fig. 2120</b><br/>Pipe Cap<br/>Size Range: 1/8" thru 4"<br/>Page 96</p>        |

### FORGED STEEL FITTINGS – CLASS 6000 THREADED

|                                                                                                                                                                      |                                                                                                                                                                    |                                                                                                                                                                        |                                                                                                                                                                                          |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2131</b><br/>90° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 97</p>   |  <p><b>Fig. 2132</b><br/>45° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 97</p> |  <p><b>Fig. 2134</b><br/>Tee<br/>Size Range: 1/8" thru 4"<br/>Page 97</p>           |  <p><b>Fig. 2135</b><br/>Cross<br/>Size Range: 1/8" thru 4"<br/>Page 98</p>                          |  <p><b>Fig. 2133</b><br/>90° Street Elbow<br/>Size Range: 1/8" thru 1 1/2"<br/>Page 98</p> |
|  <p><b>Fig. 2136</b><br/>Lateral<br/>Size Range: 1/2" thru 1 1/2"<br/>Page 98</p> |  <p><b>Fig. 2137</b><br/>Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 99</p>  |  <p><b>Fig. 2141</b><br/>Half Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 99</p> |  <p><b>Fig. 2138</b><br/>Reducing Coupling<br/>Size Range: 1/4" x 1/8" thru 4" x 2"<br/>Page 100</p> |  <p><b>Fig. 2143</b><br/>Pipe Cap<br/>Size Range: 1/8" thru 4"<br/>Page 100</p>            |

## Forged Steel *(Continued)*

### FORGED STEEL FITTINGS CLASS 3000 SOCKET WELD

|                                                                                                                                                                        |                                                                                                                                                                                            |                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2150</b><br/>90° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 101</p>      |  <p><b>Fig. 2151</b><br/>45° Elbow<br/>Size Range: 1/8" thru 4"<br/>Page 101</p>                          |  <p><b>Fig. 2152</b><br/>Tee<br/>Size Range: 1/8" thru 4"<br/>Page 102</p>       |
|  <p><b>Fig. 2153</b><br/>Cross<br/>Size Range: 1/8" thru 4"<br/>Page 102</p>          |  <p><b>Fig. 2158</b><br/>Lateral<br/>Size Range: 1/2" thru 2"<br/>Page 103</p>                            |  <p><b>Fig. 2154</b><br/>Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 103</p>  |
|  <p><b>Fig. 2155</b><br/>Half Coupling<br/>Size Range: 1/8" thru 4"<br/>Page 104</p> |  <p><b>Fig. 2156</b><br/>Reducing Coupling<br/>Size Range:<br/>1/4" x 1/8" thru 4" x 2"<br/>Page 104</p> |  <p><b>Fig. 2157</b><br/>Pipe Cap<br/>Size Range: 1/8" thru 4"<br/>Page 105</p> |

### FORGED STEEL FITTINGS CLASS 6000 SOCKET WELD

|                                                                                                                                                                         |                                                                                                                                                                                              |                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2170</b><br/>90° Elbow<br/>Size Range: 1/2" thru 4"<br/>Page 106</p>      |  <p><b>Fig. 2171</b><br/>45° Elbow<br/>Size Range: 1/2" thru 4"<br/>Page 106</p>                          |  <p><b>Fig. 2172</b><br/>Tee<br/>Size Range: 1/2" thru 4"<br/>Page 107</p>       |
|  <p><b>Fig. 2173</b><br/>Cross<br/>Size Range: 1/2" thru 2"<br/>Page 107</p>          |  <p><b>Fig. 2178</b><br/>Lateral<br/>Size Range: 1/2" thru 1 1/2"<br/>Page 107</p>                        |  <p><b>Fig. 2174</b><br/>Coupling<br/>Size Range: 1/2" thru 4"<br/>Page 108</p>  |
|  <p><b>Fig. 2175</b><br/>Half Coupling<br/>Size Range: 1/2" thru 4"<br/>Page 108</p> |  <p><b>Fig. 2176</b><br/>Reducing Coupling<br/>Size Range:<br/>1/2" x 1/4" thru 4" x 2"<br/>Page 109</p> |  <p><b>Fig. 2177</b><br/>Pipe Cap<br/>Size Range: 1/2" thru 4"<br/>Page 109</p> |

### FORGED STEEL FITTINGS – HIGH PRESSURE PLUGS & BUSHINGS

|                                                                                                                                                                            |                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                                                                              |                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 2122</b><br/>Square Head Plug<br/>Size Range: 1/8" thru 4"<br/>Page 110</p> |  <p><b>Fig. 2142</b><br/>Hex Head Plug<br/>Size Range: 1/8" thru 4"<br/>Page 110</p> |  <p><b>Fig. 2121</b><br/>Round Head Plug<br/>Size Range: 1/8" thru 4"<br/>Page 110</p> |  <p><b>Fig. 2139</b><br/>Hex Head Bushing<br/>Size Range: 1/4" x 1/8" thru 4" x 1 1/2"<br/>Page 111</p> |  <p><b>Fig. 2140</b><br/>Flush Bushing<br/>Size Range: 1/4" x 1/8" thru 2" x 1/4"<br/>Page 111</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# PICTORIAL TABLE OF CONTENTS

## Forged Steel *(Continued)* – Anvilets

### FORGED STEEL FITTINGS SOCKET WELD REDUCER INSERTS

#### Class 3000

For use with Sch. 40 & 80 Pipe  
Size Range: 1/2" x 1/4" thru 3" x 2 1/2"  
Page 112

#### Class 6000

For use with Sch. 160 Pipe  
Size Range: 3/4" x 1/4" thru 2" x 1 1/4"  
Page 113

### FORGED STEEL UNIONS

#### Class 3000

Fig. 2125 – Threaded Union  
Fig. 2126 – Socket Weld Union  
Size Range: 1/4" thru 3"  
Page 114

#### Class 6000

Fig. 2127 – Threaded Union  
Fig. 2128 – Socket Weld Union  
Size Range: 1/4" thru 2"  
Page 115

### UNIVERSAL ELBOWLET



#### Class 3000 & 6000 – Butt weld, Threaded & Socket-Weld

Class 3000 Threaded & Socket-Weld/Standard & XS/XH Butt weld  
Size Range: 1/2" thru 2"

Class 6000 Threaded & Socket-Weld  
Size Range: 1/2" thru 1 1/2"  
Page 122

### UNIVERSAL FORGED STEEL ANVILETS

#### Butt weld



Standard  
Size Range: 1/8" thru 24"  
Page 117



Extra Strong  
Size Range: 1/8" thru 24"  
Page 117



XXS, Sch. 160  
Size Range: 1/2" thru 4"  
Page 118

#### Threaded



Class 3000  
Size Range: 1/8" thru 4"  
Page 119



Class 6000  
Size Range: 1/2" thru 2"  
Page 119

#### Socket-Weld



Class 3000  
Size Range: 1/8" thru 4"  
Page 120



Class 6000  
Size Range: 1/2" thru 2"  
Page 120

### LATERAL ANVILET



#### Class 3000 Butt weld & Threaded

Class 3000 Standard/XS Butt Weld  
Size Range: 1/2" thru 2"

Class 3000 Threaded/Standard  
Size Range: 1/2" thru 2"  
Page 123

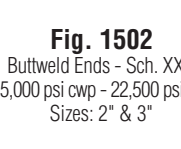
### FLAT ANVILET

#### Class 3000 Threaded, Butt weld & Socket-Weld

Size Range: 1/4" thru 3"  
Page 124

## Catawissa

### CATAWISSA WING UNIONS

|                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Fig. 100</b><br/>Threaded Ends<br/>1,000 psi cwp - 1,500 psi test<br/>Size Range: 2" thru 8"<br/>Page 126</p>                  |  <p><b>Fig. 100C</b><br/>Threaded Ends - Lug Union<br/>1,000 psi cwp - 1,500 psi test<br/>Size: 2"<br/>Page 126</p>                   |  <p><b>Fig. 200</b><br/>Threaded Ends<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 1" thru 6"<br/>Page 127</p>                  |  <p><b>Fig. 200</b><br/>Butt Weld Ends - Sch. 40<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 1" thru 6"<br/>Page 128</p>   |  <p><b>Fig. 200C</b><br/>Threaded Ends - Lug Union<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 1" thru 2"<br/>Page 128</p>            |  <p><b>Fig. 206</b><br/>Threaded Ends<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 1" thru 6"<br/>Page 129</p>                 |
|  <p><b>Fig. 206</b><br/>Butt Weld Ends - Sch. 40<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 2" thru 6"<br/>Page 130</p>       |  <p><b>Fig. 202</b><br/>Blanking Cap Only with O-Ring<br/>Size: 4"<br/>Page 130</p>                                                   |  <p><b>Fig. 211</b><br/>Threaded Ends<br/>Insulating Union<br/>2,000 psi cwp - 3,000 psi test<br/>Sizes: 1" &amp; 2"<br/>Page 131</p> |  <p><b>Fig. 300</b><br/>Flat-Face Union<br/>2,000 psi cwp - 3,000 psi test<br/>Size Range: 1" thru 4"<br/>Page 131</p>            |  <p><b>Fig. 301</b><br/>Steam Service Union<br/>3,000 psi cwp - 4,500 psi test<br/>Size Range: 1" thru 3"<br/>Page 132</p>                   |  <p><b>Fig. 400</b><br/>Threaded Ends<br/>4,000 psi cwp - 6,000 psi test<br/>Size Range: 2" thru 4"<br/>Page 132</p>                 |
|  <p><b>Fig. 400</b><br/>Butt Weld Ends - Sch. 80<br/>4,000 psi cwp - 6,000 psi test<br/>Size: 2"<br/>Page 133</p>                    |  <p><b>Fig. 600</b><br/>Threaded Ends<br/>6,000 psi cwp - 9,000 psi test<br/>Size Range: 1" thru 4"<br/>Page 133</p>                 |  <p><b>Fig. 602</b><br/>Threaded Ends<br/>6,000 psi cwp - 9,000 psi test<br/>Size Range: 1" thru 4"<br/>Page 134</p>                 |  <p><b>Fig. 602</b><br/>Butt Weld Ends - Sch. 80<br/>6,000 psi cwp - 9,000 psi test<br/>Size Range: 2" thru 4"<br/>Page 135</p>  |  <p><b>Fig. 607</b><br/>Threaded Ends<br/>Well Service Union<br/>2,000 psi cwp - 3,000 psi test<br/>Sizes: 1 1/2" &amp; 2"<br/>Page 135</p> |  <p><b>Fig. 1002</b><br/>Threaded Ends<br/>10,000 psi cwp - 15,000 psi test<br/>Size Range: 1" thru 4"<br/>Page 136</p>             |
|  <p><b>Fig. 1002</b><br/>Butt Weld Ends - Sch. 160<br/>10,000 psi cwp - 15,000 psi test<br/>Size Range: 2" thru 4"<br/>Page 137</p> |  <p><b>Fig. 1002</b><br/>Butt Weld Ends - Sch. XXH<br/>10,000 psi cwp - 15,000 psi test<br/>Size Range: 2" thru 4"<br/>Page 137</p> |  <p><b>Fig. 1502</b><br/>Threaded Ends<br/>15,000 psi cwp - 22,500 psi test<br/>Sizes: 2" &amp; 3"<br/>Page 138</p>                 |  <p><b>Fig. 1502</b><br/>Butt Weld Ends - Sch. 160<br/>15,000 psi cwp - 22,500 psi test<br/>Sizes: 2" &amp; 3"<br/>Page 138</p> |  <p><b>Fig. S1A</b><br/>High Speed Union<br/>3,000 psi cwp - 4,500 psi test<br/>Size Range: 1" thru 3"<br/>Page 139</p>                    |  <p><b>Fig. 3L S1A</b><br/>Tri-Lug High Speed Union<br/>3,000 psi cwp - 4,500 psi test<br/>Size Range: 1" thru 2"<br/>Page 139</p> |

# PICTORIAL TABLE OF CONTENTS

## J.B. Smith Oil Country Products

### SWAGE NIPPLES, BULL PLUGS, OIL COUNTRY FITTINGS, COUPLINGS & STAINLESS SWAGES

|                                                                                                                                                                                        |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                       |                                                                                                                                                                                                        |                                                                                                                                                                               |                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Concentric Swage Nipple</b><br/>Size Range:<br/>1/4" x 1/8" thru 1" x 3/4"<br/>Page 143</p>    |  <p><b>Concentric Swage Nipple</b><br/>Size Range:<br/>1 1/4" x 1/4" thru 8" x 6"<br/>Page 144</p>                                                              |  <p><b>Eccentric Swage Nipple</b><br/>Size Range:<br/>1/4" x 1/8" thru 4" x 3 1/2"<br/>Page 145</p>                                                  |  <p><b>Stainless &amp; Alloy Steel Swage Nipple</b><br/>Size Range:<br/>1/4" x 1/8" thru 4" x 3 1/2"<br/>Page 146</p> |  <p><b>Carbon Steel Bull Plug</b><br/>Size Range: 1/8" thru 8"<br/>Page 147</p>            |  <p><b>Solid Refinery Plug</b><br/>Black (non-plated) Carbon Steel<br/>Size Range: 1/8" thru 2"<br/>Page 147</p> |
|  <p><b>Adapter Nipples</b><br/>Size Range: 3/4" thru 12"<br/>Page 148</p>                             |  <p><b>Swage Nipple</b><br/>(Oil Country Sizes)<br/>Large End Upset Reduced to Regular or Upset<br/>Size Range:<br/>1" x 3/4" thru 4" x 3 1/2"<br/>Page 150</p> |  <p><b>Swage Nipple</b><br/>(Oil Country Sizes)<br/>Large End Non-Upset Reduced to Upset<br/>Size Range:<br/>1" x 3/4" thru 4" x 3"<br/>Page 150</p> |  <p><b>Swage Nipple</b><br/>Oil Country Tubing &amp; Casing non EUE ends<br/>Page 151</p>                             |  <p><b>Tubing Bull Plugs</b><br/>Size Range:<br/>3/4" EUE thru 3" EUE<br/>Page 152</p>     |  <p><b>Casing Bull Plugs</b><br/>Size Range: 4 1/2" thru 10 3/4"<br/>Page 152</p>                                |
|  <p><b>API Bull Plug Female</b><br/>Size Range: 3/4" thru 4" EUE<br/>Page 152</p>                   |  <p><b>Bell Nipple</b><br/>Size Range: 4 1/2" thru 8 5/8"<br/>Page 153</p>                                                                                    |  <p><b>Tubing Nipple</b><br/>Standard Weight<br/>Size Range: 1" thru 4"<br/>Page 153</p>                                                           |  <p><b>Tubing Nipple</b><br/>Extra Heavy Weight<br/>Size Range: 1" thru 4"<br/>Page 153</p>                         |  <p><b>Oil Country Casing Nipple</b><br/>Size Range: 4 1/2" thru 16"<br/>Page 154</p>    |  <p><b>API Casing Coupling</b><br/>Short Thread<br/>Size Range: 4 1/2" thru 20"<br/>Page 155</p>               |
|  <p><b>API Casing Coupling</b><br/>Long Thread<br/>Size Range: 4 1/2" thru 13 3/8"<br/>Page 155</p> |  <p><b>Combination Coupling J-55</b><br/>Size Range: 2" thru 4"<br/>Page 155</p>                                                                              |  <p><b>Sub Tubing Coupling J-55</b><br/>Size Range:<br/>2" EUE x 2" Reg thru 4" EUE x 4" Reg<br/>Page 156</p>                                      |  <p><b>API Tubing Coupling</b><br/>Size Range: 2" thru 4"<br/>Page 156</p>                                          |  <p><b>Special Clearance Tubing Coupling</b><br/>Size Range: 2" thru 3"<br/>Page 156</p> |  <p><b>Chambers/Pressure Vessels</b><br/>Size Range: 2" thru 8"<br/>Page 157</p>                               |



Malleable Iron

Cast Iron

Small Steel Fittings

Pipe Nipples & Pipe Couplings

Forged Steel Fittings & Unions

Anvils

Catawissa

J.B. Smith Products

**Malleable Iron Threaded Pipe Unions  
Pressure - Temperature Ratings**

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

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



For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil Sales Representative.

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

| Temperature                       | Pressure  |      |                         |       |                            |       |                            |      |
|-----------------------------------|-----------|------|-------------------------|-------|----------------------------|-------|----------------------------|------|
|                                   | Class 150 |      | Class 300               |       |                            |       |                            |      |
|                                   | psi       | bar  | Sizes 1/4"-1" (6-25 mm) |       | Sizes 1 1/4"-2" (32-51 mm) |       | Sizes 2 1/2"-3" (64-76 mm) |      |
| -20° to 150°<br>(-28.9° to 65.6°) | 300       | 20.7 | 2,000                   | 137.9 | 1,500                      | 103.4 | 1,000                      | 68.9 |
| 200°                              | 265       | 18.3 | 1,785                   | 123.1 | 1,350                      | 93.1  | 910                        | 62.7 |
| 250°                              | 225       | 15.5 | 1,575                   | 108.6 | 1,200                      | 82.7  | 825                        | 56.9 |
| 300°                              | 185       | 12.8 | 1,360                   | 93.8  | 1,050                      | 72.4  | 735                        | 50.7 |
| 350°                              | 150       | 10.3 | 1,150                   | 79.3  | 900                        | 62.1  | 650                        | 44.8 |
| 400°                              | —         | —    | 935                     | 64.5  | 750                        | 51.7  | 560                        | 38.6 |
| 450°                              | —         | —    | 725                     | 50.0  | 600                        | 41.4  | 475                        | 32.8 |
| 500°                              | —         | —    | 510                     | 35.2  | 450                        | 31.0  | 385                        | 26.5 |
| 550°                              | —         | —    | 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 3/8" (10 DN) and LARGER ARE 100% GAS TESTED AT A MINIMUM OF 100 PSI. (6.9 bar)**

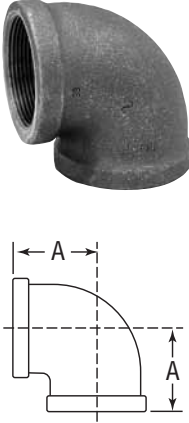


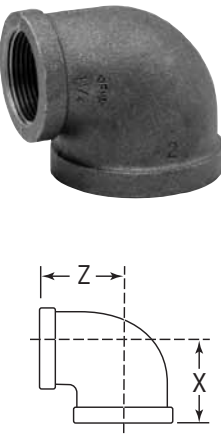
[www.anvilintl.com](http://www.anvilintl.com)

# MALLEABLE IRON

## Malleable Iron

Class 150 (Standard)

| FIGURE 1101<br>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 |

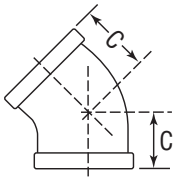
| FIGURE 1101R<br>Reducing Elbow                                                      | Size  |     |       |    | X       |    | Z       |    |  | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|-------|-----|-------|----|---------|----|---------|----|--|-------------|------|-------|------|
|                                                                                     |       |     |       |    |         |    |         |    |  | 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 |

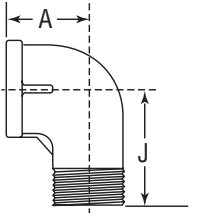
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.

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)

| <b>FIGURE 1102</b><br><b>45° Elbow</b>                                                                                                                              | 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 |

| <b>FIGURE 1103 (Straight)</b><br><b>FIGURE 1103R (Reducing)</b><br><b>90° Street Elbow</b>                                                                              | 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 |

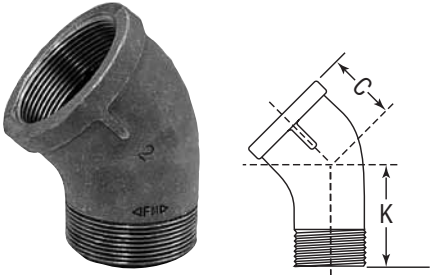
First size denotes female end.

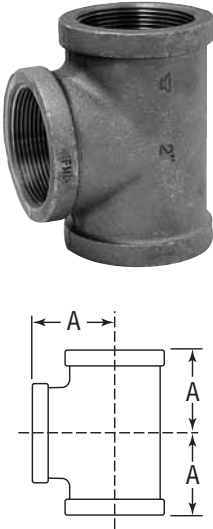
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.  
 All Elbows & Tees 3/8" (10 DN) and Larger are 100% Gas Tested at a Minimum of 100 PSI. (6.9 bar)

# MALLEABLE IRON

## Malleable Iron

Class 150 (Standard)

| <b>FIGURE 1104</b><br><b>45° Street Elbow</b>                                     | 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 |

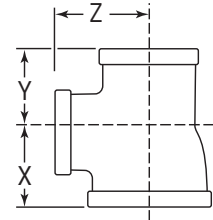
| <b>FIGURE 1105</b><br><b>Straight Tee</b>                                          | Size  |     | A       |     | Unit Weight |       |       |       |
|------------------------------------------------------------------------------------|-------|-----|---------|-----|-------------|-------|-------|-------|
|                                                                                    |       |     |         |     | 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 17 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 |      |       |      |
|------|----|-----|----|-------|----|---------|----|---------|----|--------|----|-------------|------|-------|------|
| NPS  |    | DN  |    | NPS   |    | DN      |    | NPS     |    | DN     |    | Black       |      | Galv. |      |
|      |    |     |    |       |    |         |    |         |    |        |    | lbs         | kg   | lbs   | kg   |
| 1/8  | 6  | 1/8 | 6  | 1/4   | 8  | 3/4     | 19 | 3/4     | 19 | 3/4    | 19 | 0.12        | 0.05 | 0.12  | 0.05 |
| 1/4  | 8  | 1/4 | 8  | 1/8   | 6  | 3/4     | 19 | 3/4     | 19 | 3/4    | 19 | 0.13        | 0.06 | 0.13  | 0.06 |
|      |    |     |    | 3/8   | 10 | 15/16   | 24 | 15/16   | 24 | 7/8    | 22 | 0.19        | 0.09 | 0.19  | 0.09 |
| 3/8  | 10 | 1/4 | 8  | 1/4   | 8  | 7/8     | 22 | 13/16   | 22 | 15/16  | 24 | 0.19        | 0.09 | 0.19  | 0.09 |
|      |    |     |    | 3/8   | 10 | 15/16   | 24 | 15/16   | 24 | 15/16  | 24 | 0.21        | 0.10 | 0.21  | 0.10 |
|      |    | 3/8 | 10 | 1/4   | 8  | 7/8     | 22 | 7/8     | 22 | 15/16  | 24 | 0.21        | 0.10 | 0.21  | 0.10 |
|      |    |     |    | 1/2   | 15 | 1 1/16  | 27 | 1 1/16  | 27 | 1 1/16 | 27 | 0.27        | 0.12 | 0.27  | 0.12 |
| 1/2  | 15 | 1/4 | 8  | 1/2   | 15 | 1 1/8   | 29 | 1 5/16  | 24 | 1 1/8  | 29 | 0.29        | 0.13 | 0.29  | 0.13 |
|      |    |     |    | 3/8   | 10 | 1 1/16  | 27 | 1       | 25 | 1 1/16 | 27 | 0.28        | 0.13 | 0.28  | 0.13 |
|      |    | 1/2 | 15 | 1/2   | 15 | 1 1/8   | 29 | 1 1/16  | 27 | 1 1/8  | 29 | 0.33        | 0.15 | 0.33  | 0.15 |
|      |    |     |    | 1/4   | 8  | 1       | 25 | 1       | 25 | 1      | 25 | 0.27        | 0.12 | 0.27  | 0.12 |
|      |    |     |    | 3/8   | 10 | 1 1/16  | 27 | 1 1/16  | 27 | 1 1/16 | 27 | 0.30        | 0.14 | 0.30  | 0.14 |
|      |    |     |    | 3/4   | 20 | 1 1/4   | 32 | 1 1/4   | 32 | 1 3/16 | 30 | 0.45        | 0.20 | 0.45  | 0.20 |
| 3/4  | 20 | 1/4 | 8  | 3/4   | 20 | 1 5/16  | 33 | 1 1/8   | 29 | 1 5/16 | 33 | 0.45        | 0.20 | 0.45  | 0.20 |
|      |    |     |    | 3/8   | 10 | 1 1/8   | 29 | 1 5/16  | 24 | 1 1/8  | 29 | 0.36        | 0.16 | —     | —    |
|      |    | 3/8 | 10 | 3/4   | 20 | 1 5/16  | 33 | 1 1/8   | 29 | 1 5/16 | 33 | 0.46        | 0.21 | 0.46  | 0.21 |
|      |    |     |    | 1/2   | 15 | 1 3/16  | 30 | 1 1/8   | 29 | 1 1/4  | 32 | 0.43        | 0.20 | 0.43  | 0.20 |
|      |    | 3/4 | 20 | 3/4   | 20 | 1 5/16  | 33 | 1 1/4   | 32 | 1 5/16 | 33 | 0.51        | 0.23 | 0.51  | 0.23 |
|      |    |     |    | 1/4   | 8  | 1 1/16  | 27 | 1 1/16  | 27 | 1 1/8  | 29 | 0.38        | 0.17 | 0.38  | 0.17 |
|      |    |     |    | 3/8   | 10 | 1 1/8   | 29 | 1 1/8   | 29 | 1 1/8  | 29 | 0.42        | 0.19 | 0.42  | 0.19 |
|      |    |     |    | 1/2   | 15 | 1 3/16  | 22 | 1 3/16  | 30 | 1 1/4  | 32 | 0.47        | 0.21 | 0.47  | 0.21 |
|      |    |     |    | 1     | 25 | 1 7/16  | 37 | 1 7/16  | 37 | 1 3/8  | 35 | 0.62        | 0.28 | 0.62  | 0.28 |
|      |    |     |    | 1 1/4 | 32 | 1 5/8   | 41 | 1 5/8   | 41 | 1 7/16 | 37 | 0.90        | 0.41 | 0.90  | 0.41 |
| 1    | 25 | 1/4 | 8  | 1     | 25 | 1 1/2   | 38 | 1 5/16  | 33 | 1 1/2  | 38 | 0.69        | 0.31 | 0.69  | 0.31 |
|      |    |     |    | 1/2   | 15 | 1 1/4   | 32 | 1 1/8   | 29 | 1 3/8  | 35 | 0.70        | 0.32 | 0.70  | 0.32 |
|      |    | 1/2 | 15 | 3/4   | 20 | 1 3/8   | 35 | 1 1/4   | 32 | 1 7/16 | 37 | 0.56        | 0.25 | 0.56  | 0.25 |
|      |    |     |    | 1     | 25 | 1 1/2   | 38 | 1 3/8   | 35 | 1 1/2  | 38 | 0.76        | 0.34 | 0.76  | 0.34 |
|      |    | 3/4 | 20 | 1/2   | 15 | 1 1/4   | 32 | 1 3/16  | 30 | 1 3/8  | 35 | 0.59        | 0.27 | 0.59  | 0.27 |
|      |    |     |    | 3/4   | 20 | 1 3/8   | 35 | 1 5/16  | 33 | 1 7/16 | 37 | 0.74        | 0.34 | 0.74  | 0.34 |
|      |    |     |    | 1     | 25 | 1 1/2   | 38 | 1 7/16  | 37 | 1 1/2  | 38 | 0.78        | 0.35 | 0.78  | 0.35 |
|      |    |     |    | 1/4   | 8  | 1 1/8   | 29 | 1 1/8   | 29 | 1 1/4  | 44 | 0.53        | 0.24 | 0.53  | 0.24 |
|      |    | 1   | 25 | 3/8   | 10 | 1 3/16  | 30 | 1 3/16  | 30 | 1 1/4  | 32 | 0.60        | 0.27 | 0.60  | 0.27 |
|      |    |     |    | 1/2   | 15 | 1 1/4   | 32 | 1 1/4   | 32 | 1 3/8  | 35 | 0.70        | 0.32 | 0.70  | 0.32 |
|      |    |     |    | 3/4   | 20 | 1 3/8   | 35 | 1 3/8   | 35 | 1 7/16 | 37 | 0.82        | 0.37 | 0.82  | 0.37 |
|      |    |     |    | 1 1/4 | 32 | 1 11/16 | 43 | 1 11/16 | 43 | 1 9/16 | 40 | 0.92        | 0.42 | 0.92  | 0.42 |
|      |    |     |    | 1 1/2 | 40 | 1 13/16 | 47 | 1 13/16 | 46 | 1 5/8  | 41 | 1.19        | 0.54 | 1.19  | 0.54 |
|      |    |     |    | 2     | 50 | 2       | 51 | 2       | 51 | 1 3/4  | 44 | 1.63        | 0.74 | 1.63  | 0.74 |

See additional sizes on following page.

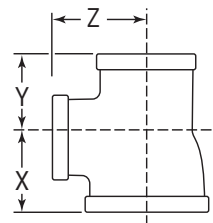
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.

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   |      |
| 1¼   | 32 | ½   | 15 | 1   | 25 | 1⅞ | 40 | 1⅜ | 35 | 1⅞   | 43   | 0.87        | 0.39 | 0.87  | 0.39 |      |
|      |    |     |    | 1¼  | 32 | 1¾ | 44 | 1⅞ | 40 | 1¾   | 44   | 1.04        | 0.47 | 1.04  | 0.47 |      |
|      | ¾  | 20  | ¾  | 20  | 1⅞ | 37 | 1⅝ | 33 | 1⅝ | 41   | 0.86 | 0.39        | 0.86 | 0.39  |      |      |
|      |    |     | 1  | 25  | 1⅞ | 40 | 1⅞ | 37 | 1⅞ | 43   | 0.91 | 0.41        | 0.91 | 0.41  |      |      |
|      |    |     | 1¼ | 32  | 1¾ | 44 | 1⅝ | 41 | 1¾ | 44   | 1.04 | 0.47        | 1.04 | 0.47  |      |      |
|      |    |     | 1  | 25  | ½  | 15 | 1⅜ | 35 | 1¼ | 32   | 1⅞   | 40          | 0.76 | 0.34  | 0.76 | 0.34 |
|      | ¾  | 20  |    |     | 1⅞ | 37 | 1⅜ | 35 | 1⅝ | 41   | 0.87 | 0.39        | 0.87 | 0.39  |      |      |
|      | 1  | 25  |    |     | 1⅞ | 40 | 1½ | 38 | 1⅞ | 43   | 1.11 | 0.50        | 1.11 | 0.50  |      |      |
|      | 1¼ | 32  |    |     | 1¾ | 44 | 1⅞ | 43 | 1¾ | 44   | 1.13 | 0.51        | 1.13 | 0.51  |      |      |
|      | 1¼ | 32  | ¾  | 10  | 1¼ | 32 | 1¼ | 32 | 1⅞ | 37   | 0.86 | 0.39        | 0.86 | 0.39  |      |      |
|      |    |     | ½  | 15  | 1⅜ | 35 | 1⅜ | 35 | 1⅞ | 40   | 0.98 | 0.44        | 0.98 | 0.44  |      |      |
|      |    |     | ¾  | 20  | 1⅞ | 37 | 1⅞ | 37 | 1⅝ | 41   | 1.07 | 0.49        | 1.07 | 0.49  |      |      |
|      |    |     | 1  | 25  | 1⅞ | 40 | 1⅞ | 40 | 1⅞ | 43   | 1.18 | 0.54        | 1.18 | 0.54  |      |      |
|      |    |     | 1½ | 40  | 1⅞ | 48 | 1⅞ | 48 | 1⅞ | 47   | 1.45 | 0.66        | 1.45 | 0.66  |      |      |
|      |    |     | 2  | 50  | 2⅞ | 54 | 2⅞ | 54 | 1⅞ | 48   | 1.70 | 0.77        | 1.70 | 0.77  |      |      |
|      |    |     | 1½ | 40  | ½  | 15 | 1½ | 40 | 1⅞ | 43   | 1⅞   | 49          | 1.33 | 0.60  | 1.33 | 0.60 |
|      |    |     |    |     | ¾  | 20 | 1½ | 38 | 1⅞ | 33   | 1¾   | 44          | 1.00 | 0.45  | 1.00 | 0.45 |
|      | 1½ | 40  |    |     | 1⅞ | 49 | 1¾ | 44 | 1⅞ | 49   | 1.41 | 0.64        | 1.41 | 0.64  |      |      |
|      | 1  | 25  |    |     | 1  | 25 | 1⅝ | 41 | 1½ | 38   | 1⅞   | 47          | 1.14 | 0.52  | 1.14 | 0.52 |
|      |    |     |    |     | 1¼ | 32 | 1⅞ | 47 | 1⅞ | 43   | 1⅞   | 48          | 1.30 | 0.59  | 1.30 | 0.59 |
| 1½   |    |     |    |     | 40 | 1⅞ | 49 | 1⅞ | 47 | 1⅞   | 49   | 1.50        | 0.68 | 1.50  | 0.68 |      |
| 1¼   |    |     |    |     | 32 | ½  | 15 | 1⅞ | 37 | 1⅜   | 35   | 1⅞          | 43   | 1.05  | 0.48 | 1.05 |
|      | ¾  | 20  |    |     |    | 1½ | 38 | 1⅞ | 37 | 1¾   | 44   | 1.08        | 0.49 | 1.08  | 0.49 |      |
|      | 1  | 25  | 1⅝ | 41  |    | 1⅞ | 40 | 1⅞ | 47 | 1.26 | 0.57 | 1.26        | 0.57 |       |      |      |
|      | 1¼ | 32  | 1⅞ | 47  |    | 1¾ | 44 | 1⅞ | 48 | 1.52 | 0.69 | 1.52        | 0.69 |       |      |      |
| 1½   | 40 | 1½  | 40 | 1⅞  | 49 | 1⅞ | 48 | 1⅞ | 49 | 1.50 | 0.68 | 1.50        | 0.68 |       |      |      |
|      |    | ½   | 15 | 1⅞  | 37 | 1⅞ | 37 | 1⅞ | 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 | 1⅞ | 47 | 1.45 | 0.66 | 1.45        | 0.66 |       |      |      |
| 1¼   | 32 | 1¼  | 32 | 1⅞  | 47 | 1⅞ | 47 | 1⅞ | 48 | 1.45 | 0.66 | 1.45        | 0.66 |       |      |      |
|      |    | 2   | 50 | 2⅞  | 56 | 2⅞ | 56 | 2  | 51 | 1.86 | 0.84 | 1.86        | 0.84 |       |      |      |

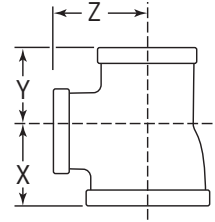
See additional sizes on previous and following page.

**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.  
All Elbows & Tees ¾" (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 |       |       |       |      |
|--------|-----|--------|-----|--------|-----|---------|-------|---------|-------|---------|-------------|-------|-------|-------|------|
| NPS DN |     | NPS DN |     | NPS DN |     | in mm   | in mm | in mm   | in mm | in mm   | Black       |       | Galv. |       |      |
|        |     |        |     |        |     |         |       |         |       |         | lbs         | kg    | lbs   | kg    |      |
| 2      | 50  | 1/2    | 15  | 2      | 50  | 2 1/4   | 57    | 1 7/8   | 48    | 2 1/4   | 57          | 2.15  | 0.98  | 2.15  | 0.98 |
|        |     | 3/4    | 20  | 2      | 50  | 2 1/4   | 57    | 1 5/16  | 49    | 2 1/4   | 57          | 2.00  | 0.91  | 2.00  | 0.91 |
|        |     | 1      | 25  | 2      | 50  | 2 1/4   | 57    | 2       | 51    | 2 1/4   | 57          | 2.14  | 0.97  | 2.14  | 0.97 |
|        |     | 1 1/4  | 32  | 1 1/4  | 32  | 1 7/8   | 48    | 1 3/4   | 44    | 2 1/8   | 54          | 1.72  | 0.78  | 1.72  | 0.78 |
|        |     |        |     | 1 1/2  | 40  | 2       | 51    | 1 7/8   | 48    | 2 3/16  | 56          | 1.85  | 0.84  | 1.85  | 0.84 |
|        |     | 1 1/2  | 40  | 2      | 50  | 2 1/4   | 57    | 2 1/8   | 54    | 2 1/4   | 57          | 2.20  | 1.00  | 2.20  | 1.00 |
|        |     |        |     | 1      | 25  | 1 3/4   | 44    | 1 5/8   | 41    | 2       | 51          | 1.57  | 0.71  | 1.57  | 0.71 |
|        |     |        |     | 1 1/4  | 32  | 1 7/8   | 48    | 1 13/16 | 47    | 2 1/8   | 54          | 1.76  | 0.80  | 1.76  | 0.80 |
|        |     |        |     | 1 1/2  | 40  | 2       | 51    | 1 5/16  | 49    | 2 3/16  | 56          | 1.95  | 0.88  | 1.95  | 0.88 |
|        |     |        |     | 2      | 50  | 2 1/4   | 57    | 2 3/16  | 56    | 2 1/4   | 57          | 2.24  | 1.02  | 2.24  | 1.02 |
|        |     | 2      | 50  | 1/2    | 15  | 1 1/2   | 38    | 1 1/2   | 38    | 1 7/8   | 48          | 1.65  | 0.75  | 1.65  | 0.75 |
|        |     |        |     | 3/4    | 20  | 1 5/8   | 41    | 1 5/8   | 41    | 2       | 51          | 1.87  | 0.85  | 1.87  | 0.85 |
|        |     |        |     | 1      | 25  | 1 3/4   | 44    | 1 3/4   | 44    | 2       | 51          | 1.76  | 0.80  | 1.76  | 0.80 |
|        |     |        |     | 1 1/4  | 32  | 1 7/8   | 48    | 1 7/8   | 48    | 2 1/8   | 54          | 2.35  | 1.07  | 2.35  | 1.07 |
|        |     |        |     | 1 1/2  | 40  | 2       | 51    | 2       | 51    | 2 3/16  | 56          | 2.55  | 1.16  | 2.55  | 1.16 |
|        |     |        |     | 2 1/2  | 65  | 2 5/8   | 67    | 2 5/8   | 67    | 2 3/8   | 60          | 3.50  | 1.59  | 3.50  | 1.59 |
| 2 1/2  | 65  | 1 1/2  | 40  | 2      | 50  | 2 3/8   | 60    | 2 3/16  | 56    | 2 3/8   | 67          | 3.43  | 1.56  | 3.43  | 1.56 |
|        |     |        |     | 2 1/2  | 65  | 2 11/16 | 68    | 2 1/2   | 64    | 2 11/16 | 68          | 3.80  | 1.72  | 3.80  | 1.72 |
|        |     | 2      | 50  | 2      | 50  | 2 3/8   | 60    | 2 1/4   | 57    | 2 5/8   | 67          | 3.28  | 1.49  | 3.28  | 1.49 |
|        |     |        |     | 2 1/2  | 65  | 2 11/16 | 68    | 2 5/8   | 67    | 2 11/16 | 68          | 4.10  | 1.86  | 4.10  | 1.86 |
|        |     | 2 1/2  | 65  | 3/4    | 20  | 1 3/4   | 44    | 1 3/4   | 44    | 2 5/16  | 59          | 2.72  | 1.23  | 2.72  | 1.23 |
|        |     |        |     | 1      | 25  | 1 7/8   | 48    | 1 7/8   | 48    | 2 3/8   | 60          | 2.85  | 1.29  | 2.85  | 1.29 |
|        |     |        |     | 1 1/4  | 32  | 2 1/16  | 52    | 2 1/16  | 52    | 2 7/16  | 62          | 3.36  | 1.52  | 3.36  | 1.52 |
|        |     |        |     | 1 1/2  | 40  | 2 3/16  | 56    | 2 3/16  | 56    | 2 1/2   | 64          | 3.46  | 1.57  | 3.46  | 1.57 |
|        |     |        |     | 2      | 50  | 2 3/8   | 60    | 2 3/8   | 60    | 2 5/8   | 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  | 2 1/2   | 64    | 2 1/4   | 57    | 2 7/8   | 73          | 4.50  | 2.04  | 4.50  | 2.04 |
|        |     |        |     | 3      | 80  | 3 1/8   | 79    | 2 7/8   | 73    | 3 1/8   | 79          | 5.80  | 2.63  | 5.80  | 2.63 |
|        |     | 2 1/2  | 65  | 2      | 50  | 2 1/2   | 64    | 2 3/8   | 60    | 2 7/8   | 73          | 4.80  | 2.18  | 4.80  | 2.18 |
|        |     |        |     | 2 1/2  | 65  | 2 13/16 | 73    | 2 11/16 | 68    | 3       | 76          | 5.80  | 2.63  | 5.80  | 2.63 |
|        |     | 3      | 80  | 3/4    | 20  | 1 7/8   | 48    | 1 7/8   | 48    | 2 5/8   | 67          | 4.03  | 1.83  | 4.03  | 1.83 |
|        |     |        |     | 1      | 25  | 2       | 51    | 2       | 51    | 2 5/8   | 67          | 4.13  | 1.87  | 4.13  | 1.87 |
|        |     |        |     | 1 1/4  | 32  | 2 3/16  | 56    | 2 3/16  | 56    | 2 3/4   | 70          | 4.50  | 2.04  | 4.50  | 2.04 |
|        |     |        |     | 1 1/2  | 40  | 2 5/16  | 59    | 2 5/16  | 59    | 2 13/16 | 73          | 5.18  | 2.35  | 5.18  | 2.35 |
|        |     |        |     | 2      | 50  | 2 1/2   | 64    | 2 1/2   | 64    | 2 7/8   | 73          | 5.70  | 2.59  | 5.70  | 2.59 |
|        |     |        |     | 2 1/2  | 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    | 3 5/8   | 92    | 3 13/16 | 98          | 10.40 | 4.72  | 10.40 | 4.72 |
|        |     | 4      | 100 | 1 1/2  | 40  | 2 1/2   | 65    | 2 1/2   | 65    | 3 3/8   | 86          | 7.47  | 3.39  | 7.47  | 3.39 |
|        |     |        |     | 2      | 50  | 2 3/4   | 70    | 2 3/4   | 70    | 3 7/16  | 87          | 8.39  | 3.80  | 8.39  | 3.80 |
|        |     |        |     | 2 1/2  | 65  | 3 1/16  | 78    | 3 1/16  | 78    | 3 1/2   | 89          | 9.60  | 4.35  | 9.60  | 4.35 |
|        |     |        |     | 3      | 80  | 3 5/16  | 84    | 3 5/16  | 84    | 3 5/8   | 92          | 11.02 | 5.00  | 11.02 | 5.00 |

See additional sizes on previous page.

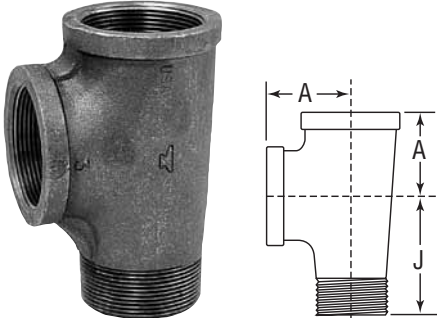
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.

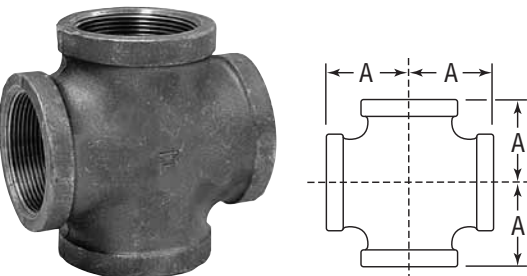
All Elbows & Tees 3/8" (10 DN) and Larger are 100% Gas Tested at a Minimum of 100 PSI. (6.9 bar)

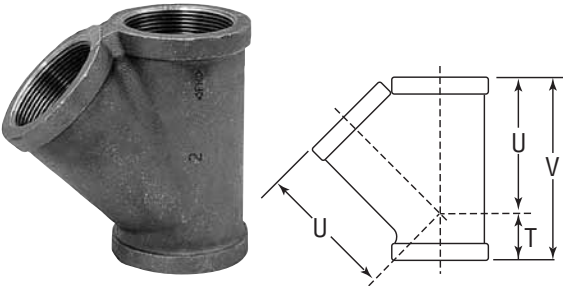
# MALLEABLE IRON

## Malleable Iron

Class 150 (Standard)

| <b>FIGURE 1106 (Straight)<br/>FIGURE 1106R (Reducing)</b><br>Street or Service Tee | Size                                      |              | A       |    | J       |    | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------|-------------------------------------------|--------------|---------|----|---------|----|-------------|------|-------|------|
|                                                                                    |                                           |              |         |    |         |    | Black       |      | Galv. |      |
|                                                                                    | NPS                                       | DN           | in      | mm | in      | mm | lbs         | kg   | lbs   | kg   |
|                                                                                    |                                           |              |         |    |         |    |             |      |       |      |
|   | 1/4                                       | 8            | 1 3/16  | 30 | 1 3/16  | 30 | 0.15        | 0.07 | 0.15  | 0.07 |
|                                                                                    | 3/8                                       | 10           | 1 5/16  | 33 | 1 7/16  | 37 | 0.24        | 0.11 | 0.24  | 0.11 |
|                                                                                    | 1/2                                       | 15           | 1 1/8   | 29 | 1 5/8   | 41 | 0.34        | 0.15 | 0.34  | 0.15 |
|                                                                                    | 3/4                                       | 20           | 1 5/16  | 33 | 1 7/8   | 48 | 0.61        | 0.28 | 0.61  | 0.28 |
|                                                                                    | 1                                         | 25           | 1 1/2   | 38 | 2 1/8   | 54 | 0.96        | 0.44 | 0.96  | 0.44 |
|                                                                                    | 1 1/4                                     | 32           | 1 3/4   | 44 | 2 7/16  | 62 | 1.39        | 0.63 | 1.39  | 0.63 |
|                                                                                    | 1 1/2                                     | 40           | 1 15/16 | 49 | 2 11/16 | 68 | 1.93        | 0.88 | 1.93  | 0.88 |
|                                                                                    | 2                                         | 50           | 2 1/4   | 57 | 3 1/4   | 83 | 3.16        | 1.43 | 3.16  | 1.43 |
|                                                                                    | Size<br>female run x<br>male run x outlet |              | Run     |    | Outlet  |    | Unit Weight |      |       |      |
|                                                                                    | NPS                                       | DN           | in      | mm | in      | mm | in          | mm   | lbs   | kg   |
|                                                                                    | 1 1/4 x 1 x 1 1/4                         | 32 x 25 x 32 | 1 3/4   | 44 | 2 5/16  | 59 | 1 3/4       | 44   | 1.34  | 0.61 |

| <b>FIGURE 1107</b><br>Cross                                                         | Size  |     | A       |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|-------|-----|---------|----|-------------|------|-------|------|
|                                                                                     |       |     |         |    | Black       |      | Galv. |      |
|                                                                                     | NPS   | DN  | in      | mm | lbs         | kg   | lbs   | kg   |
|                                                                                     |       |     |         |    |             |      |       |      |
|  | 1/8   | 6   | 1 1/16  | 17 | 0.12        | 0.05 | 0.12  | 0.05 |
|                                                                                     | 1/4   | 8   | 1 3/16  | 22 | 0.18        | 0.08 | 0.18  | 0.08 |
|                                                                                     | 3/8   | 10  | 1 5/16  | 24 | 0.28        | 0.13 | 0.28  | 0.13 |
|                                                                                     | 1/2   | 15  | 1 1/8   | 29 | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                     | 3/4   | 20  | 1 5/16  | 33 | 0.69        | 0.31 | 0.69  | 0.31 |
|                                                                                     | 1     | 25  | 1 1/2   | 38 | 1.12        | 0.51 | 1.12  | 0.51 |
|                                                                                     | 1 1/4 | 32  | 1 3/4   | 44 | 1.44        | 0.65 | 1.44  | 0.65 |
|                                                                                     | 1 1/2 | 40  | 1 15/16 | 49 | 1.98        | 0.90 | 1.98  | 0.90 |
|                                                                                     | 2     | 50  | 2 1/4   | 57 | 3.30        | 1.50 | 3.30  | 1.50 |
|                                                                                     | 2 1/2 | 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 |

| <b>FIGURE 1108</b><br>45° Y-Branch or Lateral                                       | Size  |     | T       |    | U       |     | V       |     | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|-------|-----|---------|----|---------|-----|---------|-----|-------------|------|-------|------|
|                                                                                     |       |     |         |    |         |     |         |     | Black       |      | Galv. |      |
|                                                                                     | NPS   | DN  | in      | mm | in      | mm  | in      | mm  | lbs         | kg   | lbs   | kg   |
|                                                                                     |       |     |         |    |         |     |         |     |             |      |       |      |
|  | 3/8   | 10  | 1/2     | 13 | 1 7/16  | 37  | 1 15/16 | 49  | 0.27        | 0.12 | 0.27  | 0.12 |
|                                                                                     | 1/2   | 15  | 5/8     | 16 | 1 11/16 | 43  | 2 5/16  | 59  | 0.37        | 0.17 | 0.37  | 0.17 |
|                                                                                     | 3/4   | 20  | 3/4     | 19 | 2 1/16  | 52  | 2 3/16  | 73  | 0.62        | 0.28 | 0.62  | 0.28 |
|                                                                                     | 1     | 25  | 7/8     | 22 | 2 7/16  | 62  | 3 5/16  | 84  | 0.86        | 0.39 | 0.86  | 0.39 |
|                                                                                     | 1 1/4 | 32  | 1       | 25 | 2 15/16 | 75  | 3 15/16 | 100 | 1.63        | 0.74 | 1.63  | 0.74 |
|                                                                                     | 1 1/2 | 40  | 1 1/8   | 29 | 3 1/4   | 83  | 4 3/8   | 111 | 2.00        | 0.91 | 2.00  | 0.91 |
|                                                                                     | 2     | 50  | 1 1/4   | 32 | 3 15/16 | 100 | 5 3/16  | 132 | 3.05        | 1.38 | 3.05  | 1.38 |
|                                                                                     | 2 1/2 | 65  | 1 1/2   | 38 | 4 3/4   | 121 | 6 1/4   | 159 | 5.86        | 2.66 | 5.86  | 2.66 |
|                                                                                     | 3     | 80  | 1 11/16 | 43 | 5 5/16  | 141 | 7 1/4   | 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 |

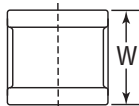
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.

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)

| <b>FIGURE 1119</b><br>Return Bends<br>Open Pattern, R.H.                          | Size  |    | Center to Center |     | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|-------|----|------------------|-----|-------------|------|-------|------|
|                                                                                   |       |    |                  |     | Black       |      | Galv. |      |
|                                                                                   | NPS   | DN | in               | mm  | lbs         | kg   | lbs   | kg   |
|  | 1/2   | 15 | 1 1/2            | 38  | 0.36        | 0.16 | —     | —    |
|                                                                                   | 3/4   | 20 | 2                | 51  | 0.64        | 0.29 | —     | —    |
|                                                                                   | 1     | 25 | 2 1/2            | 64  | 1.10        | 0.50 | 1.10  | 0.50 |
|                                                                                   | 1 1/4 | 32 | 3                | 76  | 1.77        | 0.80 | —     | —    |
|                                                                                   | 1 1/2 | 40 | 3 1/2            | 90  | 2.55        | 1.16 | 2.55  | 1.16 |
|                                                                                   | 2     | 50 | 4                | 102 | 4.00        | 1.81 | 4.00  | 1.81 |

| <b>FIGURE 1121</b><br>Coupling                                                                                                                                            | Size  |     | W       |    | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|---------|----|-------------|------|-------|------|
|                                                                                                                                                                           |       |     |         |    | Black       |      | Galv. |      |
|                                                                                                                                                                           | NPS   | DN  | in      | mm | lbs         | kg   | lbs   | kg   |
| <br> | 1/8*  | 6   | 15/16   | 24 | 0.06        | 0.03 | 0.06  | 0.03 |
|                                                                                                                                                                           | 1/4   | 8   | 1 1/16  | 27 | 0.09        | 0.04 | 0.09  | 0.04 |
|                                                                                                                                                                           | 3/8   | 10  | 1 3/16  | 30 | 0.13        | 0.06 | 0.13  | 0.06 |
|                                                                                                                                                                           | 1/2   | 15  | 1 5/16  | 33 | 0.20        | 0.09 | 0.20  | 0.09 |
|                                                                                                                                                                           | 3/4   | 20  | 1 1/2   | 38 | 0.30        | 0.14 | 0.30  | 0.14 |
|                                                                                                                                                                           | 1     | 25  | 1 11/16 | 43 | 0.48        | 0.22 | 0.48  | 0.22 |
|                                                                                                                                                                           | 1 1/4 | 32  | 1 15/16 | 49 | 0.75        | 0.34 | 0.75  | 0.34 |
|                                                                                                                                                                           | 1 1/2 | 40  | 2 1/8   | 54 | 1.00        | 0.45 | 1.00  | 0.45 |
|                                                                                                                                                                           | 2     | 50  | 2 1/2   | 64 | 1.45        | 0.66 | 1.45  | 0.66 |
|                                                                                                                                                                           | 2 1/2 | 65  | 2 7/8   | 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 |

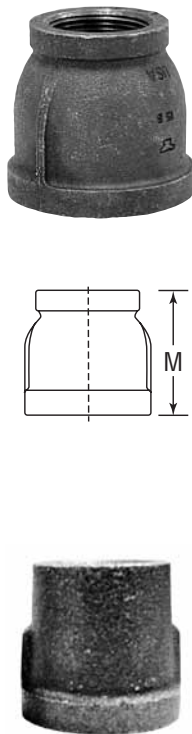
\* Offered in steel only.

| <b>FIGURE 1124</b><br>Cap                                                           | Size  |     | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|-------|-----|-------------|------|-------|------|
|                                                                                     |       |     | Black       |      | Galv. |      |
|                                                                                     | NPS   | DN  | lbs         | kg   | lbs   | kg   |
|  | 1/2   | 15  | 0.12        | 0.05 | 0.12  | 0.05 |
|                                                                                     | 3/4   | 20  | 0.22        | 0.10 | 0.22  | 0.10 |
|                                                                                     | 1     | 25  | 0.38        | 0.17 | 0.38  | 0.17 |
|                                                                                     | 1 1/4 | 32  | 0.58        | 0.26 | 0.58  | 0.26 |
|                                                                                     | 1 1/2 | 40  | 0.73        | 0.33 | 0.73  | 0.33 |
|                                                                                     | 2     | 50  | 1.13        | 0.51 | 1.13  | 0.51 |
|                                                                                     | 2 1/2 | 65  | 1.75        | 0.79 | 1.75  | 0.79 |
|                                                                                     | 3     | 80  | 2.62        | 1.19 | 2.62  | 1.19 |
|                                                                                     | 3 1/2 | 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 17 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

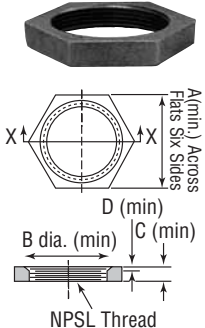
### Class 150 (Standard)

| FIGURE 1125<br>Reducer                                                                                                                                                    | Size  |     |       |     | M       |     | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-------|-----|---------|-----|-------------|------|-------|------|
|                                                                                                                                                                           |       |     |       |     |         |     | Black       |      | Galv. |      |
|                                                                                                                                                                           | NPS   | DN  | NPS   | DN  | in      | mm  | lbs         | kg   | lbs   | kg   |
|  <p>* Sizes 1/2 x 1/4, 3/4 x 1/2 and 1 x 3/4 do not have bands at the reducing end.</p> | 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 17 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)

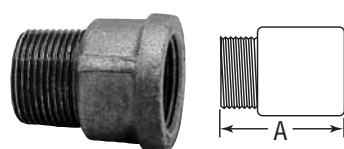
| FIGURE 1134<br>Hex Locknut                                                                                                                                                                           | Size |    | Minimum Dimensions |    |       |    |      |    |      |    | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----|--------------------|----|-------|----|------|----|------|----|-------------|------|-------|------|
|                                                                                                                                                                                                      |      |    | A                  |    | B     |    | C    |    | D    |    | Black       |      | Galv. |      |
|                                                                                                                                                                                                      | NPS  | DN | in                 | mm | in    | mm | in   | mm | in   | mm | lbs         | kg   | lbs   | kg   |
|  <p>For additional sizes larger than 2" (50 DN) see Cast Iron page 52.<br/>Not to be used for pressure service.</p> | • 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<br>Floor Flange (Ductile Iron)                                          | Size |    | Dia. of<br>Flange |     | Diameter of<br>Bolt Circle |     | No. of<br>Holes | Dia. of<br>Holes |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|----|-------------------|-----|----------------------------|-----|-----------------|------------------|----|-------------|------|-------|------|
|                                                                                     |      |    |                   |     |                            |     |                 |                  |    | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN | in                | mm  | in                         | mm  |                 | in               | mm | lbs         | kg   | lbs   | kg   |
|  | ¼    | 8  | 2¾                | 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               | ⅝                | 8  | 1.20        | 0.54 | 1.20  | 0.54 |
|                                                                                     | 2    | 50 | 5½                | 140 | 4¼                         | 108 | 4               | ⅝                | 8  | 2.03        | 0.92 | 2.03  | 0.92 |

Structural use only.

| FIGURE 1133<br>Waste Nut                                                                                                        | Size |    | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------|------|----|-------------|------|-------|------|
|                                                                                                                                 |      |    | Black       |      | Galv. |      |
|                                                                                                                                 | NPS  | DN | lbs         | kg   | lbs   | kg   |
|  <p>Not to be used for pressure service.</p> | ½    | 15 | 0.12        | 0.05 | —     | —    |
|                                                                                                                                 | ¾    | 20 | 0.15        | 0.07 | 0.15  | 0.07 |

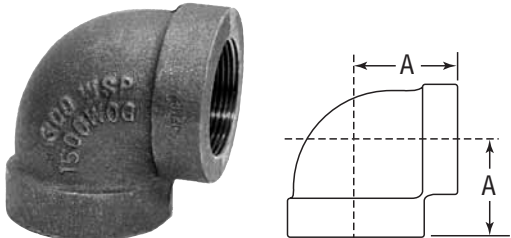
| FIGURE 1138<br>Extension Piece                                                      | Size |    | A  |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|----|----|----|-------------|------|-------|------|
|                                                                                     |      |    |    |    | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN | in | mm | lbs         | kg   | lbs   | kg   |
|  | ½    | 15 | 1⅝ | 41 | 0.19        | 0.09 | 0.19  | 0.09 |
|                                                                                     | ¾    | 20 | 1⅞ | 49 | 0.35        | 0.16 | 0.35  | 0.16 |
|                                                                                     | 1    | 25 | 2⅞ | 52 | 0.48        | 0.22 | 0.48  | 0.22 |

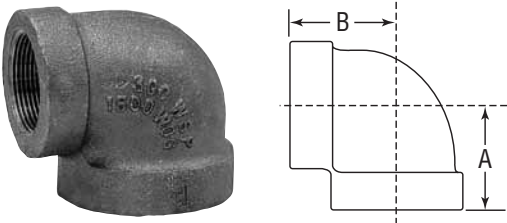
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.  
All Elbows & Tees ⅜" (10 DN) and Larger are 100% Gas Tested at a Minimum of 100 PSI. (6.9 bar)

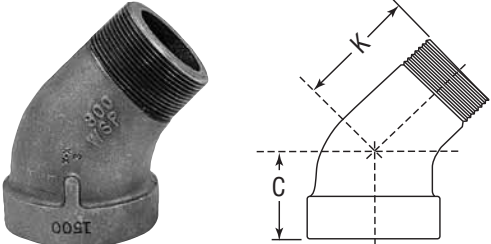
# MALLEABLE IRON

## Malleable Iron

Class 300 (XS / XH)

| <b>FIGURE 1161</b><br><b>90° Elbow Straight</b>                                   | Size  |     | A       |     | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|-------|-----|---------|-----|-------------|------|-------|------|
|                                                                                   |       |     |         |     | Black       |      | Galv. |      |
|                                                                                   | NPS   | DN  | in      | mm  | lbs         | kg   | lbs   | kg   |
|  | 1/4   | 8   | 1 5/16  | 24  | 0.20        | 0.09 | 0.20  | 0.09 |
|                                                                                   | 3/8   | 10  | 1 1/16  | 27  | 0.29        | 0.13 | 0.29  | 0.13 |
|                                                                                   | 1/2   | 15  | 1 1/4   | 32  | 0.47        | 0.21 | 0.47  | 0.21 |
|                                                                                   | 3/4   | 20  | 1 7/16  | 37  | 0.66        | 0.30 | 0.66  | 0.30 |
|                                                                                   | 1     | 25  | 1 5/8   | 41  | 1.15        | 0.52 | 1.15  | 0.52 |
|                                                                                   | 1 1/4 | 32  | 1 15/16 | 49  | 1.88        | 0.85 | 1.88  | 0.85 |
|                                                                                   | 1 1/2 | 40  | 2 1/8   | 54  | 2.47        | 1.12 | 2.47  | 1.12 |
|                                                                                   | 2     | 50  | 2 1/2   | 64  | 3.85        | 1.75 | 3.85  | 1.75 |
|                                                                                   | 2 1/2 | 65  | 2 15/16 | 75  | 5.80        | 2.63 | 5.80  | 2.63 |
|                                                                                   | 3     | 80  | 3 3/8   | 86  | 9.95        | 4.51 | 9.95  | 4.51 |
|                                                                                   | 4     | 100 | 4 1/2   | 114 | 16.00       | 7.26 | 16.00 | 7.26 |

| <b>FIGURE 1161R</b><br><b>90° Reducing Elbow</b>                                    | Size          |         | A      |    | B      |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|---------------|---------|--------|----|--------|----|-------------|------|-------|------|
|                                                                                     |               |         |        |    |        |    | Black       |      | Galv. |      |
|                                                                                     | NPS           | DN      | in     | mm | in     | mm | lbs         | kg   | lbs   | kg   |
|  | 3/8 x 1/4     | 10 x 8  | 1      | 25 | 1      | 25 | 0.26        | 0.12 | —     | —    |
|                                                                                     | 1/2 x 3/8     | 15 x 10 | 1 3/16 | 30 | 1 3/16 | 30 | 0.41        | 0.19 | —     | —    |
|                                                                                     | 3/4 x 1/2     | 20 x 15 | 1 5/16 | 33 | 1 3/8  | 35 | 0.62        | 0.28 | 0.62  | 0.28 |
|                                                                                     | 1 x 1/2       | 25 x 15 | 1 7/16 | 37 | 1 1/2  | 38 | 0.87        | 0.39 | —     | —    |
|                                                                                     | 1 x 3/4       | 25 x 20 | 1 1/2  | 38 | 1 9/16 | 40 | 1.00        | 0.45 | 1.00  | .45  |
|                                                                                     | 1 1/4 x 3/4   | 32 x 20 | 1 5/8  | 41 | 1 3/4  | 44 | 1.41        | 0.64 | —     | —    |
|                                                                                     | 1 1/4 x 1     | 32 x 25 | 1 3/4  | 44 | 1 7/8  | 47 | 1.60        | 0.73 | —     | —    |
|                                                                                     | 1 1/2 x 1     | 40 x 25 | 1 7/8  | 47 | 2      | 51 | 1.89        | 0.86 | —     | —    |
|                                                                                     | 1 1/2 x 1 1/4 | 40 x 32 | 2      | 51 | 2 1/16 | 52 | 2.15        | 0.98 | —     | —    |
|                                                                                     | 2 x 1 1/4     | 50 x 32 | 2 1/8  | 54 | 2 5/16 | 59 | 3.12        | 1.41 | 3.12  | 1.41 |
|                                                                                     | 2 x 1 1/2     | 50 x 40 | 2 1/4  | 57 | 2 3/8  | 60 | 3.30        | 1.50 | —     | —    |

| <b>FIGURE 1160</b><br><b>45° Street Elbow</b>                                       | Size  |    | C       |    | K       |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|----|---------|----|---------|----|-------------|------|
|                                                                                     |       |    |         |    |         |    | Black       |      |
|                                                                                     | NPS   | DN | in      | mm | in      | mm | lbs         | kg   |
|  | 1/2   | 15 | 1       | 25 | 1 3/8   | 35 | 0.36        | 0.16 |
|                                                                                     | 3/4   | 20 | 1 1/8   | 29 | 1 9/16  | 40 | 0.54        | 0.24 |
|                                                                                     | 1     | 25 | 1 5/16  | 33 | 1 13/16 | 47 | 0.85        | 0.39 |
|                                                                                     | 1 1/4 | 32 | 1 1/2   | 38 | 2 1/8   | 54 | 1.50        | 0.68 |
|                                                                                     | 1 1/2 | 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 17 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 300 (XS / XH)

Malleable Iron

Cast Iron

Small Steel Fittings

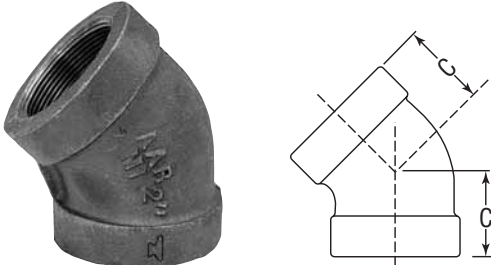
Pipe Nipples & Pipe Couplings

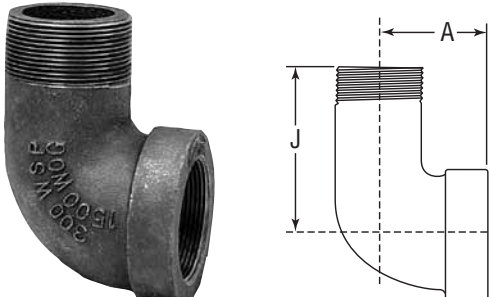
Forged Steel Fittings & Unions

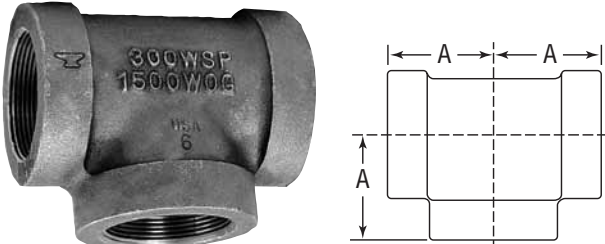
Anvils

Catawissa

J.B. Smith Products

| <b>FIGURE 1162</b><br>45° Elbow                                                   | Size  |     | C       |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|-------|-----|---------|----|-------------|------|-------|------|
|                                                                                   |       |     |         |    | Black       |      | Galv. |      |
|                                                                                   | NPS   | DN  | in      | mm | lbs         | kg   | lbs   | kg   |
|  | 1/4   | 8   | 13/16   | 22 | 0.19        | 0.09 | 0.19  | 0.09 |
|                                                                                   | 3/8   | 10  | 7/8     | 22 | 0.28        | 0.13 | 0.28  | 0.13 |
|                                                                                   | 1/2   | 15  | 1       | 25 | 0.43        | 0.20 | 0.43  | 0.20 |
|                                                                                   | 3/4   | 20  | 1 1/8   | 29 | 0.66        | 0.30 | 0.66  | 0.30 |
|                                                                                   | 1     | 25  | 1 5/16  | 33 | 1.00        | 0.45 | 1.00  | 0.45 |
|                                                                                   | 1 1/4 | 32  | 1 1/2   | 38 | 1.67        | 0.76 | 1.67  | 0.76 |
|                                                                                   | 1 1/2 | 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 |
|                                                                                   | 2 1/2 | 65  | 2 1/4   | 57 | 5.51        | 2.50 | 5.51  | 2.50 |
|                                                                                   | 3     | 80  | 2 1/2   | 64 | 8.10        | 3.67 | 8.10  | 3.67 |
|                                                                                   | 4     | 100 | 2 13/16 | 73 | 13.41       | 6.08 | 13.41 | 6.08 |

| <b>FIGURE 1170</b><br>90° Street Elbow                                             | Size  |    | A       |    | J       |     | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------|-------|----|---------|----|---------|-----|-------------|------|-------|------|
|                                                                                    |       |    |         |    |         |     | Black       |      | Galv. |      |
|                                                                                    | NPS   | DN | in      | mm | in      | mm  | lbs         | kg   | lbs   | kg   |
|  | 1/4   | 8  | 15/16   | 24 | 1 7/16  | 37  | 0.17        | 0.08 | 0.17  | 0.08 |
|                                                                                    | 3/8   | 10 | 1 1/16  | 27 | 1 5/8   | 41  | 0.26        | 0.12 | 0.26  | 0.12 |
|                                                                                    | 1/2   | 15 | 1 1/4   | 32 | 2       | 51  | 0.40        | 0.18 | 0.40  | 0.18 |
|                                                                                    | 3/4   | 20 | 1 7/16  | 37 | 2 3/16  | 56  | 0.68        | 0.31 | 0.68  | 0.31 |
|                                                                                    | 1     | 25 | 1 5/8   | 41 | 2 9/16  | 65  | 1.04        | 0.47 | 1.04  | 0.47 |
|                                                                                    | 1 1/4 | 32 | 1 15/16 | 49 | 2 7/8   | 73  | 1.60        | 0.73 | 1.60  | 0.73 |
|                                                                                    | 1 1/2 | 40 | 2 1/8   | 54 | 3 1/8   | 79  | 2.20        | 1.00 | 2.20  | 1.00 |
|                                                                                    | 2     | 50 | 2 1/2   | 64 | 3 11/16 | 94  | 3.59        | 1.63 | 3.59  | 1.63 |
|                                                                                    | 3     | 80 | 3 3/8   | 86 | 5 1/8   | 130 | 9.55        | 4.33 | —     | —    |

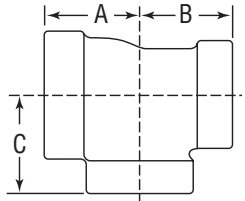
| <b>FIGURE 1164</b><br>Straight Tee                                                  | Size  |     | Center to End A |     | Unit Weight |       |       |       |
|-------------------------------------------------------------------------------------|-------|-----|-----------------|-----|-------------|-------|-------|-------|
|                                                                                     |       |     |                 |     | Black       |       | Galv. |       |
|                                                                                     | NPS   | DN  | in              | mm  | lbs         | kg    | lbs   | kg    |
|  | 1/4   | 8   | 1 5/16          | 33  | 0.27        | 0.12  | 0.27  | 0.12  |
|                                                                                     | 3/8   | 10  | 1 1/16          | 27  | 0.42        | 0.19  | 0.42  | 0.19  |
|                                                                                     | 1/2   | 15  | 1 1/4           | 32  | 0.65        | 0.29  | 0.65  | 0.29  |
|                                                                                     | 3/4   | 20  | 1 7/16          | 37  | 1.07        | 0.49  | 1.07  | 0.49  |
|                                                                                     | 1     | 25  | 1 5/8           | 41  | 1.62        | 0.73  | 1.62  | 0.73  |
|                                                                                     | 1 1/4 | 32  | 1 15/16         | 49  | 2.49        | 1.13  | 2.49  | 1.13  |
|                                                                                     | 1 1/2 | 40  | 2 1/8           | 54  | 3.40        | 1.54  | 3.40  | 1.54  |
|                                                                                     | 2     | 50  | 2 1/2           | 64  | 5.20        | 2.36  | 5.20  | 2.36  |
|                                                                                     | 2 1/2 | 65  | 2 15/16         | 75  | 7.87        | 3.57  | 7.87  | 3.57  |
|                                                                                     | 3     | 80  | 3 3/8           | 86  | 12.46       | 5.65  | 12.46 | 5.65  |
|                                                                                     | 4     | 100 | 4 1/2           | 114 | 24.02       | 10.89 | 24.02 | 10.89 |

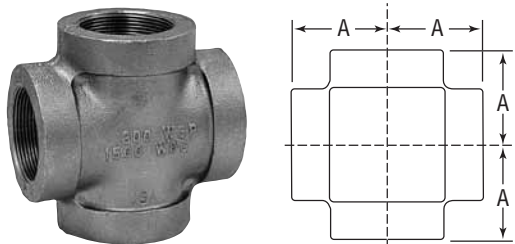
**Note:** See page 17 for pressure-temperature ratings. Galvanized weights may vary. Please contact your Anvil Representative if you need verification.  
All Elbows & Tees 3/8" (10 DN) and Larger are 100% Gas Tested at a Minimum of 100 PSI. (6.9 bar)

# MALLEABLE IRON

## Malleable Iron

Class 300 (XS / XH)

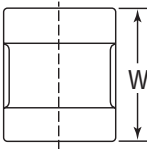
| FIGURE 1164R<br>Reducing Tee                                                                                                                                        | Size  |    |       |    |       |    | Center to End |    |         |    | Unit Weight |    |      |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|-------|----|-------|----|---------------|----|---------|----|-------------|----|------|------|
|                                                                                                                                                                     |       |    |       |    |       |    | A             |    | B       |    | C           |    |      |      |
|                                                                                                                                                                     | NPS   | DN | NPS   | DN | NPS   | DN | in            | mm | in      | mm | in          | mm | lbs  | kg   |
|   | 3/8   | 10 | 3/8   | 10 | 1/4   | 8  | 1             | 25 | 1       | 25 | 1           | 25 | 0.37 | 0.17 |
|                                                                                                                                                                     | 1/2   | 15 | 1/2   | 15 | 1/4   | 8  | 1 1/16        | 27 | 1 1/16  | 27 | 1 1/8       | 29 | 0.48 | 0.22 |
|                                                                                                                                                                     |       |    |       |    | 3/8   | 10 | 1 3/16        | 30 | 1 3/16  | 30 | 1 3/16      | 30 | 0.61 | 0.28 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 3/8         | 35 | 1 3/8   | 35 | 1 5/16      | 33 | 0.80 | 0.36 |
|                                                                                                                                                                     | 3/4   | 20 | 1/2   | 15 | 1/2   | 15 | 1 5/16        | 33 | 1 1/4   | 32 | 1 3/8       | 35 | 0.78 | 0.35 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 7/16        | 37 | 1 3/8   | 35 | 1 7/16      | 37 | 0.93 | 0.42 |
|                                                                                                                                                                     |       | 20 | 3/4   | 20 | 1/4   | 8  | 1 3/16        | 30 | 1 3/16  | 30 | 1 1/4       | 32 | 0.76 | 0.34 |
|                                                                                                                                                                     |       |    |       |    | 3/8   | 10 | 1 1/4         | 32 | 1 1/4   | 32 | 1 5/16      | 33 | 0.80 | 0.36 |
|                                                                                                                                                                     |       |    |       |    | 1/2   | 15 | 1 5/16        | 33 | 1 5/16  | 33 | 1 3/8       | 35 | 0.90 | 0.41 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 1 5/8         | 41 | 1 5/8   | 41 | 1 5/8       | 41 | 1.36 | 0.62 |
|                                                                                                                                                                     | 1     | 25 | 3/4   | 20 | 3/4   | 20 | 1 1/2         | 38 | 1 7/16  | 37 | 1 5/8       | 40 | 1.27 | 0.58 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 1 5/8         | 41 | 1 7/16  | 40 | 1 5/8       | 41 | 1.38 | 0.63 |
|                                                                                                                                                                     |       | 25 | 1     | 25 | 1/4   | 8  | 1 1/4         | 32 | 1 1/4   | 32 | 1 3/8       | 35 | 1.09 | 0.49 |
|                                                                                                                                                                     |       |    |       |    | 1/2   | 15 | 1 7/16        | 37 | 1 7/16  | 37 | 1 1/2       | 38 | 1.26 | 0.57 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 1/2         | 38 | 1 1/2   | 38 | 1 5/8       | 40 | 1.33 | 0.60 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 1 5/8         | 41 | 1 5/8   | 41 | 1 5/8       | 41 | 1.33 | 0.60 |
|                                                                                                                                                                     | 1 1/4 | 32 | 1     | 25 | 1     | 25 | 1 3/4         | 44 | 1 5/8   | 41 | 1 13/16     | 47 | 1.92 | 0.87 |
|                                                                                                                                                                     |       |    |       |    | 1/2   | 15 | 1 1/2         | 38 | 1 1/2   | 38 | 1 11/16     | 43 | 1.70 | 0.77 |
|                                                                                                                                                                     |       | 32 | 1 1/4 | 32 | 3/4   | 20 | 1 5/8         | 41 | 1 5/8   | 41 | 1 3/4       | 44 | 1.90 | 0.86 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 1 3/4         | 44 | 1 3/4   | 44 | 1 13/16     | 47 | 2.10 | 0.95 |
|                                                                                                                                                                     |       |    |       |    | 1/2   | 15 | 1 5/8         | 41 | 1 5/8   | 41 | 1 13/16     | 47 | 2.27 | 1.03 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 11/16       | 43 | 1 11/16 | 43 | 1 7/8       | 48 | 2.46 | 1.12 |
|                                                                                                                                                                     | 1 1/2 | 40 | 1 1/2 | 40 | 1     | 25 | 1 13/16       | 47 | 1 13/16 | 47 | 2           | 51 | 2.60 | 1.18 |
|                                                                                                                                                                     |       |    |       |    | 1 1/4 | 32 | 2             | 51 | 2       | 51 | 2 1/16      | 52 | 3.05 | 1.38 |
|                                                                                                                                                                     |       | 40 | 1 1/2 | 40 | 1 1/2 | 40 | 2 1/2         | 64 | 2 3/8   | 60 | 2 1/2       | 64 | 4.50 | 2.04 |
|                                                                                                                                                                     |       |    |       |    | 1/2   | 15 | 1 3/4         | 44 | 1 3/4   | 44 | 2 1/16      | 52 | 3.35 | 1.52 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 13/16       | 47 | 1 13/16 | 47 | 2 1/8       | 54 | 3.56 | 1.61 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 2             | 51 | 2       | 51 | 2 1/4       | 57 | 3.70 | 1.68 |
|                                                                                                                                                                     | 2     | 50 | 2     | 50 | 1 1/4 | 32 | 2 1/8         | 54 | 2 1/8   | 54 | 2 5/16      | 59 | 4.22 | 1.91 |
|                                                                                                                                                                     |       |    |       |    | 1 1/2 | 40 | 2 1/4         | 57 | 2 1/4   | 57 | 2 3/8       | 60 | 4.60 | 2.09 |
|                                                                                                                                                                     |       | 50 | 2     | 50 | 1/2   | 15 | 1 3/4         | 44 | 1 3/4   | 44 | 2 1/16      | 52 | 3.35 | 1.52 |
|                                                                                                                                                                     |       |    |       |    | 3/4   | 20 | 1 13/16       | 47 | 1 13/16 | 47 | 2 1/8       | 54 | 3.56 | 1.61 |
|                                                                                                                                                                     |       |    |       |    | 1     | 25 | 2             | 51 | 2       | 51 | 2 1/4       | 57 | 3.70 | 1.68 |
|                                                                                                                                                                     |       |    |       |    | 1 1/4 | 32 | 2 1/8         | 54 | 2 1/8   | 54 | 2 5/16      | 59 | 4.22 | 1.91 |
|                                                                                                                                                                     | 2 1/2 | 65 | 2 1/2 | 65 | 1 1/2 | 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 | 2 3/4       | 70 | 7.60 | 3.45 |
|                                                                                                                                                                     |       | 80 | 3     | 80 | 1 1/2 | 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 | 2 3/4       | 70 | 7.60 | 3.45 |
|                                                                                                                                                                     |       |    |       |    | 2 1/2 | 65 | 2 11/16       | 68 | 2 11/16 | 68 | 2 3/4       | 70 | 7.60 | 3.45 |
|                                                                                                                                                                     |       |    |       |    | 3     | 80 | 2 13/16       | 73 | 2 13/16 | 73 | 3 1/8       | 79 | 9.60 | 4.36 |

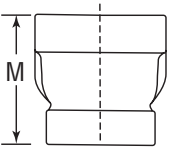
| FIGURE 1165<br>Cross                                                                | Size  |    | Center to End<br>A | Unit Weight |      |       |      |      |
|-------------------------------------------------------------------------------------|-------|----|--------------------|-------------|------|-------|------|------|
|                                                                                     |       |    |                    | Black       |      | Galv. |      |      |
|                                                                                     | NPS   | DN | in                 | mm          | lbs  | kg    | lbs  | kg   |
|  | 1/4   | 8  | 15/16              | 24          | 0.35 | 0.16  | —    | —    |
|                                                                                     | 3/4   | 20 | 1 7/16             | 37          | 1.25 | 0.57  | 1.25 | 0.57 |
|                                                                                     | 1     | 25 | 1 5/8              | 41          | 1.90 | 0.86  | —    | —    |
|                                                                                     | 1 1/4 | 32 | 1 15/16            | 49          | 3.23 | 1.46  | —    | —    |
|                                                                                     | 1 1/2 | 40 | 2 1/8              | 54          | 4.20 | 1.90  | —    | —    |
|                                                                                     | 2     | 50 | 2 1/2              | 64          | 6.49 | 2.94  | —    | —    |

**Note:** See page 17 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 300 (XS / XH)

| FIGURE 1166<br>Coupling                                                                                                                                             | Size  |    | End to End<br>W |     | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|-----------------|-----|-------------|------|-------|------|
|                                                                                                                                                                     |       |    |                 |     | Black       |      | Galv. |      |
|                                                                                                                                                                     | NPS   | DN | in              | mm  | lbs         | kg   | lbs   | kg   |
|   | 1/4   | 8  | 1 3/8           | 35  | 0.17        | 0.08 | 0.17  | 0.08 |
|                                                                                                                                                                     | 3/8   | 10 | 1 5/8           | 41  | 0.26        | 0.12 | 0.26  | 0.12 |
|                                                                                                                                                                     | 1/2   | 15 | 1 7/8           | 48  | 0.40        | 0.18 | 0.40  | 0.18 |
|                                                                                                                                                                     | 3/4   | 20 | 2 1/8           | 54  | 0.65        | 0.29 | 0.65  | 0.29 |
|                                                                                                                                                                     | 1     | 25 | 2 3/8           | 60  | 0.99        | 0.45 | 0.99  | 0.45 |
|                                                                                                                                                                     | 1 1/4 | 32 | 2 7/8           | 73  | 1.66        | 0.75 | 1.66  | 0.75 |
|                                                                                                                                                                     | 1 1/2 | 40 | 2 7/8           | 73  | 2.03        | 0.92 | 2.03  | 0.92 |
|                                                                                                                                                                     | 2     | 50 | 3 5/8           | 92  | 3.24        | 1.47 | 3.24  | 1.47 |
|                                                                                                                                                                     | 2 1/2 | 65 | 4 1/8           | 105 | 5.45        | 2.47 | 5.45  | 2.47 |
|                                                                                                                                                                     | 3     | 80 | 4 1/8           | 105 | 7.30        | 3.31 | 7.30  | 3.31 |

| FIGURE 1167<br>Reducer                                                                                                                                                 | Size  |     |       |    | End to End<br>M |     | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-------|----|-----------------|-----|-------------|------|-------|------|
|                                                                                                                                                                        |       |     |       |    |                 |     | Black       |      | Galv. |      |
|                                                                                                                                                                        | NPS   | DN  | NPS   | DN | in              | mm  | lbs         | kg   | lbs   | kg   |
|   | 3/8   | 10  | 1/4   | 8  | 1 7/16          | 37  | 0.21        | 0.10 | 0.21  | 0.10 |
|                                                                                                                                                                        | 1/2   | 15  | 1/4   | 8  | 1 11/16         | 43  | 0.31        | 0.14 | 0.31  | 0.14 |
|                                                                                                                                                                        |       |     | 3/8   | 10 |                 |     | 0.34        | 0.15 | 0.34  | 0.15 |
|                                                                                                                                                                        | 3/4   | 20  | 1/4   | 8  | 1 3/4           | 44  | 0.46        | 0.21 | —     | —    |
|                                                                                                                                                                        |       |     | 3/8   | 10 |                 |     | 0.47        | 0.21 | 0.47  | 0.21 |
|                                                                                                                                                                        |       |     | 1/2   | 15 |                 |     | 0.50        | 0.23 | 0.50  | 0.23 |
|                                                                                                                                                                        | 1     | 25  | 1/4   | 8  | 2               | 51  | 0.66        | 0.30 | 0.66  | 0.30 |
|                                                                                                                                                                        |       |     | 3/8   | 10 |                 |     | 0.71        | 0.32 | 0.71  | 0.32 |
|                                                                                                                                                                        |       |     | 1/2   | 15 |                 |     | 0.71        | 0.32 | 0.71  | 0.32 |
|                                                                                                                                                                        |       |     | 3/4   | 20 |                 |     | 0.77        | 0.35 | 0.77  | 0.35 |
|                                                                                                                                                                        | 1 1/4 | 32  | 1/2   | 15 | 2 3/8           | 60  | 1.12        | 0.51 | 1.12  | 0.51 |
|                                                                                                                                                                        |       |     | 3/4   | 20 |                 |     | 1.16        | 0.53 | 1.16  | 0.53 |
|                                                                                                                                                                        |       |     | 1     | 25 |                 |     | 1.27        | 0.58 | 1.27  | 0.58 |
|                                                                                                                                                                        | 1 1/2 | 40  | 1/2   | 15 | 2 11/16         | 68  | 1.51        | 0.68 | 1.51  | 0.68 |
|                                                                                                                                                                        |       |     | 3/4   | 20 |                 |     | 1.57        | 0.71 | 1.57  | 0.71 |
|                                                                                                                                                                        |       |     | 1     | 25 |                 |     | 1.62        | 0.73 | 1.62  | 0.73 |
|                                                                                                                                                                        |       |     | 1 1/4 | 32 |                 |     | 1.78        | 0.81 | 1.78  | 0.81 |
|                                                                                                                                                                        | 2     | 50  | 1/2   | 15 | 3 3/16          | 81  | 2.39        | 1.08 | 2.39  | 1.08 |
|                                                                                                                                                                        |       |     | 3/4   | 20 |                 |     | 2.44        | 1.11 | 2.44  | 1.11 |
|                                                                                                                                                                        |       |     | 1     | 25 |                 |     | 2.54        | 1.15 | 2.54  | 1.15 |
|                                                                                                                                                                        |       |     | 1 1/4 | 32 |                 |     | 2.66        | 1.21 | 2.66  | 1.21 |
|                                                                                                                                                                        |       |     | 1 1/2 | 40 |                 |     | 2.72        | 1.23 | 2.72  | 1.23 |
|                                                                                                                                                                        | 2 1/2 | 65  | 1 1/2 | 40 | 3 11/16         | 94  | 4.09        | 1.85 | 4.09  | 1.85 |
|                                                                                                                                                                        |       |     | 2     | 50 |                 |     | 4.32        | 1.96 | —     | —    |
|                                                                                                                                                                        | 3     | 80  | 1 1/2 | 40 | 4 1/16          | 103 | 5.79        | 2.63 | —     | —    |
|                                                                                                                                                                        |       |     | 2     | 50 |                 |     | 5.83        | 2.64 | 5.83  | 2.64 |
|                                                                                                                                                                        |       |     | 2 1/2 | 65 |                 |     | 6.45        | 2.93 | 6.45  | 2.93 |
|                                                                                                                                                                        | 4     | 100 | 2     | 50 | 4 3/8           | 111 | 9.50        | 4.31 | —     | —    |
|                                                                                                                                                                        |       |     | 3     | 80 |                 |     | 10.00       | 4.54 | —     | —    |

**Note:** See page 17 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

## Malleable Iron

Class 300 (XS / XH)

| FIGURE 1163<br>Cap                                                                | Size  |    | Height<br>L |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|-------|----|-------------|----|-------------|------|-------|------|
|                                                                                   |       |    |             |    | Black       |      | Galv. |      |
|                                                                                   | NPS   | DN | in          | mm | lbs         | kg   | lbs   | kg   |
|  | 1/4   | 8  | 25/32       | 20 | 0.10        | 0.05 | 0.10  | 0.05 |
|                                                                                   | 3/8   | 10 | 13/16       | 22 | 0.15        | 0.07 | 0.15  | 0.07 |
|                                                                                   | 1/2   | 15 | 1           | 25 | 0.23        | 0.10 | 0.23  | 0.10 |
|                                                                                   | 3/4   | 20 | 1 1/16      | 27 | 0.35        | 0.16 | 0.35  | 0.16 |
|                                                                                   | 1     | 25 | 1 1/4       | 32 | 0.58        | 0.26 | 0.58  | 0.26 |
|                                                                                   | 1 1/4 | 32 | 1 3/8       | 35 | 1.00        | 0.45 | 1.00  | 0.45 |
|                                                                                   | 1 1/2 | 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 1/2 | 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<br>Square Countersunk Plugs                                                                                                       | Size |    | Unit Weight |      |       |      |
|----------------------------------------------------------------------------------------------------------------------------------------------|------|----|-------------|------|-------|------|
|                                                                                                                                              |      |    | Black       |      | Galv. |      |
|                                                                                                                                              | NPS  | DN | lbs         | kg   | lbs   | kg   |
|  <p>See page 51 (Cast Iron) for other available sizes.</p> | 1/2  | 15 | 0.05        | 0.02 | 0.05  | 0.02 |
|                                                                                                                                              | 3/4  | 20 | 0.11        | 0.05 | 0.11  | 0.05 |

## All Iron Unions

| FIGURE J-3300<br>All Iron Union Class 300                                           | Size  |    | End to End |     | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|----|------------|-----|-------------|------|
|                                                                                     |       |    |            |     | Black       |      |
|                                                                                     | NPS   | DN | in         | mm  | lbs         | kg   |
|  | 1/4   | 8  | 1 5/8      | 41  | 0.27        | 0.12 |
|                                                                                     | 3/8   | 10 | 1 13/16    | 47  | 0.37        | 0.17 |
|                                                                                     | 1/2   | 15 | 2 1/8      | 54  | 0.51        | 0.23 |
|                                                                                     | 3/4   | 20 | 2 7/16     | 62  | 0.76        | 0.34 |
|                                                                                     | 1     | 25 | 2 3/4      | 70  | 1.20        | 0.54 |
|                                                                                     | 1 1/4 | 32 | 3          | 76  | 1.87        | 0.85 |
|                                                                                     | 1 1/2 | 40 | 3 3/16     | 81  | 2.51        | 1.14 |
|                                                                                     | 2     | 50 | 3 1/2      | 89  | 4.30        | 1.95 |
|                                                                                     | 2 1/2 | 65 | 3 11/16    | 94  | 6.02        | 2.73 |
|                                                                                     | 3     | 80 | 3 15/16    | 100 | 7.96        | 3.61 |

**Note:** See page 17 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 Unions

Class 150; 250; 300

| BRASS TO IRON                                                                                                                                                                                                                                                                                                                                                                             |           |         |            |     |             |      |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|------------|-----|-------------|------|-------|------|
| Unions                                                                                                                                                                                                                                                                                                                                                                                    | Size      |         | End to End |     | Unit Weight |      |       |      |
|                                                                                                                                                                                                                                                                                                                                                                                           |           |         |            |     | Black       |      | Galv. |      |
|                                                                                                                                                                                                                                                                                                                                                                                           | NPS       | DN      | in         | mm  | lbs         | kg   | lbs   | kg   |
| <b>FIGURE 463</b><br>■ <b>Class 150 Union</b><br>150lb. wsp · 300lb. wog non-shock<br><br><br>(UL Listed Sizes: 1/4" - 2")<br>(FM Approved Sizes: 1/4" - 3")<br>Note: 3/4" x 1/2" size is not UL Listed or FM Approved. | 1/8       | 6       | 1 5/16     | 33  | 0.15        | 0.07 | 0.15  | 0.07 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/4       | 8       | 1 13/16    | 47  | 0.48        | 0.22 | 0.48  | 0.22 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/8       | 10      | 1 13/16    | 47  | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/2       | 15      | 1 15/16    | 49  | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/4       | 20      | 2 1/16     | 52  | 0.60        | 0.27 | 0.60  | 0.27 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/4 x 1/2 | 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 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/4     | 32      | 2 5/8      | 67  | 1.74        | 0.79 | 1.74  | 0.79 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/2     | 40      | 2 3/4      | 70  | 2.08        | 0.94 | 2.08  | 0.94 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2         | 50      | 2 15/16    | 75  | 3.00        | 1.36 | 3.00  | 1.36 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2 1/2     | 65      | 3 3/8      | 92  | 3.60        | 1.63 | 3.60  | 1.63 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3         | 80      | 3 3/4      | 95  | 4.95        | 2.24 | 4.95  | 2.24 |
| <b>FIGURE 554</b><br>■ <b>Class 250 Union</b><br>250 lb. wsp · 500lb. wog non-shock<br><br><br>(UL Listed Sizes: 1/4" - 2")<br>(FM Approved Sizes: 1/4" - 4")                                                        | 1/8       | 6       | 1 5/16     | 33  | 0.14        | 0.06 | —     | —    |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/4       | 8       | 1 13/16    | 47  | 0.48        | 0.22 | 0.48  | 0.22 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/8       | 10      | 1 13/16    | 47  | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/2       | 15      | 2 1/16     | 52  | 0.64        | 0.29 | 0.64  | 0.29 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/4       | 20      | 2 1/4      | 57  | 1.00        | 0.45 | 1.00  | 0.45 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1         | 25      | 2 9/16     | 65  | 1.56        | 0.71 | 1.56  | 0.71 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/4     | 32      | 2 3/4      | 70  | 2.30        | 1.04 | 2.30  | 1.04 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/2     | 40      | 3          | 76  | 2.74        | 1.24 | 2.74  | 1.24 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2         | 50      | 3 3/8      | 86  | 4.34        | 1.97 | 4.34  | 1.97 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2 1/2     | 65      | 3 7/8      | 98  | 5.30        | 2.40 | 5.30  | 2.40 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3         | 80      | 4 1/4      | 108 | 7.60        | 3.45 | 7.60  | 3.45 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 4         | 100     | 4 7/8      | 124 | 17.50       | 7.94 | 17.50 | 7.94 |
| <b>FIGURE 459</b><br>■ <b>Class 300 Union</b><br>300lb. wsp · 600lb. wog non-shock<br><br><br>(UL Listed Sizes: 1/4" - 2")<br>(FM Approved Sizes: 1/4" - 4")                                                        | 1/8       | 6       | 1 5/16     | 33  | 0.14        | 0.06 | 0.14  | 0.06 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/4       | 8       | 1 13/16    | 47  | 0.48        | 0.22 | 0.48  | 0.22 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/8       | 10      | 1 13/16    | 47  | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1/2       | 15      | 2 1/16     | 52  | 0.64        | 0.29 | 0.64  | 0.29 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/4       | 20      | 2 1/4      | 57  | 1.00        | 0.45 | 1.00  | 0.45 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1         | 25      | 2 9/16     | 65  | 1.56        | 0.71 | 1.56  | 0.71 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/4     | 32      | 2 3/4      | 70  | 2.30        | 1.04 | 2.30  | 1.04 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/2     | 40      | 3          | 76  | 2.74        | 1.24 | 2.74  | 1.24 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2         | 50      | 3 3/8      | 86  | 4.34        | 1.97 | 4.34  | 1.97 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2 1/2     | 65      | 3 7/8      | 98  | 5.05        | 2.29 | 5.05  | 2.29 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3         | 80      | 4 1/4      | 108 | 7.66        | 3.47 | 7.66  | 3.47 |
|                                                                                                                                                                                                                                                                                                                                                                                           | 4         | 100     | 4 7/8      | 124 | 17.70       | 8.03 | 17.70 | 8.03 |
| <b>FIGURE 551</b><br>■ <b>Class 300 Union male &amp; female</b><br>300lb. wsp · 600lb. wog non-shock<br><br>                                                                                                        | 1/2       | 15      | 3          | 76  | 0.62        | 0.28 | —     | —    |
|                                                                                                                                                                                                                                                                                                                                                                                           | 3/4       | 20      | 3 3/16     | 81  | 0.92        | 0.42 | —     | —    |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1         | 25      | 3 5/8      | 92  | 1.54        | 0.70 | —     | —    |
|                                                                                                                                                                                                                                                                                                                                                                                           | 1 1/2     | 40      | 4 1/4      | 108 | 2.60        | 1.18 | —     | —    |
|                                                                                                                                                                                                                                                                                                                                                                                           | 2         | 50      | 4 5/8      | 117 | 4.21        | 1.91 | —     | —    |

■ Pressure & Temperature rates shown on page 17.

- Anvil Malleable Iron Unions conform to ASME B 16.39 and are in compliance with the requirements of the AAR (1994 AAR Manual of standards and Practices).
- Dimensions conform to ASME B 16.39 for Class 150, 250 & 300 Unions.

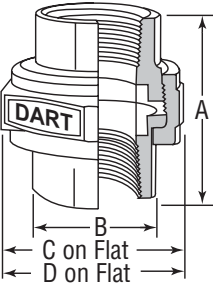
wsp=working steam pressure

wog=water, oil, gas

## Malleable Iron Unions

Class 150; 250; 300

| BRASS TO IRON                                                                     |               |    |                 |    |                 |    |             |      |
|-----------------------------------------------------------------------------------|---------------|----|-----------------|----|-----------------|----|-------------|------|
| <b>FIGURE 552</b><br><b>Class 300 90° Elbow</b><br><b>Female Union 300lb. wsp</b> | Size          |    | Center to End   |    |                 |    | Unit Weight |      |
|                                                                                   |               |    | Elbow           |    | Union           |    | Black       |      |
|                                                                                   | NPS           | DN | in              | mm | in              | mm | lbs         | kg   |
|  | $\frac{3}{8}$ | 10 | $1\frac{1}{16}$ | 27 | $2\frac{1}{16}$ | 52 | 0.51        | 0.23 |
|                                                                                   | $\frac{1}{2}$ | 15 | $1\frac{1}{4}$  | 32 | $2\frac{5}{16}$ | 59 | 0.79        | 0.36 |
|                                                                                   | $\frac{3}{4}$ | 20 | $1\frac{7}{16}$ | 37 | $2\frac{3}{4}$  | 70 | 1.24        | 0.56 |
|                                                                                   | 1             | 25 | $1\frac{5}{8}$  | 41 | 3               | 76 | 1.88        | 0.85 |

| <b>FIGURE 832</b><br><b>Dart Union Bronze to</b><br><b>Bronze Seat Union</b>                                                                                              | Size           |    | A                |    | B                |    | C               |     | D              |     | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----|------------------|----|------------------|----|-----------------|-----|----------------|-----|-------------|------|-------|------|
|                                                                                                                                                                           |                |    |                  |    |                  |    |                 |     |                |     | Black       |      | Galv. |      |
|                                                                                                                                                                           | NPS            | DN | in               | mm | in               | mm | in              | mm  | in             | mm  | lbs         | kg   | lbs   | kg   |
| <br> | $\frac{3}{8}$  | 10 | $1\frac{3}{4}$   | 44 | $1\frac{5}{16}$  | 24 | $1\frac{1}{2}$  | 38  | $1\frac{3}{4}$ | 44  | 0.41        | 0.19 | 0.43  | 0.20 |
|                                                                                                                                                                           | $\frac{1}{2}$  | 15 | $2\frac{1}{8}$   | 54 | $1\frac{1}{8}$   | 29 | $1\frac{3}{16}$ | 30  | 2              | 51  | 0.58        | 0.26 | 0.61  | 0.28 |
|                                                                                                                                                                           | $\frac{3}{4}$  | 20 | $2\frac{5}{16}$  | 59 | $1\frac{3}{8}$   | 35 | $2\frac{3}{16}$ | 56  | $2\frac{1}{2}$ | 64  | 0.82        | 0.37 | 0.86  | 0.39 |
|                                                                                                                                                                           | 1              | 25 | $2\frac{5}{8}$   | 67 | $1\frac{11}{16}$ | 43 | $2\frac{9}{16}$ | 65  | 3              | 76  | 1.31        | 0.59 | 1.36  | 0.62 |
|                                                                                                                                                                           | $1\frac{1}{4}$ | 32 | $2\frac{13}{16}$ | 73 | $2\frac{1}{16}$  | 52 | $3\frac{1}{16}$ | 78  | $3\frac{1}{2}$ | 89  | 1.90        | 0.86 | 2.00  | 0.91 |
|                                                                                                                                                                           | $1\frac{1}{2}$ | 40 | 3                | 76 | $2\frac{3}{16}$  | 56 | $3\frac{3}{8}$  | 86  | 4              | 102 | 2.32        | 1.05 | 2.43  | 1.10 |
|                                                                                                                                                                           | 2              | 50 | $3\frac{5}{8}$   | 92 | $2\frac{7}{8}$   | 73 | $4\frac{1}{16}$ | 103 | $4\frac{5}{8}$ | 117 | 4.00        | 1.81 | 4.20  | 1.90 |

- Meets ASME B16.39 The standard union for most installations  
 $\frac{3}{8}$  – 2 NPS (10 – 50 DN) – 300lb (136 kg) steam working pressure at 450°F.  
 $\frac{3}{8}$  – 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<br>Hex Bushing                                                                                                                                                                                                                                                                               | Size  |    |          |       |    | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|----------|-------|----|-------------|------|-------|------|
|                                                                                                                                                                                                                                                                                                         |       |    |          |       |    | Black       |      | Galv. |      |
|                                                                                                                                                                                                                                                                                                         | NPS   | DN | Hex Type | NPS   | DN | lbs         | kg   | lbs   | kg   |
| <div>Outside Hex<br/>Type A</div>  <div>Inside Hex<br/>Type B</div>  <p>See page 49-50 (Cast Iron)<br/>for other available sizes.</p> | 3/4   | 10 | A        | 1/8   | 6  | 0.12        | 0.05 | 0.12  | 0.05 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 1/4   | 8  | 0.14        | 0.06 | 0.14  | 0.06 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 3/8   | 10 | 0.11        | 0.05 | 0.11  | 0.05 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 1/2   | 15 | 0.09        | 0.04 | 0.09  | 0.04 |
|                                                                                                                                                                                                                                                                                                         | 1     | 25 | B        | 1/8   | 6  | 0.24        | 0.11 | 0.24  | 0.11 |
|                                                                                                                                                                                                                                                                                                         |       |    | B        | 1/4   | 8  | 0.18        | 0.08 | 0.18  | 0.08 |
|                                                                                                                                                                                                                                                                                                         |       |    | B        | 3/8   | 10 | 0.18        | 0.08 | 0.18  | 0.08 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 1/2   | 15 | 0.20        | 0.09 | 0.20  | 0.09 |
|                                                                                                                                                                                                                                                                                                         | 1 1/4 | 32 | A        | 3/4   | 20 | 0.16        | 0.07 | 0.16  | 0.07 |
|                                                                                                                                                                                                                                                                                                         |       |    | B        | 1/4   | 8  | 0.33        | 0.15 | 0.33  | 0.15 |
|                                                                                                                                                                                                                                                                                                         |       |    | B        | 3/8   | 10 | 0.27        | 0.12 | 0.27  | 0.12 |
|                                                                                                                                                                                                                                                                                                         |       |    | B        | 1/2   | 15 | 0.34        | 0.15 | 0.34  | 0.15 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 3/4   | 20 | 0.39        | 0.18 | 0.39  | 0.18 |
|                                                                                                                                                                                                                                                                                                         |       |    | A        | 1     | 25 | 0.30        | 0.14 | 0.30  | 0.14 |
|                                                                                                                                                                                                                                                                                                         | 1 1/2 | 40 | A        | 1 1/4 | 32 | 0.30        | 0.14 | 0.30  | 0.14 |
|                                                                                                                                                                                                                                                                                                         | 2     | 50 | A        | 1 1/2 | 40 | 0.64        | 0.29 | 0.64  | 0.29 |
|                                                                                                                                                                                                                                                                                                         | 2 1/2 | 65 | A        | 2     | 50 | 1.02        | 0.46 | 1.02  | 0.46 |

| FIGURE 385<br>Face Bushing                                                                                                                        | Size  |    |       |    |  | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|-------|----|--|-------------|------|-------|------|
|                                                                                                                                                   |       |    |       |    |  | Black       |      | Galv. |      |
|                                                                                                                                                   | NPS   | DN | NPS   | DN |  | lbs         | kg   | lbs   | kg   |
|  <p>See page 51 (Cast Iron)<br/>for other available sizes.</p> | 3/4   | 20 | 3/8   | 10 |  | 0.08        | 0.04 | —     | —    |
|                                                                                                                                                   |       |    | 1/2   | 15 |  | 0.06        | 0.03 | 0.06  | 0.03 |
|                                                                                                                                                   | 1     | 25 | 1/2   | 15 |  | 0.16        | 0.07 | 0.16  | 0.07 |
|                                                                                                                                                   |       |    | 3/4   | 20 |  | 0.10        | 0.05 | 0.10  | 0.05 |
|                                                                                                                                                   | 1 1/4 | 32 | 1/2   | 15 |  | 0.30        | 0.14 | —     | —    |
|                                                                                                                                                   |       |    | 3/4   | 20 |  | 0.27        | 0.12 | —     | —    |
|                                                                                                                                                   |       |    | 1     | 25 |  | 0.19        | 0.09 | 0.19  | 0.09 |
|                                                                                                                                                   | 1 1/2 | 40 | 1/2   | 15 |  | 0.40        | 0.18 | —     | —    |
|                                                                                                                                                   |       |    | 3/4   | 20 |  | 0.39        | 0.18 | —     | —    |
|                                                                                                                                                   |       |    | 1     | 25 |  | 0.33        | 0.15 | —     | —    |
|                                                                                                                                                   |       |    | 1 1/4 | 32 |  | 0.16        | 0.07 | 0.16  | 0.07 |
|                                                                                                                                                   | 2     | 50 | 1     | 25 |  | 0.65        | 0.29 | 0.65  | 0.29 |
|                                                                                                                                                   |       |    | 1 1/4 | 32 |  | 0.53        | 0.24 | 0.53  | 0.24 |
|                                                                                                                                                   |       |    | 1 1/2 | 40 |  | 0.40        | 0.18 | 0.40  | 0.18 |
|                                                                                                                                                   | 2 1/2 | 65 | 1 1/4 | 32 |  | 1.10        | 0.50 | —     | —    |
|                                                                                                                                                   |       |    | 1 1/2 | 40 |  | 0.93        | 0.42 | —     | —    |
|                                                                                                                                                   |       |    | 2     | 50 |  | 0.40        | 0.18 | 0.40  | 0.18 |
|                                                                                                                                                   | 3     | 80 | 2 1/2 | 65 |  | 0.99        | 0.45 | —     | —    |

**Note:** Hexagon head or octagon head bushings 2 1/2 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 2 1/2 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.

# CAST IRON



Anvil standard and extra heavy cast iron threaded fittings are manufactured in accordance with ASME-B16.4 (except plugs and bushings, ASME B16.14). Dimensions also conform to Federal Specifications, WW-P-501 (except plugs and bushings WW-P-471).

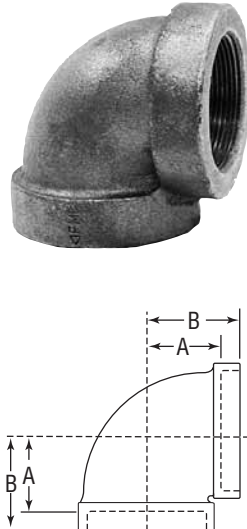


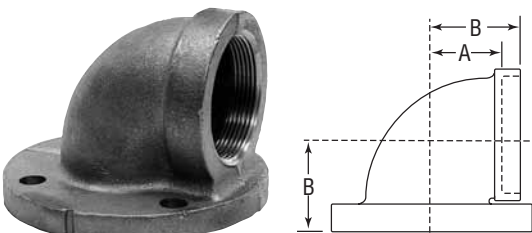
For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil Sales Representative.

| 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 |

## Cast Iron Threaded Fittings

Class 125 (Standard)

| <b>FIGURE 351</b><br><b>90° Elbow</b>                                             | 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 |

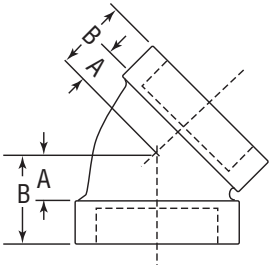
| <b>FIGURE 371</b><br><b>90° Elbow,<br/>           Flange &amp; Screw</b>            | Size  |     | A       |    | B       |     | Unit Weight |       |
|-------------------------------------------------------------------------------------|-------|-----|---------|----|---------|-----|-------------|-------|
|                                                                                     |       |     |         |    |         |     | 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 |

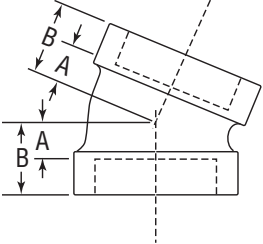
tNominal Pipe Sizes of 4" (100 DN) and larger have two holes tapped for stud or tap bolts.

**Note:** See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

| FIGURE 356 (Straight)<br>FIGURE 356R (Reducing)<br>45° Elbow                                                                                                                                                                                                                                                                    | Size    |         | A      |    | B       |     | Unit Weight |       |        |    |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|--------|----|---------|-----|-------------|-------|--------|----|------|
|                                                                                                                                                                                                                                                                                                                                 |         |         |        |    |         |     | Black       |       |        |    |      |
|                                                                                                                                                                                                                                                                                                                                 | NPS     | DN      | in     | mm | in      | mm  | lbs         | kg    |        |    |      |
| <br><b>FIGURE 356 (Straight)</b><br><br><b>Figure 356R (Reducing)</b><br> | 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       |     | Unit Weight |       |        |    |      |
|                                                                                                                                                                                                                                                                                                                                 |         |         |        |    |         |     | Black       |       |        |    |      |
|                                                                                                                                                                                                                                                                                                                                 | NPS     | DN      | 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 |

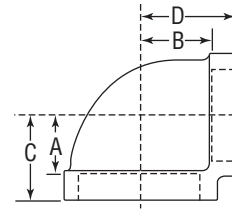
| <b>FIGURE 356A</b><br><b>22 1/2° Elbow</b>                                                                                                                                 | Size  |    | A    |    | B      |    | Unit Weight |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|------|----|--------|----|-------------|------|
|                                                                                                                                                                            |       |    |      |    |        |    | Black       |      |
|                                                                                                                                                                            | NPS   | DN | in   | mm | in     | mm | lbs         | kg   |
| <br> | 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 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 352**  
90° Elbow, Reducing

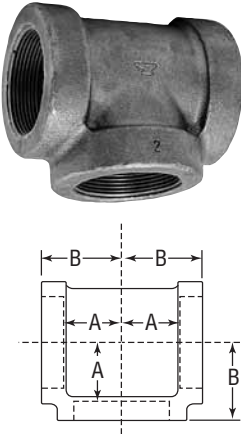


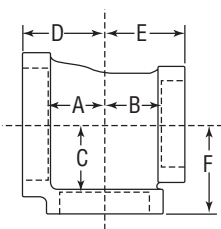
| Size  |     |       |     | A       |    | B       |    | C       |     | D       |     | Unit Weight |       |
|-------|-----|-------|-----|---------|----|---------|----|---------|-----|---------|-----|-------------|-------|
|       |     |       |     |         |    |         |    |         |     |         |     | 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 | 15/16   | 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 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

| <b>FIGURE 358</b><br>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  | 1 5/16  | 24  | 1 1/2   | 38  | 1.25        | 0.57  |
|                                                                                   | 1 1/4 | 32  | 1 7/8   | 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<br>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 | 1 1/16                                                                               | 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 | 1 1/16                                                                               | 17 | 3/4    | 19 | 1 1/8   | 29 | 1 1/8   | 29 | 0.57   | 0.26 |             |      |
|                            |    |     |    | 3/4    | 20 | 1 3/16                                                                             | 22 | 1 3/16                                                                               | 22 | 1 1/4  | 32 | 1 1/4   | 32 | 1 3/16  | 22 | 0.68   | 0.31 |             |      |
|                            |    |     |    | 1      | 25 | 1                                                                                  | 25 | 1 3/16                                                                               | 22 | 1 7/16 | 37 | 1 7/16  | 37 | 1 3/8   | 35 | 1.00   | 0.45 |             |      |
| 3/4                        | 20 | 1/4 | 8  | 3/4    | 20 | 1 3/16                                                                             | 22 | 15/16                                                                                | 24 | 13/16  | 22 | 15/16   | 24 | 1 1/4   | 32 | 15/16  | 24   | 0.79        | 0.36 |
|                            |    |     |    | 1/2    | 15 | 1 1/16                                                                             | 17 | 1 1/16                                                                               | 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 1/4                                                                              | 8  | 9/16                                                                                 | 14 | 9/16   | 14 | 7/8     | 22 | 1 1/16  | 17 | 13/16  | 22   | 0.62        | 0.28 |
|                            |    | 3/8 | 10 | 1 1/16 | 17 | 1 1/16                                                                             | 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 | 1 1/16                                                                             | 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 |             |      |
|                            |    | 1/4 | 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                          | 25 | 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 1/16                                                                             | 17 | 1 1/16                                                                               | 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 | 1 1/16                                                                               | 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 | 1 1/16                                                                               | 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 |
|                            |    |     |    |        |    |                                                                                    |    |                                                                                      |    |        |    |         |    |         |    |        |      |             |      |
|                            |    |     |    |        |    |                                                                                    |    |                                                                                      |    |        |    |         |    |         |    |        |      |             |      |

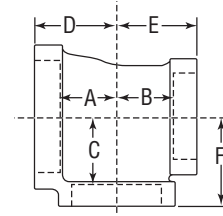
Note: See page 36 for pressure-temperature ratings.

Continued on next page.

## Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 359**  
Tee Reducing



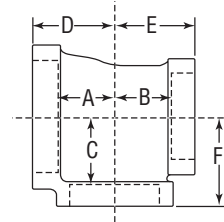
| Size  |       |       |       |       |        | A       | B      | C       | D      | E      | F       | Unit Weight |        |         |         |         |      |      |      |  |  |
|-------|-------|-------|-------|-------|--------|---------|--------|---------|--------|--------|---------|-------------|--------|---------|---------|---------|------|------|--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

Note: See page 36 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 | 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 | 1 5/16  | 24 | 1 1/2  | 38 | 2       | 51 | 1 13/16 | 47 | 2 1/8       | 54 | 3.40 | 1.54 |
|      |    | 1     | 25 | 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 |
|      |    |       |    | 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 |
|      | 50 | 1 1/4 | 32 | 1 1/2 | 15  | 1 1/16 | 17 | 1 1/16  | 17 | 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  | 1 1/16 | 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  | 1 3/16 | 22 | 1 1/8   | 29 | 1 7/16 | 37 | 1 7/8   | 48 | 1 3/4   | 44 | 2 1/16      | 52 | 2.90 | 1.32 |
|      |    |       |    | 1 1/2 | 40  | 1 5/16 | 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 |
|      |    | 1 1/2 | 40 | 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 | 15  | 1 3/16 | 22 | 1 3/16  | 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  | 1 1/16 | 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  | 1 3/16 | 22 | 1 3/16  | 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  | 1 5/16 | 24 | 1 5/16  | 24 | 1 1/2  | 38 | 2       | 51 | 1 15/16 | 49 | 2 1/8       | 54 | 3.24 | 1.47 |
|      | 50 | 2     | 50 | 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 |
|      |    |       |    | 1 1/2 | 15  | 1 3/16 | 22 | 1 3/16  | 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  | 1 1/16 | 17 | 1 1/16  | 17 | 1 7/16 | 37 | 1 3/4   | 44 | 1 3/4   | 44 | 2           | 51 | 3.05 | 1.38 |
|      |    |       |    | 1 1/4 | 32  | 1 3/16 | 22 | 1 3/16  | 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  | 1 5/16 | 24 | 1 5/16  | 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 |

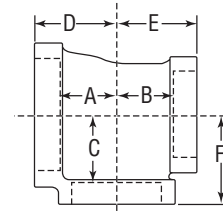
Continued on next page.

Note: See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

**FIGURE 359**  
Tee Reducing



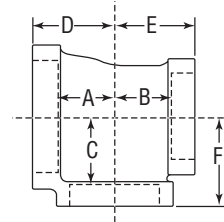
| Size  |    |       |    |       |     | A       |    | B       |    | C       |    | D       |    | E       |    | F       |    | Unit Weight |      |
|-------|----|-------|----|-------|-----|---------|----|---------|----|---------|----|---------|----|---------|----|---------|----|-------------|------|
|       |    |       |    |       |     |         |    |         |    |         |    |         |    |         |    |         |    | Black       |      |
| NPS   | DN | NPS   | DN | NPS   | DN  | in      | mm | in      | mm | in      | mm | in      | mm | in      | mm | in      | mm | lbs         | kg   |
| 2 1/2 | 65 | 1/2   | 15 | 2 1/2 | 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 |
|       |    | 3/4   | 20 | 2 1/2 | 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 |
|       |    |       |    | 2 1/2 | 65  | 1 13/16 | 47 | 1 3/4   | 44 | 1 13/16 | 47 | 2 11/16 | 68 | 2 9/16  | 59 | 2 11/16 | 68 | 5.36        | 2.43 |
|       |    | 1 1/4 | 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 |
|       |    |       |    | 2 1/2 | 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 |
|       |    | 1 1/2 | 40 | 1 1/2 | 40  | 1 5/16  | 24 | 1 5/16  | 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 |
|       |    |       |    | 2 1/2 | 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 | 1/2   | 15  | 3/4     | 19 | 1 3/16  | 22 | 1 3/4   | 44 | 1 11/16 | 43 | 1 1/2   | 38 | 2 3/16  | 56 | 5.82        | 2.64 |
|       |    |       |    | 3/4   | 20  | 7/8     | 22 | 1 3/16  | 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 | 1 11/16 | 17 | 1 3/4   | 44 | 1 15/16 | 49 | 1 3/4   | 44 | 2 5/16  | 59 | 3.92        | 1.78 |
|       |    |       |    | 1 1/4 | 32  | 1 3/16  | 22 | 1 3/16  | 22 | 1 3/4   | 44 | 2 1/16  | 52 | 1 7/8   | 48 | 2 3/8   | 60 | 4.26        | 1.93 |
|       |    |       |    | 1 1/2 | 40  | 1 5/16  | 24 | 1 5/16  | 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 |
|       |    |       |    | 2 1/2 | 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 |
|       |    | 2 1/2 | 65 | 1/2   | 15  | 3/4     | 19 | 1 3/4   | 19 | 1 3/4   | 44 | 1 11/16 | 43 | 1 11/16 | 43 | 2 3/16  | 56 | 4.00        | 1.81 |
|       |    |       |    | 3/4   | 20  | 7/8     | 22 | 1 3/4   | 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 3/4   | 25 | 1 3/4   | 44 | 1 15/16 | 49 | 1 15/16 | 49 | 2 5/16  | 59 | 4.48        | 2.03 |
|       |    |       |    | 1 1/4 | 32  | 1 3/16  | 22 | 1 3/16  | 22 | 1 3/4   | 44 | 2 1/16  | 52 | 2 1/16  | 52 | 2 3/8   | 60 | 4.83        | 2.19 |
|       |    |       |    | 1 1/2 | 40  | 1 5/16  | 24 | 1 5/16  | 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 | 3/4   | 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 |
|       |    | 1 1/4 | 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 |
|       |    | 1 1/2 | 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 | 1 1/2 | 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 |
|       |    |       |    | 2 1/2 | 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 |
|       |    | 2 1/2 | 65 | 1     | 25  | 1       | 25 | 1 5/16  | 24 | 2 1/8   | 54 | 2 1/16  | 52 | 1 15/16 | 49 | 2 11/16 | 68 | 5.51        | 2.50 |
|       |    |       |    | 1 1/4 | 32  | 1 1/4   | 32 | 1 3/16  | 22 | 2 1/8   | 54 | 2 3/16  | 56 | 2 1/16  | 52 | 2 3/4   | 70 | 5.92        | 2.68 |
|       |    |       |    | 1 1/2 | 40  | 1 3/8   | 35 | 1 5/16  | 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 |
|       |    |       |    | 2 1/2 | 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 | 2 1/8   | 54 | 3 1/8   | 79 | 3 1/16  | 78 | 3 1/8   | 79 | 9.13        | 4.14 |
|       |    | 3     | 80 | 1/2   | 15  | 1 5/16  | 24 | 1 5/16  | 24 | 2 3/16  | 56 | 1 7/8   | 48 | 1 7/8   | 48 | 2 5/8   | 67 | 6.08        | 2.76 |
|       |    |       |    | 3/4   | 20  | 1 5/16  | 24 | 1 5/16  | 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 |
|       |    |       |    | 1 1/4 | 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 |
|       |    |       |    | 1 1/2 | 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 |
|       |    |       |    | 2 1/2 | 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 36 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    |
| 3½   | 90  | 3½  | 90  | 1½  | 40  | 1⅜ | 35 | 1⅜ | 35 | 2⅞ | 62  | 2⅜ | 60  | 2⅜ | 60  | 3⅞    | 78    | 8.87        | 4.02  |
|      |     |     |     | 2   | 50  | 1⅝ | 41 | 1⅝ | 41 | 2⅞ | 62  | 2⅝ | 67  | 2⅝ | 67  | 3⅞    | 81    | 9.94        | 4.51  |
| 4    | 100 | 1   | 25  | 4   | 100 | 2¾ | 70 | 2⅝ | 75 | 2¾ | 70  | 3¾ | 95  | 3½ | 89  | 3¾    | 95    | 13.52       | 6.13  |
|      |     | 1½  | 40  | 4   | 100 | 2¾ | 70 | 2⅞ | 73 | 2¾ | 70  | 3¾ | 95  | 3½ | 89  | 3¾    | 95    | 13.47       | 6.11  |
|      |     | 2   | 50  | 2   | 50  | 1⅞ | 43 | 1⅞ | 48 | 2¾ | 70  | 2⅞ | 68  | 2⅞ | 65  | 3½    | 89    | 11.34       | 5.14  |
|      |     |     |     | 4   | 100 | 2¾ | 70 | 2¾ | 70 | 2¾ | 70  | 3¾ | 95  | 3½ | 89  | 3¾    | 95    | 13.89       | 6.30  |
|      |     | 2½  | 65  | 2½  | 65  | 1⅞ | 48 | 1⅞ | 47 | 2⅝ | 67  | 2⅝ | 75  | 2⅞ | 73  | 3⅞    | 90    | 11.78       | 5.34  |
|      |     |     |     | 4   | 100 | 2¾ | 70 | 2¾ | 70 | 2¾ | 70  | 3¾ | 95  | 3⅝ | 92  | 3¾    | 95    | 15.75       | 7.14  |
|      |     | 3   | 80  | 2   | 50  | 1⅞ | 43 | 1⅞ | 40 | 2¾ | 70  | 2⅞ | 68  | 2⅞ | 65  | 3½    | 89    | 10.21       | 4.63  |
|      |     |     |     | 2½  | 65  | 1⅞ | 48 | 1⅞ | 48 | 2⅝ | 67  | 2⅝ | 75  | 2⅞ | 73  | 3⅞    | 90    | 11.25       | 5.10  |
|      |     |     |     | 3   | 80  | 2¼ | 57 | 2¼ | 54 | 2⅞ | 68  | 3¼ | 83  | 3⅞ | 79  | 3⅝    | 92    | 12.50       | 5.67  |
|      |     |     |     | 4   | 100 | 2¾ | 70 | 2⅞ | 68 | 2¾ | 70  | 3¾ | 95  | 3⅝ | 92  | 3¾    | 95    | 15.04       | 6.82  |
|      |     | 4   | 100 | 1   | 25  | 1⅞ | 22 | 1⅞ | 22 | 2¾ | 70  | 2⅝ | 59  | 2⅝ | 59  | 3⅞    | 84    | 10.40       | 4.72  |
|      |     |     |     | 1¼  | 32  | 1⅝ | 24 | 1⅝ | 24 | 2⅝ | 67  | 2⅝ | 59  | 2⅝ | 59  | 3⅞    | 84    | 10.38       | 4.71  |
|      |     |     |     | 1½  | 40  | 1⅞ | 37 | 1⅞ | 37 | 2⅞ | 68  | 2⅞ | 62  | 2⅞ | 62  | 3⅞    | 84    | 10.75       | 4.88  |
|      |     |     |     | 2   | 50  | 1⅞ | 43 | 1⅞ | 43 | 2¾ | 70  | 2⅞ | 68  | 2⅞ | 68  | 3½    | 89    | 11.63       | 5.27  |
|      |     |     |     | 2½  | 65  | 2  | 51 | 2  | 51 | 2⅝ | 67  | 2⅝ | 75  | 2⅝ | 75  | 3⅞    | 90    | 12.85       | 5.83  |
|      |     |     |     | 3   | 80  | 2¼ | 57 | 2¼ | 57 | 2⅞ | 68  | 3¼ | 83  | 3¼ | 83  | 3⅝    | 92    | 14.12       | 6.40  |
|      |     |     |     | 5   | 125 | 3⅞ | 86 | 3⅞ | 86 | 2⅞ | 73  | 4⅞ | 111 | 4⅞ | 111 | 4     | 102   | 20.88       | 9.47  |
|      |     |     |     | 6   | 150 | 3⅞ | 98 | 3⅞ | 98 | 2⅞ | 73  | 4⅝ | 125 | 4⅝ | 125 | 4⅞    | 103   | 26.36       | 11.95 |
| 5    | 125 | 5   | 125 | 2   | 50  | 1¾ | 44 | 1¾ | 44 | 3⅞ | 87  | 2⅝ | 75  | 2⅝ | 75  | 4⅞    | 105   | 17.43       | 7.90  |
|      |     |     |     | 3   | 80  | 2⅝ | 59 | 2⅝ | 59 | 3¼ | 83  | 3½ | 89  | 3½ | 89  | 4¼    | 108   | 20.00       | 9.07  |
|      |     |     |     | 4   | 100 | 2⅞ | 71 | 2⅞ | 71 | 3⅞ | 86  | 4  | 102 | 4  | 102 | 4⅞    | 111   | 23.83       | 10.81 |
| 6    | 150 | 4   | 100 | 2⅞  | 73  | 2⅞ | 71 | 3⅞ | 98 | 4⅞ | 103 | 4  | 102 | 4⅝ | 125 | 30.00 | 13.61 |             |       |
|      |     | 6   | 150 | 2½  | 65  | 2  | 51 | 2  | 51 | 3⅞ | 97  | 3¼ | 83  | 3¼ | 83  | 4⅞    | 121   | 25.67       | 11.64 |
|      |     |     |     | 3   | 80  | 2⅞ | 60 | 2⅞ | 60 | 3⅞ | 97  | 3⅞ | 90  | 3⅞ | 90  | 4⅞    | 122   | 27.46       | 12.45 |
|      |     |     |     | 4   | 100 | 2⅞ | 73 | 2⅞ | 73 | 3⅞ | 98  | 4⅞ | 103 | 4⅞ | 103 | 4⅝    | 125   | 32.44       | 14.71 |
|      |     |     |     | 5   | 125 | 3⅞ | 86 | 3⅞ | 86 | 3⅞ | 97  | 4⅝ | 117 | 4⅝ | 117 | 5     | 127   | 37.00       | 16.78 |

Note: See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

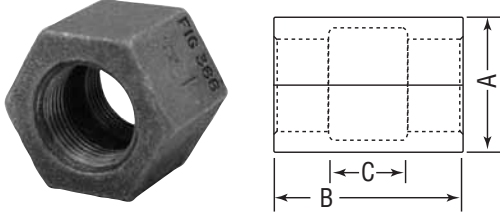
| <b>FIGURE 360</b><br>Cross | Size  |     | A       |    | B       |     | Unit Weight |       |
|----------------------------|-------|-----|---------|----|---------|-----|-------------|-------|
|                            |       |     |         |    |         |     | Black       |       |
|                            | 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 | 15/16   | 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  |
|                            | 6     | 150 | 3 7/8   | 98 | 5 1/8   | 130 | 47.67       | 21.62 |

| 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 | 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 1/4   | 32 | 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 1/4   | 32 | 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 1/4 | 32 | 1 1/8  | 29 | 1 1/8   | 29 | 1 3/8   | 35 | 1 3/8   | 35 | 1 3/8       | 35 | 1 13/16 | 47 | 1 7/8   | 48 | 3.90  | 1.77 |
| 2     | 50  | 1 1/2 | 40 | 1     | 25 | 1      | 25 | 1 1/16  | 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      | 25 | 1 1/8   | 29 | 1 3/16  | 22 | 1 1/2   | 38 | 1 7/16      | 37 | 1 7/8   | 48 | 2 1/16  | 52 | 4.25  | 1.93 |
|       |     | 1 1/4 | 32 | 1 1/4 | 32 | 1 1/8  | 29 | 1 3/16  | 22 | 1 3/16  | 22 | 1 1/2   | 38 | 1 7/16      | 37 | 1 7/8   | 48 | 2 1/16  | 52 | 4.18  | 1.90 |
|       |     | 1 1/2 | 40 | 1 1/2 | 40 | 1 1/4  | 32 | 1 1/16  | 17 | 1 1/16  | 17 | 1 7/16  | 37 | 1 7/16      | 37 | 1 3/4   | 44 | 2       | 51 | 3.22  | 1.46 |
| 2 1/2 | 65  | 2     | 50 | 1 1/4 | 32 | 1 1/4  | 32 | 1 1/8   | 29 | 1 7/16  | 37 | 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 | 1 7/16      | 37 | 2       | 51 | 2 1/8   | 54 | 4.08  | 1.85 |
|       |     | 1 1/2 | 40 | 1 1/2 | 40 | 1 1/4  | 32 | 1 1/4   | 32 | 1 13/16 | 47 | 1 13/16 | 47 | 1 15/16     | 49 | 2 5/16  | 59 | 2 5/16  | 59 | 5.11  | 2.32 |
|       |     | 2     | 50 | 2     | 50 | 1 1/2  | 40 | 1 1/2   | 40 | 1 7/8   | 48 | 1 7/8   | 48 | 2 3/16      | 56 | 2 7/16  | 62 | 2 7/16  | 62 | 6.13  | 2.78 |
| 3     | 80  | 2 1/2 | 65 | 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 |
|       |     | 1 1/4 | 32 | 1 1/4 | 32 | 1 1/8  | 29 | 1 3/16  | 22 | 1 3/16  | 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 1/4 | 32 | 1 1/8  | 29 | 1 1/8   | 29 | 1 13/16 | 47 | 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 | 2 7/16  | 62 | 5.68  | 2.58 |
| 4     | 100 | 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 | 2 9/16  | 65 | 6.82  | 3.09 |
|       |     | 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 | 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 | 2 15/16 | 75 | 8.85  | 4.01 |
|       |     | 2 1/2 | 65 | 2 1/2 | 65 | 2      | 50 | 2 11/16 | 68 | 2 11/16 | 68 | 2 11/16 | 68 | 2 3/4       | 70 | 3 7/16  | 87 | 3 7/16  | 87 | 12.00 | 5.44 |

Note: See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

| <b>FIGURE 366</b><br><b>Screwed Hex Coupling</b>                                  | Size |    | Across Flats<br>A               |    | B                               |    | C                |    | Unit Weight<br>Black |      |
|-----------------------------------------------------------------------------------|------|----|---------------------------------|----|---------------------------------|----|------------------|----|----------------------|------|
|                                                                                   | NPS  | DN | in                              | mm | in                              | mm | in               | mm | lbs                  | kg   |
|                                                                                   |      |    |                                 |    |                                 |    |                  |    |                      |      |
|  | 1    | 25 | 1 <sup>15</sup> / <sub>16</sub> | 49 | 1 <sup>11</sup> / <sub>16</sub> | 43 | 9/ <sub>16</sub> | 14 | 0.82                 | 0.37 |

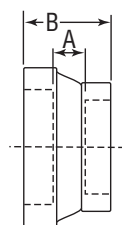
| <b>FIGURE 487</b><br><b>Flanged Union Gasket Type</b>                                                        | Size                          |     | Diam. of<br>Flanges              |     | No. of<br>Bolts | Unit Weight |       |       |       |
|--------------------------------------------------------------------------------------------------------------|-------------------------------|-----|----------------------------------|-----|-----------------|-------------|-------|-------|-------|
|                                                                                                              | NPS                           | DN  | in                               | mm  |                 | Black       |       | Galv. |       |
|                                                                                                              |                               |     |                                  |     |                 | lbs         | kg    | lbs   | kg    |
| Assembled with gaskets<br> | 1/2                           | 15  | 2 <sup>15</sup> / <sub>16</sub>  | 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 <sup>1</sup> / <sub>4</sub>    | 83  | 3               | 2.25        | 1.02  | 2.25  | 1.02  |
|                                                                                                              | 1 <sup>1</sup> / <sub>4</sub> | 32  | 4 <sup>3</sup> / <sub>16</sub>   | 106 | 4               | 4.75        | 2.15  | 4.75  | 2.15  |
|                                                                                                              | 1 <sup>1</sup> / <sub>2</sub> | 40  | 4 <sup>3</sup> / <sub>8</sub>    | 111 | 4               | 5.00        | 2.27  | 5.00  | 2.27  |
|                                                                                                              | 2                             | 50  | 5                                | 127 | 4               | 6.50        | 2.95  | 6.50  | 2.95  |
|                                                                                                              | 2 <sup>1</sup> / <sub>2</sub> | 65  | 5 <sup>5</sup> / <sub>8</sub>    | 143 | 4               | 8.50        | 3.85  | 8.50  | 3.85  |
|                                                                                                              | 3                             | 80  | 6 <sup>3</sup> / <sub>8</sub>    | 162 | 4               | 11.00       | 4.99  | 11.00 | 4.99  |
|                                                                                                              | 3 <sup>1</sup> / <sub>2</sub> | 90  | 6 <sup>7</sup> / <sub>8</sub>    | 175 | 4               | 12.75       | 5.78  | —     | —     |
|                                                                                                              | 4                             | 100 | 7 <sup>11</sup> / <sub>16</sub>  | 195 | 5               | 18.00       | 8.16  | 18.00 | 8.16  |
|                                                                                                              | 5                             | 125 | 8 <sup>15</sup> / <sub>16</sub>  | 227 | 5               | 22.00       | 9.98  | —     | —     |
|                                                                                                              | 6                             | 150 | 10 <sup>1</sup> / <sub>4</sub>   | 260 | 6               | 30.00       | 13.61 | 30.00 | 13.61 |
|                                                                                                              | 8                             | 200 | 12 <sup>15</sup> / <sub>16</sub> | 329 | 8               | 51.00       | 23.13 | 51.00 | 23.13 |

**Note:** See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

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

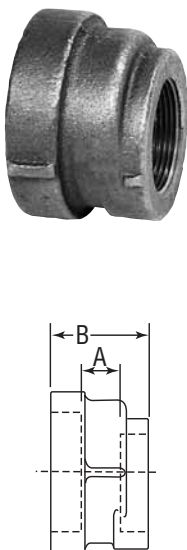


| Size  |     |           |     | A      |    | B       |    | Unit Weight |       |
|-------|-----|-----------|-----|--------|----|---------|----|-------------|-------|
|       |     |           |     |        |    |         |    | Black       |       |
| NPS   | DN  | NPS       | DN  | in     | mm | 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  | 1 5/16 | 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  | 1 3/16 | 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  | 1 5/16 | 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  | 1 5/16 | 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 |

**Note:** See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

| FIGURE 368<br>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 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

| <b>FIGURE 383</b><br><b>Hex Bushing</b><br><br>Outside Hex<br>Type A<br><br><br><br>Inside Hex<br>Type B<br><br> | Size |    |          |               |     |    | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----|----------|---------------|-----|----|-------------|------|-------|------|
|                                                                                                                                                                                                                                                                                    |      |    |          |               |     |    | Black       |      | Galv. |      |
|                                                                                                                                                                                                                                                                                    | NPS  | DN | Hex Type | All Cast Iron | NPS | DN | lbs         | kg   | lbs   | kg   |
| See page 35 (Malleable Iron)<br>for other available sizes.                                                                                                                                                                                                                         | 1½   | 40 | A        | C             | ¼   | 8  | 0.47        | 0.21 | 0.47  | 0.21 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ⅜   | 10 | 0.47        | 0.21 | 0.47  | 0.21 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ½   | 15 | 0.42        | 0.19 | 0.42  | 0.19 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ¾   | 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             | ¼   | 8  | 0.75        | 0.34 | 0.75  | 0.34 |
|                                                                                                                                                                                                                                                                                    |      |    | A        | C             | ⅜   | 10 | 0.75        | 0.34 | 0.75  | 0.34 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ½   | 15 | 0.70        | 0.32 | 0.70  | 0.32 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ¾   | 20 | 0.71        | 0.32 | 0.71  | 0.32 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1   | 25 | 0.73        | 0.33 | 0.73  | 0.33 |
|                                                                                                                                                                                                                                                                                    |      |    | A        | C             | 1¼  | 32 | 0.81        | 0.37 | 0.81  | 0.37 |
|                                                                                                                                                                                                                                                                                    | 2½   | 65 | B        | C             | ½   | 15 | 1.28        | 0.58 | 1.28  | 0.58 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ¾   | 20 | 1.25        | 0.57 | 1.25  | 0.57 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1   | 25 | 1.16        | 0.53 | 1.16  | 0.53 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1¼  | 32 | 1.24        | 0.56 | 1.24  | 0.56 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1½  | 40 | 1.29        | 0.59 | 1.29  | 0.59 |
|                                                                                                                                                                                                                                                                                    | 3    | 80 | B        | C             | ½   | 15 | 1.93        | 0.88 | 1.93  | 0.88 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | ¾   | 20 | 1.92        | 0.87 | 1.92  | 0.87 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1   | 25 | 1.90        | 0.86 | 1.90  | 0.86 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1¼  | 32 | 1.77        | 0.80 | 1.77  | 0.80 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1½  | 40 | 1.79        | 0.81 | 1.79  | 0.81 |
|                                                                                                                                                                                                                                                                                    |      |    | A        | C             | 2   | 50 | 1.90        | 0.86 | 1.90  | 0.86 |
|                                                                                                                                                                                                                                                                                    |      |    | A        | C             | 2½  | 65 | 1.63        | 0.74 | 1.63  | 0.74 |
|                                                                                                                                                                                                                                                                                    | 3½   | 80 | B        | C             | 1   | 25 | 2.42        | 1.10 | 2.42  | 1.10 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1¼  | 32 | 2.56        | 1.16 | 2.56  | 1.16 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 1½  | 40 | 2.65        | 1.20 | 2.65  | 1.20 |
|                                                                                                                                                                                                                                                                                    |      |    | B        | C             | 2   | 50 | 2.54        | 1.15 | 2.54  | 1.15 |
|                                                                                                                                                                                                                                                                                    |      |    | A        | C             | 2½  | 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 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 125 (Standard)

Continued from previous page.

| <b>FIGURE 383</b><br><b>Hex Bushing</b>                                                                                                                                                                                  | Size |     |          |               |       |     | Unit Weight |       |       |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|----------|---------------|-------|-----|-------------|-------|-------|------|
|                                                                                                                                                                                                                          |      |     |          |               |       |     | Black       |       | Galv. |      |
|                                                                                                                                                                                                                          | NPS  | DN  | Hex Type | All Cast Iron | NPS   | DN  | lbs         | kg    | lbs   | kg   |
| Outside Hex<br>Type A<br><br>Inside Hex<br>Type B<br> | 4    | 100 | B        | C             | 1     | 25  | 3.59        | 1.63  | 3.59  | 1.63 |
|                                                                                                                                                                                                                          |      |     | B        | C             | 1 1/4 | 32  | 3.54        | 1.61  | 3.54  | 1.61 |
|                                                                                                                                                                                                                          |      |     | B        | C             | 1 1/2 | 40  | 3.44        | 1.56  | 3.44  | 1.56 |
|                                                                                                                                                                                                                          |      |     | B        | C             | 2     | 50  | 3.11        | 1.41  | 3.11  | 1.41 |
|                                                                                                                                                                                                                          |      |     | B        | C             | 2 1/2 | 65  | 3.29        | 1.49  | 3.29  | 1.49 |
|                                                                                                                                                                                                                          |      |     | A        | C             | 3     | 80  | 3.15        | 1.43  | 3.15  | 1.43 |
|                                                                                                                                                                                                                          |      |     | A        | C             | 3 1/2 | 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             | 2 1/2 | 65  | 4.87        | 2.21  | 4.87  | 2.21 |
|                                                                                                                                                                                                                          |      |     | B        | C             | 3     | 80  | 4.83        | 2.19  | 4.83  | 2.19 |
|                                                                                                                                                                                                                          |      |     | A        | C             | 3 1/2 | 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             | 2 1/2 | 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 |
| See page 35 (Malleable Iron)<br>for other available sizes.                                                                                                                                                               | 10   | 250 | B        | C             | 6     | 150 | 24.50       | 11.11 | —     | —    |
|                                                                                                                                                                                                                          |      |     | A        | C             | 8     | 200 | 22.00       | 9.98  | —     | —    |

| <b>FIGURE 385</b><br><b>Face Bushing</b>                                                                                                          | Size |     |       |    | Unit Weight |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|-------|----|-------------|------|
|                                                                                                                                                   |      |     |       |    | Black       |      |
|                                                                                                                                                   | NPS  | DN  | NPS   | DN | lbs         | kg   |
| <br>See page 35 (Malleable Iron)<br>for other available sizes. | 3    | 80  | 2     | 50 | 13.30       | 6.03 |
|                                                                                                                                                   | 4    | 100 | 2 1/2 | 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 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

### Class 125 (Standard)

| <b>FIGURE 387</b><br><b>Square Head Plugs, Cored</b>                              | 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 |

| <b>FIGURE 388</b><br><b>Square Head Plugs, Solid</b>                               | 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 | —     | —    |

| <b>FIGURE 389</b><br><b>Bar Plugs, Cored</b>                                        | 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 |

| <b>FIGURE 380</b><br><b>Bar Plugs, Solid</b>                                         | 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 |

| <b>FIGURE 390</b><br><b>Countersunk Plugs</b>                                       | 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 32 (Malleable Iron) for other available sizes.

| <b>FIGURE 381</b><br><b>Cap</b>                                                      | 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 36 for pressure-temperature ratings.

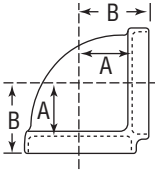
## Cast Iron Threaded Fittings

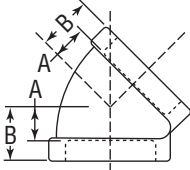
Class 125 (Standard)

| <b>FIGURE 370</b><br><b>Locknut</b><br> | Size |     | Minimum Dimensions |     |       |     |      |    |      |    | Unit Weight |      |
|--------------------------------------------------------------------------------------------------------------------------|------|-----|--------------------|-----|-------|-----|------|----|------|----|-------------|------|
|                                                                                                                          |      |     | A                  |     | B     |     | C    |    | D    |    | Black       |      |
|                                                                                                                          | NPS  | DN  | in                 | mm  | in    | mm  | in   | mm | in   | mm | lbs         | kg   |
| For nominal sizes smaller than 2½" (65 DN)<br>see Malleable Iron page 27.                                                | 2½   | 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 |
|                                                                                                                          | 4    | 100 | 5.380              | 137 | 5.000 | 127 | .800 | 20 | .130 | 3  | 1.10        | 0.50 |

## Cast Iron Threaded Fittings

Class 250 (Extra Heavy)

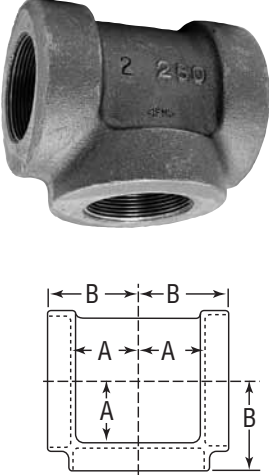
| <b>FIGURE 421</b><br><b>90° Elbow</b><br> | Size |    | A  |    | B  |    | Unit Weight |      |
|-----------------------------------------------------------------------------------------------------------------------------|------|----|----|----|----|----|-------------|------|
|                                                                                                                             |      |    |    |    |    |    | Black       |      |
|                                                                                                                             | NPS  | DN | in | mm | in | mm | lbs         | kg   |
|                                          | ¼    | 8  | ⅝  | 16 | ⅝  | 24 | 0.37        | 0.17 |
|                                                                                                                             | ½    | 15 | ⅜  | 22 | 1¼ | 32 | 0.75        | 0.34 |
|                                                                                                                             | ¾    | 20 | ⅝  | 24 | 1⅞ | 37 | 1.13        | 0.51 |
|                                                                                                                             | 1    | 25 | 1⅞ | 27 | 1⅝ | 41 | 1.79        | 0.81 |
|                                                                                                                             | 1¼   | 32 | 1⅝ | 33 | 1⅝ | 49 | 3.00        | 1.36 |
|                                                                                                                             | 1½   | 40 | 1½ | 38 | 2⅞ | 54 | 4.05        | 1.84 |
|                                                                                                                             | 2    | 50 | 1⅜ | 47 | 2½ | 64 | 6.76        | 3.07 |
|                                                                                                                             | 2½   | 65 | 2  | 51 | 2⅝ | 75 | 10.56       | 4.79 |
|                                                                                                                             | 3    | 80 | 2⅜ | 60 | 3⅜ | 86 | 15.25       | 6.92 |

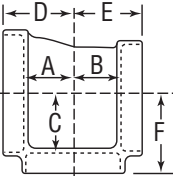
| <b>FIGURE 424</b><br><b>45° Elbow</b><br> | Size |    | A  |    | B  |    | Unit Weight |      |
|------------------------------------------------------------------------------------------------------------------------------|------|----|----|----|----|----|-------------|------|
|                                                                                                                              |      |    |    |    |    |    | Black       |      |
|                                                                                                                              | NPS  | DN | in | mm | in | mm | lbs         | kg   |
|                                           | ½    | 15 | ⅞  | 14 | 1  | 25 | 0.66        | 0.30 |
|                                                                                                                              | ¾    | 20 | ⅝  | 16 | 1⅞ | 29 | 1.04        | 0.47 |
|                                                                                                                              | 1    | 25 | ¾  | 19 | 1⅝ | 33 | 1.56        | 0.71 |
|                                                                                                                              | 1¼   | 32 | ⅞  | 22 | 1½ | 38 | 2.70        | 1.22 |
|                                                                                                                              | 1½   | 40 | 1⅞ | 27 | 1⅞ | 43 | 3.55        | 1.61 |
|                                                                                                                              | 2    | 50 | 1⅝ | 33 | 2  | 51 | 6.07        | 2.75 |
|                                                                                                                              | 2½   | 65 | 1⅝ | 33 | 2¼ | 57 | 9.79        | 4.44 |

Note: See page 36 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

Class 250 (Extra Heavy)

| <b>FIGURE 425</b><br><b>Tee</b>                                                   | 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<br>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   |
| <br> | 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 36 for pressure-temperature ratings.

## Cast Iron Drainage Fittings



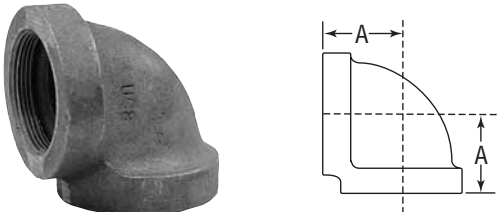
Anvil drainage fittings have sufficient sweep to allow free unobstructed flow. They are made with a shoulder of the same diameter as the inside of the pipe. Thus, continuous passage is created when the pipe is screwed to the shoulder. There is no place for solid matter to collect and clog in the pipe. Also, Anvil drainage fittings are recessed and threaded for wrought pipe.

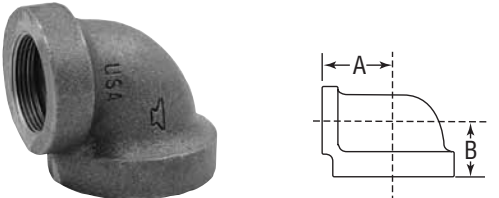
Coated drainage fittings are available in hot dipped, galvanized finish (in sizes listed). Coated drainage fittings are made to order.

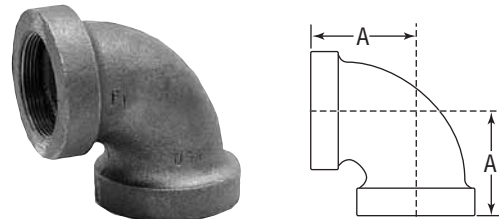
90° type drainage fittings are normally tapped with pitch of  $\frac{1}{4}$  inch (6mm) to the foot.

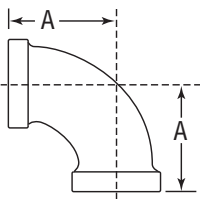
UNPITCHED 90° drainage fittings are POA only.

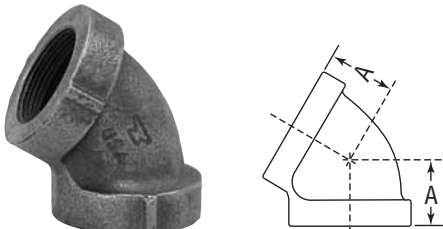
## Cast Iron Drainage Fittings

| <b>FIGURE 701*</b><br>90° Short Turn Elbow                                        | Size |     | A                               |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|------|-----|---------------------------------|----|-------------|------|-------|------|
|                                                                                   |      |     |                                 |    | Black       |      | Galv. |      |
|                                                                                   | NPS  | DN  | in                              | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40  | 1 <sup>15</sup> / <sub>16</sub> | 49 | 1.91        | 0.87 | 1.91  | 0.87 |
|                                                                                   | 2    | 50  | 2 <sup>1</sup> / <sub>4</sub>   | 57 | 3.04        | 1.38 | 3.04  | 1.38 |
|                                                                                   | 3    | 80  | 3 <sup>1</sup> / <sub>16</sub>  | 78 | 7.09        | 3.22 | 7.09  | 3.22 |
|                                                                                   | 4    | 100 | 3 <sup>13</sup> / <sub>16</sub> | 98 | 13.69       | 6.21 | 13.69 | 6.21 |

| <b>FIGURE 701R*</b><br>90° Reducing Short Turn Elbow                              | Size |    |     |    | A                             |    | B                               |    | Unit Weight |      |
|-----------------------------------------------------------------------------------|------|----|-----|----|-------------------------------|----|---------------------------------|----|-------------|------|
|                                                                                   |      |    |     |    |                               |    |                                 |    | Black       |      |
|                                                                                   | NPS  | DN | NPS | DN | in                            | mm | in                              | mm | lbs         | kg   |
|  | 1½   | 40 | 1¼  | 32 | 1 <sup>7</sup> / <sub>8</sub> | 48 | 1 <sup>11</sup> / <sub>16</sub> | 43 | 1.69        | 0.77 |
|                                                                                   | 2    | 50 | 1½  | 40 | 2 <sup>1</sup> / <sub>8</sub> | 54 | 2                               | 51 | 2.49        | 1.13 |

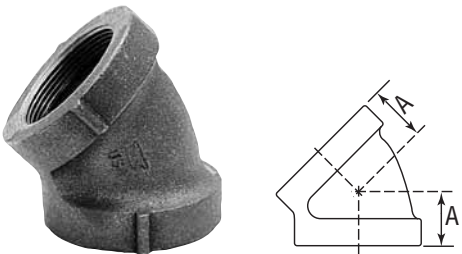
| <b>FIGURE 702*</b><br>90° Long Turn Elbow                                           | Size |     | A                              |     | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|-----|--------------------------------|-----|-------------|------|-------|------|
|                                                                                     |      |     |                                |     | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN  | in                             | mm  | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40  | 2½                             | 64  | 2.24        | 1.02 | 2.24  | 1.02 |
|                                                                                     | 2    | 50  | 3 <sup>1</sup> / <sub>16</sub> | 78  | 3.61        | 1.64 | 3.61  | 1.64 |
|                                                                                     | 3    | 80  | 4 <sup>1</sup> / <sub>4</sub>  | 108 | 9.04        | 4.10 | —     | —    |
|                                                                                     | 4    | 100 | 5 <sup>3</sup> / <sub>16</sub> | 132 | 16.40       | 7.44 | —     | —    |

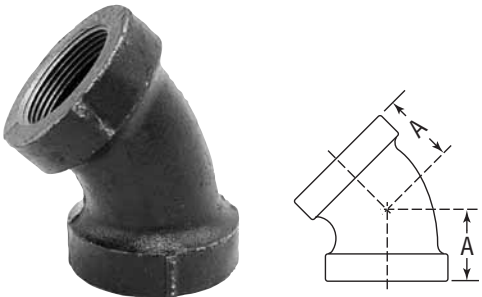
| <b>FIGURE 702A*</b><br>90° Extra Long Turn Elbow                                    | Size |    | A  |     | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|----|-----|-------------|------|
|                                                                                     |      |    |    |     | Black       |      |
|                                                                                     | NPS  | DN | in | mm  | lbs         | kg   |
|  | 1½   | 40 | 3½ | 90  | 2.62        | 1.19 |
|                                                                                     | 2    | 50 | 4  | 100 | 4.54        | 2.06 |

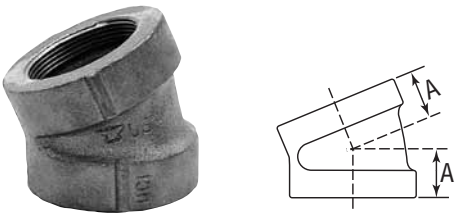
| <b>FIGURE 703</b><br>60° Short Turn Elbow                                           | Size |    | A  |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|----|----|-------------|------|
|                                                                                     |      |    |    |    | Black       |      |
|                                                                                     | NPS  | DN | in | mm | lbs         | kg   |
|  | 1½   | 40 | 3½ | 89 | 2.34        | 1.06 |

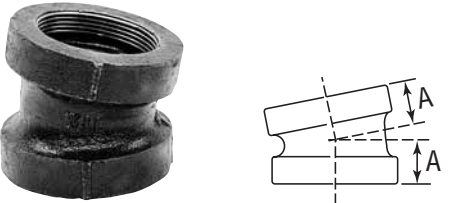
\*Inlets tapped, pitched .25" (6mm) to the foot. Inlets of reducing fittings are always the smallest openings.

## Cast Iron Drainage Fittings

| <b>FIGURE 705</b><br><b>45° Short Turn Elbow</b>                                  | Size |     | A                               |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|------|-----|---------------------------------|----|-------------|------|-------|------|
|                                                                                   |      |     |                                 |    | Black       |      | Galv. |      |
|                                                                                   | NPS  | DN  | in                              | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40  | 1 <sup>7</sup> / <sub>16</sub>  | 37 | 1.71        | 0.78 | 1.71  | 0.78 |
|                                                                                   | 2    | 50  | 1 <sup>11</sup> / <sub>16</sub> | 43 | 2.79        | 1.27 | 2.79  | 1.27 |
|                                                                                   | 3    | 80  | 2 <sup>3</sup> / <sub>16</sub>  | 56 | 6.31        | 2.86 | 6.31  | 2.86 |
|                                                                                   | 4    | 100 | 2 <sup>5</sup> / <sub>8</sub>   | 67 | 11.44       | 5.19 | 11.44 | 5.19 |

| <b>FIGURE 706</b><br><b>45° Long Turn Elbow</b>                                    | Size |    | A                             |    | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------|------|----|-------------------------------|----|-------------|------|-------|------|
|                                                                                    |      |    |                               |    | Black       |      | Galv. |      |
|                                                                                    | NPS  | DN | in                            | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 1 <sup>7</sup> / <sub>8</sub> | 48 | 2.1         | 0.97 | 2.14  | 0.97 |

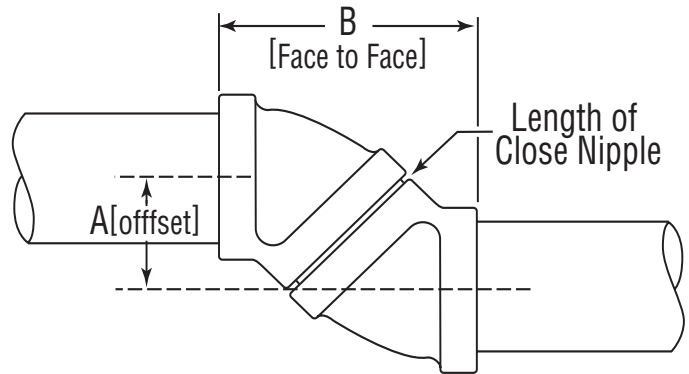
| <b>FIGURE 707</b><br><b>22 ½° Elbow</b>                                             | Size |    | A                              |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|----|--------------------------------|----|-------------|------|-------|------|
|                                                                                     |      |    |                                |    | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN | in                             | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 1 <sup>1</sup> / <sub>4</sub>  | 32 | 1.65        | 0.75 | 1.65  | 0.75 |
|                                                                                     | 2    | 50 | 1 <sup>7</sup> / <sub>16</sub> | 37 | 3.08        | 1.40 | 3.08  | 1.40 |

| <b>FIGURE 708</b><br><b>11 ¼° Elbow</b>                                             | Size |    | A                             |    | Unit Weight |      |     |    |
|-------------------------------------------------------------------------------------|------|----|-------------------------------|----|-------------|------|-----|----|
|                                                                                     |      |    |                               |    | Black       |      |     |    |
|                                                                                     | NPS  | DN | in                            | mm | lbs         | kg   | lbs | kg |
|  | 1½   | 40 | 1 <sup>1</sup> / <sub>4</sub> | 32 | 1.81        | 0.82 |     |    |
|                                                                                     | 2    | 50 | 1 <sup>3</sup> / <sub>8</sub> | 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

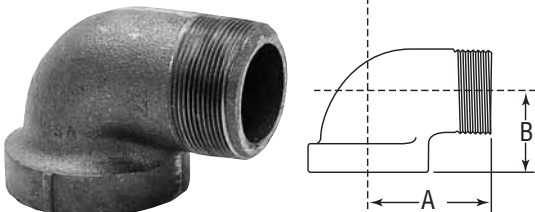


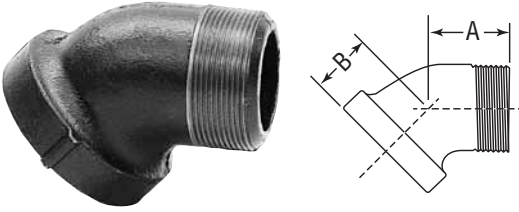
| Size                          |     | Length<br>Close<br>Nipple     |    | 60° Short<br>Figure 703         |     |                                  |     | 45° Short<br>Figure 705         |     |                                 |     | 45° Long<br>Figure 706         |     |                                |     |
|-------------------------------|-----|-------------------------------|----|---------------------------------|-----|----------------------------------|-----|---------------------------------|-----|---------------------------------|-----|--------------------------------|-----|--------------------------------|-----|
|                               |     |                               |    | A                               |     | B                                |     | A                               |     | B                               |     | A                              |     | B                              |     |
| NPS                           | DN  | in                            | mm | in                              | mm  | in                               | mm  | in                              | mm  | in                              | mm  | in                             | mm  | in                             | mm  |
| 1 <sup>1</sup> / <sub>4</sub> | 32  | 1 <sup>5</sup> / <sub>8</sub> | 41 | 3                               | 76  | 4 <sup>7</sup> / <sub>8</sub>    | 124 | 2 <sup>1</sup> / <sub>8</sub>   | 54  | 4 <sup>3</sup> / <sub>4</sub>   | 121 | 2 <sup>3</sup> / <sub>4</sub>  | 70  | 6 <sup>1</sup> / <sub>4</sub>  | 159 |
| 1 <sup>1</sup> / <sub>2</sub> | 40  | 1 <sup>3</sup> / <sub>4</sub> | 44 | 3 <sup>1</sup> / <sub>2</sub>   | 89  | 5 <sup>1</sup> / <sub>2</sub>    | 140 | 2 <sup>3</sup> / <sub>8</sub>   | 60  | 5 <sup>1</sup> / <sub>4</sub>   | 133 | 3                              | 76  | 6 <sup>3</sup> / <sub>4</sub>  | 171 |
| 2                             | 50  | 2                             | 51 | 4 <sup>1</sup> / <sub>8</sub>   | 105 | 6 <sup>1</sup> / <sub>2</sub>    | 165 | 2 <sup>13</sup> / <sub>16</sub> | 73  | 6 <sup>3</sup> / <sub>16</sub>  | 157 | 3 <sup>5</sup> / <sub>8</sub>  | 92  | 8 <sup>1</sup> / <sub>8</sub>  | 206 |
| 2 <sup>1</sup> / <sub>2</sub> | 65  | 2 <sup>1</sup> / <sub>2</sub> | 64 | 4 <sup>15</sup> / <sub>16</sub> | 125 | 7 <sup>7</sup> / <sub>8</sub>    | 200 | 3 <sup>1</sup> / <sub>4</sub>   | 83  | 7 <sup>1</sup> / <sub>16</sub>  | 179 | 4 <sup>3</sup> / <sub>16</sub> | 106 | 9 <sup>1</sup> / <sub>2</sub>  | 241 |
| 3                             | 80  | 2 <sup>5</sup> / <sub>8</sub> | 67 | 5 <sup>9</sup> / <sub>16</sub>  | 141 | 9                                | 229 | 3 <sup>9</sup> / <sub>16</sub>  | 90  | 7 <sup>15</sup> / <sub>16</sub> | 202 | 4 <sup>5</sup> / <sub>8</sub>  | 117 | 10 <sup>1</sup> / <sub>2</sub> | 267 |
| 4                             | 100 | 2 <sup>7</sup> / <sub>8</sub> | 73 | 6 <sup>1</sup> / <sub>2</sub>   | 165 | 10 <sup>1</sup> / <sub>2</sub>   | 267 | 4 <sup>1</sup> / <sub>4</sub>   | 108 | 9 <sup>1</sup> / <sub>2</sub>   | 241 | 5 <sup>1</sup> / <sub>2</sub>  | 140 | 12 <sup>1</sup> / <sub>2</sub> | 318 |
| 5                             | 125 | 3                             | 76 | 7 <sup>1</sup> / <sub>4</sub>   | 184 | 11 <sup>15</sup> / <sub>16</sub> | 303 | 4 <sup>3</sup> / <sub>4</sub>   | 121 | 10 <sup>7</sup> / <sub>8</sub>  | 276 | 6 <sup>1</sup> / <sub>4</sub>  | 159 | 14 <sup>1</sup> / <sub>2</sub> | 368 |
| 6                             | 150 | 3 <sup>1</sup> / <sub>8</sub> | 79 | 7 <sup>7</sup> / <sub>8</sub>   | 200 | 13 <sup>1</sup> / <sub>16</sub>  | 332 | 5 <sup>5</sup> / <sub>16</sub>  | 135 | 12 <sup>1</sup> / <sub>8</sub>  | 308 | 7 <sup>3</sup> / <sub>8</sub>  | 187 | 17 <sup>1</sup> / <sub>8</sub> | 435 |
| 8                             | 200 | 3 <sup>1</sup> / <sub>2</sub> | 89 | 9 <sup>3</sup> / <sub>8</sub>   | 238 | 16 <sup>3</sup> / <sub>16</sub>  | 411 | 6 <sup>9</sup> / <sub>16</sub>  | 167 | 15                              | 381 | 9                              | 229 | —                              | —   |
| 10                            | 250 | 3 <sup>7</sup> / <sub>8</sub> | 98 | —                               | —   | —                                | —   | 7 <sup>15</sup> / <sub>16</sub> | 202 | 18 <sup>5</sup> / <sub>16</sub> | 465 | —                              | —   | —                              | —   |

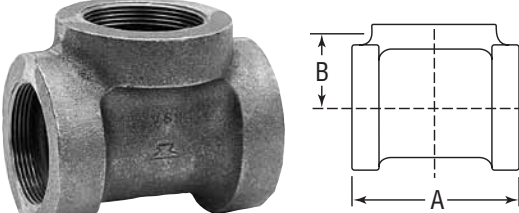
| Size                          |     | Length<br>Close<br>Nipple     |    | 22 1/2°<br>Figure 707           |    |                                  |     | 11 1/4°<br>Figure 708          |    |                                |     |
|-------------------------------|-----|-------------------------------|----|---------------------------------|----|----------------------------------|-----|--------------------------------|----|--------------------------------|-----|
|                               |     |                               |    | A                               |    | B                                |     | A                              |    | B                              |     |
| NPS                           | DN  | in                            | mm | in                              | mm | in                               | mm  | in                             | mm | in                             | mm  |
| 1 <sup>1</sup> / <sub>4</sub> | 32  | 1 <sup>5</sup> / <sub>8</sub> | 41 | 1                               | 25 | 4 <sup>11</sup> / <sub>16</sub>  | 119 | 1/2                            | 13 | 4 <sup>9</sup> / <sub>16</sub> | 116 |
| 1 <sup>1</sup> / <sub>2</sub> | 40  | 1 <sup>3</sup> / <sub>4</sub> | 44 | 1 <sup>1</sup> / <sub>8</sub>   | 29 | 5 <sup>1</sup> / <sub>4</sub>    | 133 | 5/8                            | 16 | 5 <sup>7</sup> / <sub>16</sub> | 138 |
| 2                             | 50  | 2                             | 51 | 1 <sup>3</sup> / <sub>8</sub>   | 35 | 6 <sup>1</sup> / <sub>8</sub>    | 156 | 1 <sup>1</sup> / <sub>16</sub> | 17 | 6 <sup>1</sup> / <sub>16</sub> | 154 |
| 2 <sup>1</sup> / <sub>2</sub> | 65  | 2 <sup>1</sup> / <sub>2</sub> | 64 | 1 <sup>5</sup> / <sub>8</sub>   | 41 | 7 <sup>3</sup> / <sub>8</sub>    | 187 | 1 <sup>3</sup> / <sub>16</sub> | 22 | 7 <sup>1</sup> / <sub>8</sub>  | 181 |
| 3                             | 80  | 2 <sup>5</sup> / <sub>8</sub> | 67 | 1 <sup>13</sup> / <sub>16</sub> | 47 | 8 <sup>5</sup> / <sub>16</sub>   | 211 | 7/8                            | 22 | 7 <sup>7</sup> / <sub>8</sub>  | 200 |
| 4                             | 100 | 2 <sup>7</sup> / <sub>8</sub> | 73 | 2 <sup>1</sup> / <sub>16</sub>  | 52 | 9 <sup>9</sup> / <sub>16</sub>   | 243 | 1 <sup>5</sup> / <sub>16</sub> | 24 | 8 <sup>5</sup> / <sub>8</sub>  | 219 |
| 5                             | 125 | 3                             | 76 | 2 <sup>1</sup> / <sub>4</sub>   | 57 | 10 <sup>11</sup> / <sub>16</sub> | 271 | 1                              | 25 | 9 <sup>1</sup> / <sub>2</sub>  | 241 |
| 6                             | 150 | 3 <sup>1</sup> / <sub>8</sub> | 79 | 2 <sup>1</sup> / <sub>2</sub>   | 64 | 11 <sup>7</sup> / <sub>8</sub>   | 302 | 1 <sup>1</sup> / <sub>16</sub> | 27 | 10                             | 254 |
| 8                             | 200 | 3 <sup>1</sup> / <sub>2</sub> | 89 | 3                               | 76 | 14 <sup>7</sup> / <sub>16</sub>  | 367 | 1 <sup>1</sup> / <sub>4</sub>  | 32 | 11 <sup>5</sup> / <sub>8</sub> | 295 |
| 10                            | 250 | 3 <sup>7</sup> / <sub>8</sub> | 98 | 3 <sup>7</sup> / <sub>8</sub>   | 98 | 17 <sup>13</sup> / <sub>16</sub> | 452 | 1 <sup>7</sup> / <sub>16</sub> | 37 | 13 <sup>1</sup> / <sub>4</sub> | 337 |

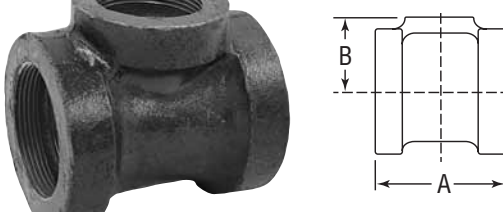
\*Inlets tapped, pitched .25" (6mm) to the foot. Inlets of reducing fittings are always the smallest openings.

## Cast Iron Drainage Fittings

| <b>FIGURE 718*</b><br><b>90° Street Elbow</b>                                     | Size |    | A  |    | B  |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|------|----|----|----|----|----|-------------|------|-------|------|
|                                                                                   |      |    |    |    |    |    | Black       |      | Galv. |      |
|                                                                                   | NPS  | DN | in | mm | in | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 3  | 76 | 1⅞ | 48 | 2.05        | 0.93 | 2.05  | 0.93 |
|                                                                                   | 2    | 50 | 3¼ | 83 | 2⅜ | 56 | 3.10        | 1.41 | 3.10  | 1.41 |

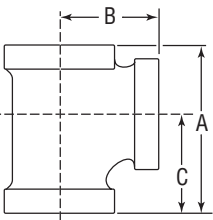
| <b>FIGURE 719</b><br><b>45° Street Elbow</b>                                       | Size |    | A  |    | B  |    | Unit Weight |      |       |      |
|------------------------------------------------------------------------------------|------|----|----|----|----|----|-------------|------|-------|------|
|                                                                                    |      |    |    |    |    |    | Black       |      | Galv. |      |
|                                                                                    | NPS  | DN | in | mm | in | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 2  | 51 | 1¼ | 32 | 1.64        | 0.74 | 1.64  | 0.74 |
|                                                                                    | 2    | 50 | 2¼ | 57 | 1⅞ | 43 | 2.67        | 1.21 | 2.67  | 1.21 |

| <b>FIGURE 722*</b><br><b>Tee</b>                                                    | Size |    | A  |     | B  |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|----|----|-----|----|----|-------------|------|-------|------|
|                                                                                     |      |    |    |     |    |    | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN | in | mm  | in | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 3⅞ | 98  | 1⅝ | 49 | 2.59        | 1.17 | 2.59  | 1.17 |
|                                                                                     | 2    | 50 | 4½ | 114 | 2¼ | 57 | 4.66        | 2.11 | 4.66  | 2.11 |

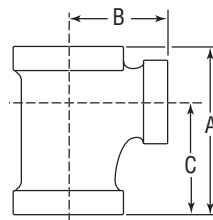
| FIGURE 723*<br>Reducing Tee                                                         | Size |    |     |    |     |    | A  |     | B  |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|-----|----|-----|----|----|-----|----|----|-------------|------|
|                                                                                     |      |    |     |    |     |    |    |     |    |    | Black       |      |
|                                                                                     | NPS  | DN | NPS | DN | NPS | DN | in | mm  | in | mm | lbs         | kg   |
|  | 2    | 50 | 2   | 50 | 1½  | 40 | 4⅞ | 103 | 2⅜ | 56 | 3.77        | 1.71 |
|                                                                                     |      |    |     |    |     |    |    |     |    |    |             |      |

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

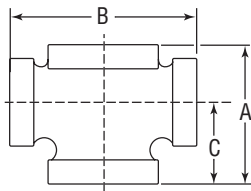
## Cast Iron Drainage Fittings

| <b>FIGURE 726*</b><br><b>90° Short Turn</b><br><b>Y-Branch Tee Pattern</b>                                                                                          |  | Size |     | A     |     | B     |     | C     |     | Unit Weight |      |       |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------|-----|-------|-----|-------|-----|-------|-----|-------------|------|-------|------|
|                                                                                                                                                                     |  |      |     |       |     |       |     |       |     | Black       |      | Galv. |      |
|                                                                                                                                                                     |  | NPS  | DN  | in    | mm  | in    | mm  | in    | mm  | lbs         | kg   | lbs   | kg   |
|   |  | 1½   | 40  | 4¼    | 108 | 2½    | 64  | 2½    | 64  | 3.09        | 1.40 | 3.09  | 1.40 |
|                                                                                                                                                                     |  | 2    | 50  | 5³⁄₁₆ | 132 | 3¹⁄₁₆ | 78  | 3¹⁄₁₆ | 78  | 5.08        | 2.30 | 5.08  | 2.30 |
|                                                                                                                                                                     |  | 3    | 80  | 7¼    | 184 | 4¼    | 108 | 4¼    | 108 | 11.77       | 5.34 | 11.77 | 5.34 |
|                                                                                                                                                                     |  | 4    | 100 | 8¾    | 222 | 5³⁄₁₆ | 132 | 5³⁄₁₆ | 132 | 21.25       | 9.64 | 21.25 | 9.64 |

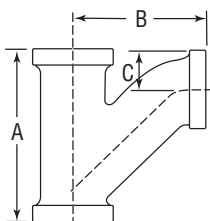
  

| <b>FIGURE 727*</b><br><b>90° Reducing Short Turn</b><br><b>Y-Branch Tee Pattern</b>                                                                                   |  | Size        |              | A    |     | B      |    | C      |    | Unit Weight |      |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|--------------|------|-----|--------|----|--------|----|-------------|------|--|--|
|                                                                                                                                                                       |  |             |              |      |     |        |    |        |    | Black       |      |  |  |
|                                                                                                                                                                       |  | NPS         | DN           | in   | mm  | in     | mm | in     | mm | lbs         | kg   |  |  |
|   |  | 2 x 2 x 1½  | 50 x 50 x 40 | 4⁵⁄₈ | 117 | 2¹⁵⁄₁₆ | 75 | 2¹¹⁄₁₆ | 68 | 4.16        | 1.89 |  |  |
|                                                                                                                                                                       |  | 2 x 1½ x 1½ | 50 x 40 x 40 | 4⁵⁄₈ | 117 | 2¹⁵⁄₁₆ | 75 | 2¹¹⁄₁₆ | 68 | 4.33        | 1.96 |  |  |

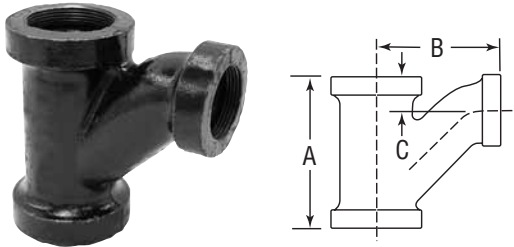
| <b>FIGURE 729*</b><br><b>Reducing Double Short Turn Tee</b>                                                                                                             |  | Size   |         | A    |     | B    |     | C      |    | Unit Weight |      |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|---------|------|-----|------|-----|--------|----|-------------|------|--|--|
|                                                                                                                                                                         |  |        |         |      |     |      |     |        |    | Black       |      |  |  |
|                                                                                                                                                                         |  | NPS    | DN      | in   | mm  | in   | mm  | in     | mm | lbs         | kg   |  |  |
|   |  | 2 x 1½ | 50 x 40 | 4⁵⁄₈ | 117 | 5⁷⁄₈ | 149 | 2¹¹⁄₁₆ | 68 | 5.82        | 2.64 |  |  |

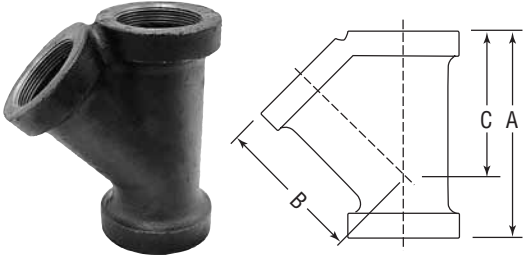
  

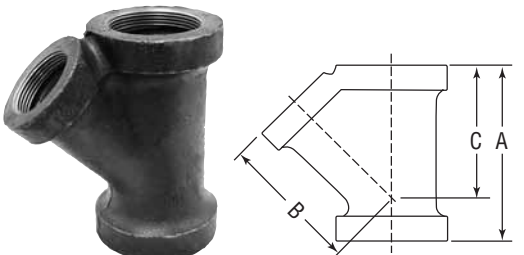
| <b>FIGURE 730*</b><br><b>90° Long Turn</b><br><b>Y-Branch Tee Pattern</b>                                                                                               |  | Size |    | A    |     | B    |     | C  |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------|----|------|-----|------|-----|----|----|-------------|------|-------|------|
|                                                                                                                                                                         |  |      |    |      |     |      |     |    |    | Black       |      | Galv. |      |
|                                                                                                                                                                         |  | NPS  | DN | in   | mm  | in   | mm  | in | mm | lbs         | kg   | lbs   | kg   |
|   |  | 1½   | 40 | 5³⁄₈ | 137 | 4¹⁄₈ | 105 | 1¼ | 32 | 4.43        | 2.01 | —     | —    |
|                                                                                                                                                                         |  | 2    | 50 | 7    | 178 | 5¼   | 133 | 1¾ | 44 | 6.69        | 3.03 | 6.69  | 3.03 |

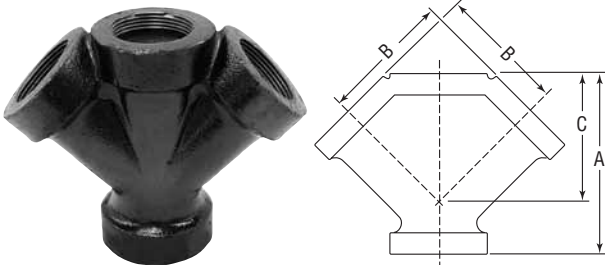
\*Inlets tapped, pitched .25" (6mm) to the foot. Inlets of reducing fittings are always the smallest openings.

## Cast Iron Drainage Fittings

| <b>FIGURE 731*</b><br><b>90° Reducing Long Turn</b><br><b>Y-Branch Tee Pattern</b> | Size       |              | A  |     | B  |     | C  |    | Unit Weight |      |
|------------------------------------------------------------------------------------|------------|--------------|----|-----|----|-----|----|----|-------------|------|
|                                                                                    |            |              |    |     |    |     |    |    | Black       |      |
|                                                                                    | NPS        | DN           | in | mm  | in | mm  | in | mm | lbs         | kg   |
|   | 2 x 2 x 1½ | 50 x 50 x 40 | 5¾ | 146 | 4⅜ | 111 | 1⅝ | 24 | 5.23        | 2.37 |

| <b>FIGURE 734</b><br><b>45° Y-Branch</b>                                           | Size |     | A   |     | B  |     | C  |     | Unit Weight |       |       |       |
|------------------------------------------------------------------------------------|------|-----|-----|-----|----|-----|----|-----|-------------|-------|-------|-------|
|                                                                                    |      |     |     |     |    |     |    |     | Black       |       | Galv. |       |
|                                                                                    | NPS  | DN  | in  | mm  | in | mm  | in | mm  | lbs         | kg    | lbs   | kg    |
|  | 1½   | 40  | 5½  | 140 | 3⅝ | 92  | 3⅝ | 92  | 4.03        | 1.83  | 4.03  | 1.83  |
|                                                                                    | 2    | 50  | 6½  | 165 | 4⅜ | 111 | 4⅜ | 111 | 5.56        | 2.52  | 5.56  | 2.52  |
|                                                                                    | 3    | 80  | 9   | 229 | 6¾ | 157 | 6¾ | 157 | 12.00       | 5.44  | 12.00 | 5.44  |
|                                                                                    | 4    | 100 | 10⅞ | 276 | 7⅞ | 195 | 7⅞ | 195 | 24.51       | 11.12 | 24.51 | 11.12 |

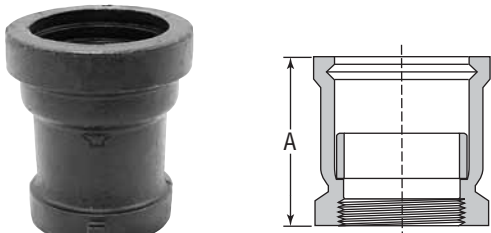
| <b>FIGURE 735</b><br><b>45° Reducing Y-Branch</b>                                   | Size       |                | A  |     | B  |     | C  |     | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------------|----------------|----|-----|----|-----|----|-----|-------------|------|-------|------|
|                                                                                     |            |                |    |     |    |     |    |     | Black       |      | Galv. |      |
|                                                                                     | NPS        | DN             | in | mm  | in | mm  | in | mm  | lbs         | kg   | lbs   | kg   |
|  | 2 x 2 x 1½ | 50 x 50 x 40   | 5⅞ | 149 | 4⅞ | 105 | 4⅞ | 103 | 4.83        | 2.19 | 4.83  | 2.19 |
|                                                                                     | 4 x 4 x 3  | 100 x 100 x 80 | 9¼ | 235 | 7¾ | 183 | 6⅞ | 175 | 20.63       | 9.36 | —     | —    |

| <b>FIGURE 736</b><br><b>45° Double Y-Branch</b>                                     | Size |    | A  |     | B  |    | C  |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|----|-----|----|----|----|----|-------------|------|
|                                                                                     |      |    |    |     |    |    |    |    | Black       |      |
|                                                                                     | NPS  | DN | in | mm  | in | mm | in | mm | lbs         | kg   |
|  | 1½   | 40 | 5½ | 140 | 3⅝ | 92 | 3⅝ | 92 | 5.09        | 2.31 |

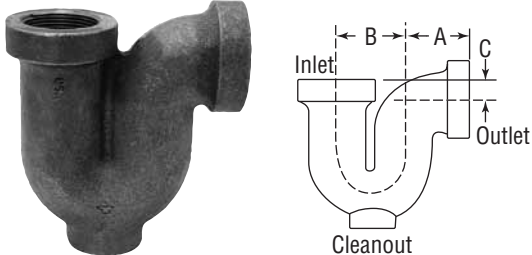
\*Inlets tapped, pitched .25" (6mm) to the foot. Inlets of reducing fittings are always the smallest openings.

## Cast Iron Drainage Fittings

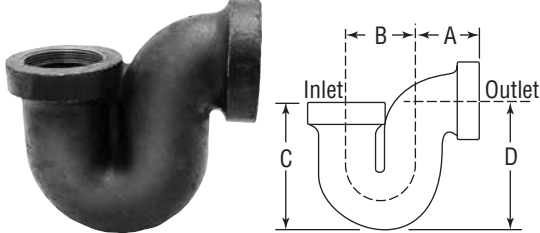
| <b>FIGURE 753</b><br>Coupling                                                     | Size |    | A  |    | Unit Weight |      |       |      |
|-----------------------------------------------------------------------------------|------|----|----|----|-------------|------|-------|------|
|                                                                                   |      |    |    |    | Black       |      | Galv. |      |
|                                                                                   | NPS  | DN | in | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 3⅜ | 86 | 1.75        | 0.79 | 1.75  | 0.79 |
|                                                                                   |      |    |    |    |             |      |       |      |

| <b>FIGURE 744</b><br>Tucker Connection                                            | Size |     | A     |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|------|-----|-------|-----|-------------|------|
|                                                                                   |      |     |       |     | Black       |      |
|                                                                                   | NPS  | DN  | in    | mm  | lbs         | kg   |
|  | 1½   | 40  | 4     | 102 | 4.04        | 1.83 |
|                                                                                   | 2    | 50  | 4½    | 114 | 5.40        | 2.45 |
|                                                                                   | 4    | 100 | 6⅓/16 | 174 | 20.00       | 9.07 |

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

| <b>FIGURE 752</b><br>P-Trap                                                         | Size |    | A  |    | B  |    | C   |    | Clean Out |    | Water Seal |    | Unit Weight |      |       |      |
|-------------------------------------------------------------------------------------|------|----|----|----|----|----|-----|----|-----------|----|------------|----|-------------|------|-------|------|
|                                                                                     |      |    |    |    |    |    |     |    |           |    |            |    | Black       |      | Galv. |      |
|                                                                                     | NPS  | DN | in | mm | in | mm | in  | mm | in        | mm | in         | mm | lbs         | kg   | lbs   | kg   |
|  | 1½   | 40 | 2⅛ | 54 | 2¼ | 57 | 7/8 | 22 | 1         | 25 | 2          | 51 | 4.69        | 2.13 | 4.69  | 2.13 |
|                                                                                     | 3    | 80 | 3⅜ | 86 | 3¾ | 95 | 1⅜  | 30 | 1¼        | 32 | 2½         | 64 | 16.87       | 7.65 | 16.87 | 7.65 |

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

| <b>FIGURE 754</b><br>Bath P-Trap                                                    | Size |    | A  |    | B  |    | C  |     | D  |     | Water Seal |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|----|----|----|----|----|-----|----|-----|------------|----|-------------|------|
|                                                                                     |      |    |    |    |    |    |    |     |    |     |            |    | Black       |      |
|                                                                                     | NPS  | DN | in | mm | in | mm | in | mm  | in | mm  | in         | mm | lbs         | kg   |
|  | 1½   | 40 | 2⅛ | 54 | 2⅜ | 60 | 4⅜ | 111 | 4⅝ | 117 | 2          | 51 | 3.87        | 1.76 |
|                                                                                     | 2    | 50 | 2½ | 64 | 2⅜ | 73 | 5⅝ | 135 | 5⅝ | 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

Class 125 (Standard)



For Listings/Approval Details and Limitations, visit our website at [www.anvilintl.com](http://www.anvilintl.com) or contact an Anvil Sales Representative.

### Specifications

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

### Coatings

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

### Sizes

Size of all fittings 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, bolt holes are 1/4 inch (6mm) larger than bolt diameter. Bolt holes straddle the center line. Bolt holes are spot faced on order only.

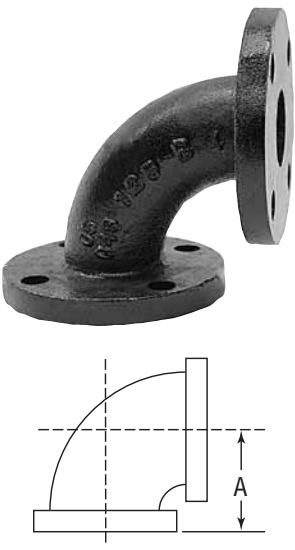
### Tolerances

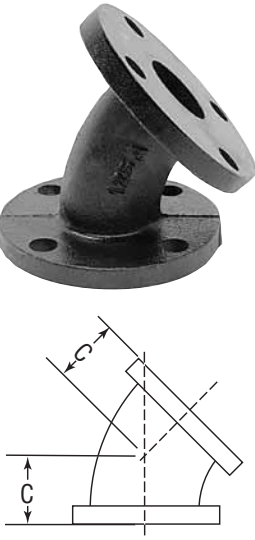
An inspection limit of plus or minus 1/32 inch (1mm) shall be allowed on all center to contact surface dimensions for sizes up to and including 10 NPS (250 DN); plus or minus 1/16 inch (2mm) on sizes larger than 10 NPS (250 DN). Inspection limit of plus or minus 1/16 inch (2mm) shall be allowed on all 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 |      |         |      |         |      | Class 250 |      |         |      |
|                                                  |               | 1"-12"    |      | 14"-24" |      | 30"-48" |      | 1"-12"    |      | 14"-24" |      |
| (°F)                                             | (°C)          | psi       | bar  | psi     | bar  | psi     | bar  | psi       | bar  | psi     | bar  |
| -20° to 150°                                     | -28.9 to 65.6 | 200       | 13.8 | 150     | 10.3 | 150     | 10.3 | 500       | 34.5 | 300     | 20.7 |
| 200°                                             | 93.3          | 190       | 13.1 | 135     | 9.3  | 115     | 7.9  | 460       | 31.7 | 280     | 19.3 |
| 225°                                             | 107.2         | 180       | 12.4 | 130     | 9.0  | 100     | 6.9  | 440       | 30.3 | 270     | 18.6 |
| 250°                                             | 121.1         | 175       | 12.1 | 125     | 8.6  | 85      | 5.9  | 415       | 28.6 | 260     | 17.9 |
| 275°                                             | 135.0         | 170       | 11.7 | 120     | 8.3  | 65      | 4.5  | 395       | 27.2 | 250     | 17.2 |
| 300°                                             | 148.9         | 165       | 11.4 | 110     | 7.6  | 50      | 3.4  | 375       | 25.9 | 240     | 16.5 |
| 325°                                             | 162.8         | 155       | 10.7 | 105     | 7.2  | —       | —    | 355       | 24.5 | 230     | 15.9 |
| 350°                                             | 178.3         | 150       | 10.3 | 100     | 6.9  | —       | —    | 335       | 23.1 | 220     | 15.2 |
| 375°                                             | 190.6         | 145       | 10.0 | —       | —    | —       | —    | 315       | 21.7 | 210     | 14.5 |
| 400°                                             | 207.8         | 140       | 9.7  | —       | —    | —       | —    | 290       | 20.0 | 200     | 13.8 |
| 425°                                             | 218.3         | 130       | 9.0  | —       | —    | —       | —    | 270       | 18.6 | —       | —    |
| 450°                                             | 232.2         | 125       | 8.6  | —       | —    | —       | —    | 250       | 17.2 | —       | —    |

## Cast Iron Flanged Fittings

Class 125 (Standard)

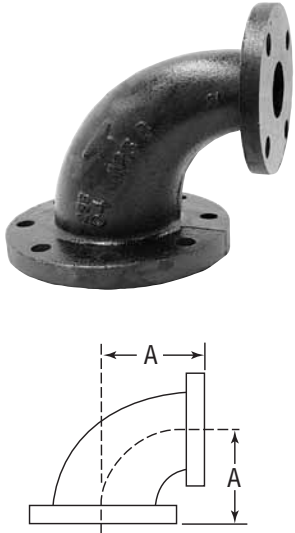
| <b>FIGURE 801</b><br><b>90° Flanged Elbow</b>                                     | Size |     | A  |     | Flange Dia. |     | Thickness   |    |       |    | Unit Weight |        |        |        |
|-----------------------------------------------------------------------------------|------|-----|----|-----|-------------|-----|-------------|----|-------|----|-------------|--------|--------|--------|
|                                                                                   |      |     |    |     |             |     | Min. Flange |    | Wall  |    | Black       |        | Galv.  |        |
|                                                                                   | NPS  | DN  | in | mm  | in          | mm  | in          | mm | in    | mm | lbs         | kg     | lbs    | kg     |
|  | 1½   | 40  | 4  | 102 | 5           | 127 | 9/16        | 14 | 5/16  | 8  | 9.00        | 4.08   | —      | —      |
|                                                                                   | 2    | 50  | 4½ | 114 | 6           | 152 | 5/8         | 16 | 5/16  | 8  | 14.00       | 6.35   | 14.00  | 6.35   |
|                                                                                   | 2½   | 65  | 5  | 127 | 7           | 178 | 11/16       | 17 | 5/16  | 8  | 19.00       | 8.62   | 19.00  | 8.62   |
|                                                                                   | 3    | 80  | 5½ | 140 | 7½          | 191 | ¾           | 19 | 3/8   | 10 | 24.00       | 10.88  | 24.00  | 10.88  |
|                                                                                   | 3½   | 90  | 6  | 152 | 8½          | 216 | 13/16       | 22 | 7/16  | 11 | 31.00       | 14.06  | —      | —      |
|                                                                                   | 4    | 100 | 6½ | 165 | 9           | 229 | 15/16       | 24 | 1/2   | 13 | 41.00       | 18.59  | 41.00  | 18.59  |
|                                                                                   | 5    | 125 | 7½ | 191 | 10          | 254 | 15/16       | 24 | 1/2   | 13 | 52.00       | 23.58  | 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 | 13½         | 343 | 1⅝          | 29 | 5/8   | 16 | 110.00      | 49.89  | 110.00 | 49.89  |
|                                                                                   | 10   | 250 | 11 | 279 | 16          | 406 | 1¾          | 30 | ¾     | 19 | 175.00      | 79.37  | 175.00 | 79.37  |
|                                                                                   | 12   | 300 | 12 | 305 | 19          | 483 | 1¼          | 32 | 13/16 | 23 | 250.00      | 113.38 | 250.00 | 113.38 |

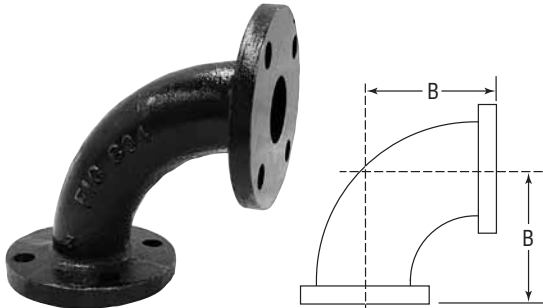
| <b>FIGURE 802</b><br><b>45° Flanged Elbow</b>                                       | Size |     | A  |     | Flange Dia. |     | Thickness   |    |       |    | Unit Weight |       |        |       |
|-------------------------------------------------------------------------------------|------|-----|----|-----|-------------|-----|-------------|----|-------|----|-------------|-------|--------|-------|
|                                                                                     |      |     |    |     |             |     | Min. Flange |    | Wall  |    | Black       |       | Galv.  |       |
|                                                                                     | NPS  | DN  | in | mm  | in          | mm  | in          | mm | in    | mm | lbs         | kg    | lbs    | kg    |
|  | 1½   | 40  | 2¼ | 57  | 5           | 127 | 9/16        | 14 | 5/16  | 8  | 8.00        | 3.63  | —      | —     |
|                                                                                     | 2    | 50  | 2½ | 64  | 6           | 152 | 5/8         | 16 | 5/16  | 8  | 12.00       | 5.44  | —      | —     |
|                                                                                     | 2½   | 65  | 3  | 76  | 7           | 178 | 11/16       | 17 | 5/16  | 8  | 17.00       | 7.71  | —      | —     |
|                                                                                     | 3    | 80  | 3  | 76  | 7½          | 191 | ¾           | 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 | 4½ | 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 | 5½ | 140 | 13½         | 343 | 1⅝          | 29 | 5/8   | 16 | 94.00       | 42.63 | 94.00  | 42.63 |
|                                                                                     | 10   | 250 | 6½ | 165 | 16          | 406 | 1¾          | 30 | ¾     | 19 | 145.00      | 65.76 | 145.00 | 65.76 |
|                                                                                     | 12   | 300 | 7½ | 191 | 19          | 483 | 1¼          | 32 | 13/16 | 23 | 220.00      | 99.77 | 220.00 | 99.77 |

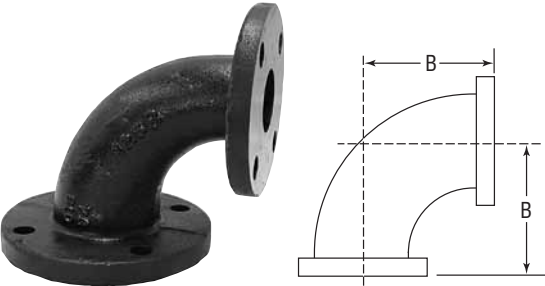
Note: See page 62 for pressure-temperature ratings.

## Cast Iron Flanged Fittings

Class 125 (Standard)

| <b>FIGURE 803</b><br><b>90° Reducing Flanged Elbow</b>                            | Size |     |     |     | A  |     | Unit Weight |       |
|-----------------------------------------------------------------------------------|------|-----|-----|-----|----|-----|-------------|-------|
|                                                                                   |      |     |     |     |    |     | Black       |       |
|                                                                                   | NPS  | DN  | NPS | DN  | in | mm  | lbs         | kg    |
|  | 2½   | 65  | 2   | 50  | 5  | 127 | 18.00       | 8.16  |
|                                                                                   | 3    | 80  | 2   | 50  | 5½ | 140 | 19.00       | 8.62  |
|                                                                                   |      |     | 2½  | 65  |    |     | 22.00       | 9.98  |
|                                                                                   | 4    | 100 | 2   | 50  | 6½ | 165 | 29.00       | 13.15 |
|                                                                                   |      |     | 2½  | 65  |    |     | 31.00       | 14.06 |
|                                                                                   |      |     | 3   | 80  |    |     | 33.00       | 14.97 |
|                                                                                   | 5    | 125 | 3   | 80  | 7½ | 191 | 40.00       | 18.14 |
|                                                                                   |      |     | 4   | 100 |    |     | 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 | 6   | 150 | 12 | 305 | 165.00      | 74.83 |
|                                                                                   |      |     | 8   | 200 |    |     | 190.00      | 86.17 |
|                                                                                   |      |     | 10  | 250 |    |     | 220.00      | 99.77 |

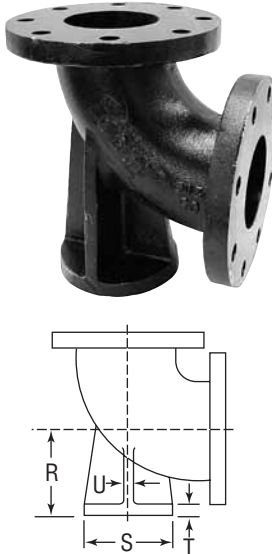
| FIGURE 804<br>90° Long Radius Flanged Elbow                                         |    | Size |     | B   | Flange<br>Diameter |     | Thickness   |    |       |    | Unit Weight |        |
|-------------------------------------------------------------------------------------|----|------|-----|-----|--------------------|-----|-------------|----|-------|----|-------------|--------|
|                                                                                     |    |      |     |     |                    |     | Min. Flange |    | Wall  |    | Black       |        |
|                                                                                     |    | NPS  | DN  | in  | mm                 | in  | mm          | in | mm    | in | mm          | lbs    |
|  | 2  | 50   | 6½  | 165 | 6                  | 152 | ⅝           | 16 | ⅝     | 8  | 16.00       | 7.26   |
|                                                                                     | 2½ | 65   | 7   | 178 | 7                  | 178 | 11/16       | 17 | ⅝     | 8  | 23.00       | 10.43  |
|                                                                                     | 3  | 80   | 7¾  | 197 | 7½                 | 191 | ¾           | 19 | ⅜     | 10 | 28.00       | 12.70  |
|                                                                                     | 4  | 100  | 9   | 229 | 9                  | 229 | 15/16       | 24 | ½     | 13 | 48.00       | 21.77  |
|                                                                                     | 5  | 125  | 10¼ | 260 | 10                 | 254 | 15/16       | 24 | ½     | 13 | 62.00       | 28.12  |
|                                                                                     | 6  | 150  | 11½ | 292 | 11                 | 279 | 1           | 25 | 9/16  | 14 | 85.00       | 38.55  |
|                                                                                     | 8  | 200  | 14  | 356 | 13½                | 343 | 1⅛          | 29 | ⅝     | 16 | 145.00      | 65.76  |
|                                                                                     | 10 | 250  | 16½ | 419 | 16                 | 406 | 1⅜          | 30 | ¾     | 19 | 230.00      | 104.31 |
|                                                                                     | 12 | 300  | 19  | 483 | 19                 | 483 | 1¼          | 32 | 13/16 | 22 | 350.00      | 158.73 |

| <b>FIGURE 804R</b><br><b>90° Long Radius Reducing Flanged Elbow</b>                 | Reducing Size |           | B   |     | Unit Weight |       |
|-------------------------------------------------------------------------------------|---------------|-----------|-----|-----|-------------|-------|
|                                                                                     |               |           |     |     | Black       |       |
|                                                                                     | NPS           | DN        | in  | mm  | lbs         | kg    |
|  | 4 x 3         | 100 x 80  | 9   | 229 | 46.00       | 20.86 |
|                                                                                     | 5 x 4         | 125 x 100 | 10¼ | 260 | 58.00       | 26.30 |
|                                                                                     | 6 x 4         | 150 x 100 | 11½ | 292 | 78.00       | 35.37 |
|                                                                                     | 6 x 5         | 150 x 125 | 11½ | 292 | 81.00       | 36.73 |
|                                                                                     | 8 x 6         | 200 x 150 | 14  | 356 | 130.00      | 58.96 |
|                                                                                     | 10 x 8        | 250 x 200 | 16½ | 419 | 205.00      | 92.97 |

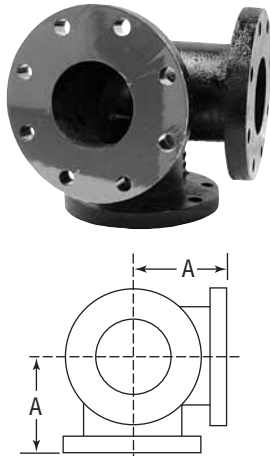
Note: See page 62 for pressure-temperature ratings.

## Cast Iron Flanged Fittings

Class 125 (Standard)

| FIGURE 805<br>90° Flanged Base Elbow                                              | Size |     | Center to Base<br>R            |     | Dia. of Round Base<br>S |     | Thickness                     |    |                             |    | Size of Supporting<br>Pipe for Base |     | Unit Weight |        |
|-----------------------------------------------------------------------------------|------|-----|--------------------------------|-----|-------------------------|-----|-------------------------------|----|-----------------------------|----|-------------------------------------|-----|-------------|--------|
|                                                                                   |      |     |                                |     |                         |     | Base<br>T                     |    | Rubs<br>U                   |    |                                     |     | Black       |        |
|                                                                                   | NPS  | DN  | in                             | mm  | in                      | mm  | in                            | mm | in                          | mm | in                                  | mm  | lbs         | kg     |
|  | 3    | 80  | 4 <sup>7</sup> / <sub>8</sub>  | 124 | 5                       | 127 | <sup>9</sup> / <sub>16</sub>  | 14 | <sup>1</sup> / <sub>2</sub> | 13 | 1 <sup>1</sup> / <sub>2</sub>       | 38  | 36.00       | 16.33  |
|                                                                                   | 4    | 100 | 5 <sup>1</sup> / <sub>2</sub>  | 140 | 6                       | 152 | <sup>5</sup> / <sub>8</sub>   | 16 | <sup>1</sup> / <sub>2</sub> | 13 | 2                                   | 51  | 59.00       | 26.76  |
|                                                                                   | 6    | 150 | 7                              | 178 | 7                       | 178 | <sup>11</sup> / <sub>16</sub> | 17 | <sup>5</sup> / <sub>8</sub> | 16 | 2 <sup>1</sup> / <sub>2</sub>       | 64  | 110.00      | 49.89  |
|                                                                                   | 8    | 200 | 8 <sup>3</sup> / <sub>8</sub>  | 213 | 9                       | 229 | <sup>15</sup> / <sub>16</sub> | 24 | <sup>7</sup> / <sub>8</sub> | 22 | 4                                   | 102 | 158.00      | 71.66  |
|                                                                                   | 10   | 250 | 9 <sup>3</sup> / <sub>4</sub>  | 248 | 9                       | 229 | <sup>15</sup> / <sub>16</sub> | 24 | <sup>7</sup> / <sub>8</sub> | 22 | 4                                   | 102 | 224.00      | 101.59 |
|                                                                                   | 12   | 300 | 11 <sup>1</sup> / <sub>4</sub> | 286 | 11                      | 279 | 1                             | 25 | 1                           | 25 | 6                                   | 152 | 324.00      | 146.94 |

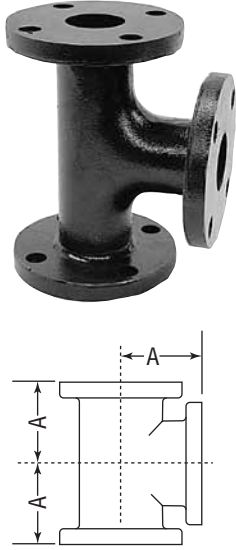
Bases, when drilled, should be drilled to the template of the flange of the supporting pipe size. Size of base determined by size of largest opening of fitting. Bases will be furnished not faced and not drilled unless otherwise specified. When ordered faced, dimensions "R" and "T" will be slightly less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

| <b>FIGURE 808</b><br><b>90° Flanged Side Outlet Elbow</b>                           | Size |     | A                             |     | Flange Diameter                |     | Thickness                     |    |                              |    | Unit Weight |       |
|-------------------------------------------------------------------------------------|------|-----|-------------------------------|-----|--------------------------------|-----|-------------------------------|----|------------------------------|----|-------------|-------|
|                                                                                     |      |     |                               |     |                                |     | Flange                        |    | Wall                         |    | Black       |       |
|                                                                                     | NPS  | DN  | in                            | mm  | in                             | mm  | in                            | mm | in                           | mm | lbs         | kg    |
|  | 4    | 100 | 6 <sup>1</sup> / <sub>2</sub> | 165 | 9                              | 229 | <sup>15</sup> / <sub>16</sub> | 24 | <sup>1</sup> / <sub>2</sub>  | 13 | 59.00       | 26.76 |
|                                                                                     | 6    | 150 | 8                             | 203 | 11                             | 279 | 1                             | 25 | <sup>9</sup> / <sub>16</sub> | 14 | 96.00       | 43.54 |
|                                                                                     | 8    | 200 | 9                             | 229 | 13 <sup>1</sup> / <sub>2</sub> | 343 | 1 <sup>1</sup> / <sub>8</sub> | 29 | <sup>5</sup> / <sub>8</sub>  | 16 | 150.00      | 68.03 |

Note: See page 62 for pressure-temperature ratings.

## Cast Iron Flanged Fittings

Class 125 (Standard)

| FIGURE 811<br>Flanged Tee                                                         | Size |     | A  |     | AA |     | Flange<br>Diameter |     | Thickness |    |       |    | Unit Weight |        |        |        |
|-----------------------------------------------------------------------------------|------|-----|----|-----|----|-----|--------------------|-----|-----------|----|-------|----|-------------|--------|--------|--------|
|                                                                                   |      |     |    |     |    |     |                    |     | Flange    |    | Wall  |    | Black       |        | Galv.  |        |
|                                                                                   | NPS  | DN  | in | mm  | in | mm  | in                 | mm  | in        | mm | in    | mm | lbs         | kg     | lbs    | kg     |
|  | 1½   | 40  | 4  | 102 | 8  | 203 | 5                  | 127 | 9/16      | 14 | 5/16  | 8  | 15.00       | 6.80   | —      | —      |
|                                                                                   | 2    | 50  | 4½ | 114 | 9  | 229 | 6                  | 152 | 5/8       | 16 | 5/16  | 8  | 21.00       | 9.52   | 21.00  | 9.52   |
|                                                                                   | 2½   | 65  | 5  | 127 | 10 | 254 | 7                  | 178 | 11/16     | 17 | 5/16  | 8  | 30.00       | 13.61  | 30.00  | 13.61  |
|                                                                                   | 3    | 80  | 5½ | 140 | 11 | 279 | 7½                 | 191 | ¾         | 19 | ¾     | 10 | 37.00       | 16.78  | 37.00  | 16.78  |
|                                                                                   | 4    | 100 | 6½ | 165 | 13 | 330 | 9                  | 229 | 15/16     | 24 | 1/2   | 13 | 64.00       | 29.02  | 64.00  | 29.02  |
|                                                                                   | 5    | 125 | 7½ | 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 | 13½                | 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 | ¾     | 19 | 270.00      | 122.45 | 270.00 | 122.45 |
|                                                                                   | 12   | 300 | 12 | 305 | 24 | 610 | 19                 | 483 | 1 1/4     | 32 | 13/16 | 22 | 380.00      | 172.34 | 380.00 | 172.34 |

Note: See page 62 for pressure-temperature ratings.

# Cast Iron Flanged Fittings

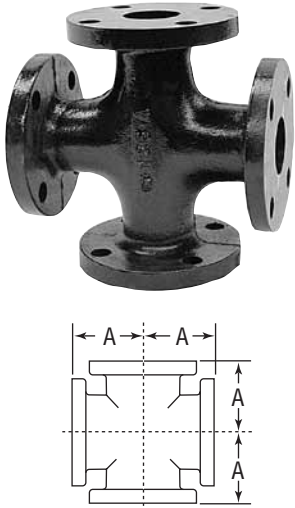
Class 125 (Standard)

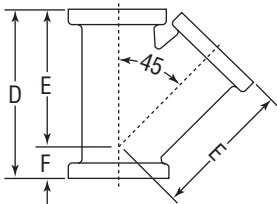
| FIGURE 812<br>Flanged Reducing Tee                                                                                                                                                                                          |     | Size |     |        |        |        |        | Unit Weight |       |       |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|--------|--------|--------|--------|-------------|-------|-------|----|
|                                                                                                                                                                                                                             |     |      |     |        |        |        |        | Black       |       | Galv. |    |
|                                                                                                                                                                                                                             |     | NPS  | DN  | NPS    | DN     | NPS    | DN     | lbs         | kg    | lbs   | kg |
| <br><br><div>4 NPS<br/>(100 DN)</div> <div>6 NPS (150 DN) — 5 NPS (125 DN)</div> <div>Read as:<br/>6 x 5 x 4<br/>(150 x 125 x 100DN)</div> | 3   | 80   | 2   | 50     | 3      | 80     | 33.00  | 14.97       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 3   | 80     | 1½     | 40     | 32.00  | 14.51       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 2      | 50     | 34.00  | 15.42       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 2½     | 65     | 35.00  | 15.87       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 4      | 100    | 56.00  | 25.40       | —     | —     |    |
|                                                                                                                                                                                                                             | 4   | 100  | 2   | 50     | 4      | 100    | 50.00  | 22.68       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 2½  | 65     | 4      | 100    | 56.00  | 25.40       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 3   | 80     | 3      | 80     | 53.00  | 24.04       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 4      | 100    | 59.00  | 26.76       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 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       | —     | —     |    |
|                                                                                                                                                                                                                             | 5   | 125  | 5   | 125    | 3      | 80     | 71.00  | 32.20       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 4      | 100    | 80.00  | 36.28       | —     | —     |    |
|                                                                                                                                                                                                                             | 6   | 150  | 3   | 80     | 6      | 150    | 91.00  | 41.27       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 4   | 100    | 4      | 100    | 88.00  | 39.91       | 88.00 | 39.91 |    |
|                                                                                                                                                                                                                             |     |      |     |        | 6      | 150    | 94.00  | 42.63       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 5   | 125    | 4      | 100    | 91.00  | 41.27       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 2      | 50     | 86.00  | 39.00       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 6   | 150    | 2½     | 65     | 90.00  | 40.82       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 3      | 80     | 92.00  | 41.72       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 4      | 100    | 97.00  | 43.99       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 5      | 125    | 105.00 | 47.62       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 8      | 200    | 142.00 | 64.40       | —     | —     |    |
|                                                                                                                                                                                                                             | 8   | 200  | 4   | 100    | 6      | 150    | 140.00 | 63.49       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 8      | 200    | 146.00 | 66.21       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 6   | 150    | 4      | 100    | 125.00 | 56.69       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 6      | 150    | 144.00 | 65.31       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      | 8   | 200    | 8      | 200    | 159.00 | 72.11       | —     | —     |    |
|                                                                                                                                                                                                                             |     |      |     |        | 3      | 80     | 140.00 | 63.49       | —     | —     |    |
| 10                                                                                                                                                                                                                          | 250 | 8    | 200 | 4      | 100    | 143.00 | 64.85  | 143.00      | 64.85 |       |    |
|                                                                                                                                                                                                                             |     |      |     | 6      | 150    | 156.00 | 70.75  | 156.00      | 70.75 |       |    |
|                                                                                                                                                                                                                             |     |      |     | 6      | 150    | 220.00 | 99.77  | —           | —     |       |    |
|                                                                                                                                                                                                                             |     | 10   | 250 | 8      | 200    | 232.00 | 105.22 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 10     | 250    | 262.00 | 118.82 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 4      | 100    | 225.00 | 102.04 | —           | —     |       |    |
| 12                                                                                                                                                                                                                          | 300 | 10   | 250 | 6      | 150    | 240.00 | 108.84 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 8      | 200    | 262.00 | 118.82 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 8      | 200    | 298.00 | 135.15 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     | 12   | 300 | 12     | 300    | 340.00 | 154.20 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 6      | 150    | 323.00 | 146.49 | —           | —     |       |    |
|                                                                                                                                                                                                                             |     |      |     | 8      | 200    | 330.00 | 149.66 | —           | —     |       |    |
| 10                                                                                                                                                                                                                          | 250 | 10   | 250 | 362.00 | 164.17 | —      | —      |             |       |       |    |

Note: See page 62 for pressure-temperature ratings.

## Cast Iron Flanged Fittings

Class 125 (Standard)

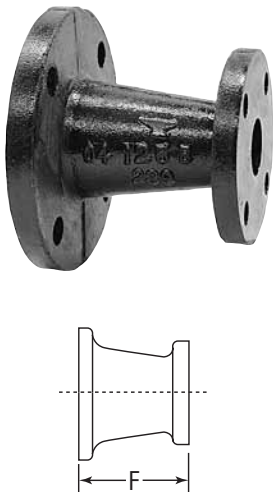
| <b>FIGURE 821</b><br><b>Flanged Cross</b>                                         | Size |     | A  |     | AA |     | Flange Diameter |     | Thickness   |    |      |    | Unit Weight |        |
|-----------------------------------------------------------------------------------|------|-----|----|-----|----|-----|-----------------|-----|-------------|----|------|----|-------------|--------|
|                                                                                   |      |     |    |     |    |     |                 |     | Min. Flange |    | Wall |    | Black       |        |
|                                                                                   | NPS  | DN  | in | mm  | in | mm  | in              | mm  | in          | mm | in   | mm | lbs         | kg     |
|  | 2    | 50  | 4½ | 114 | 9  | 225 | 6               | 152 | ⅝           | 16 | ⅝    | 8  | 28.00       | 12.70  |
|                                                                                   | 2½   | 65  | 5  | 127 | 10 | 250 | 7               | 178 | 1⅞          | 17 | ⅝    | 8  | 39.00       | 17.69  |
|                                                                                   | 3    | 80  | 5½ | 140 | 11 | 275 | 7½              | 191 | ¾           | 19 | ⅜    | 10 | 48.00       | 21.77  |
|                                                                                   | 4    | 100 | 6½ | 165 | 13 | 325 | 9               | 229 | 1⅝          | 24 | ½    | 13 | 82.00       | 37.19  |
|                                                                                   | 6    | 150 | 8  | 203 | 16 | 400 | 11              | 279 | 1           | 25 | ⅞    | 14 | 135.00      | 61.22  |
|                                                                                   | 8    | 200 | 9  | 229 | 18 | 450 | 13½             | 343 | 1⅞          | 29 | ⅝    | 16 | 210.00      | 95.24  |
|                                                                                   | 10   | 250 | 11 | 279 | 22 | 550 | 16              | 406 | 1⅜          | 30 | ¾    | 19 | 330.00      | 149.66 |

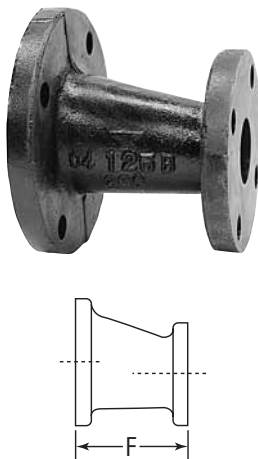
|                                             |           |                                                                                     |           |                                                                                      |           |             |           |                           |           |                             |           |                             |           |                            |           |                    |           |             |  |                    |  |
|---------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|-----------|-------------|-----------|---------------------------|-----------|-----------------------------|-----------|-----------------------------|-----------|----------------------------|-----------|--------------------|-----------|-------------|--|--------------------|--|
| <b>FIGURE 823</b><br><b>Flanged Lateral</b> |           |  |           |  |           |             |           |                           |           |                             |           |                             |           |                            |           |                    |           |             |  |                    |  |
|                                             |           |                                                                                     |           |                                                                                      |           | <b>Size</b> |           | <b>Face to Face<br/>D</b> |           | <b>Center to Face<br/>E</b> |           | <b>Center to Face<br/>F</b> |           | <b>Flange<br/>Diameter</b> |           | <b>Thickness</b>   |           |             |  | <b>Unit Weight</b> |  |
|                                             |           |                                                                                     |           |                                                                                      |           |             |           |                           |           |                             |           |                             |           |                            |           | <b>Min. Flange</b> |           | <b>Wall</b> |  | <b>Black</b>       |  |
| <b>NPS</b>                                  | <b>DN</b> | <b>in</b>                                                                           | <b>mm</b> | <b>in</b>                                                                            | <b>mm</b> | <b>in</b>   | <b>mm</b> | <b>in</b>                 | <b>mm</b> | <b>in</b>                   | <b>mm</b> | <b>in</b>                   | <b>mm</b> | <b>in</b>                  | <b>mm</b> | <b>lbs</b>         | <b>kg</b> |             |  |                    |  |
| 2                                           | 50        | 10½                                                                                 | 267       | 8                                                                                    | 203       | 2½          | 64        | 6                         | 152       | ⅝                           | 16        | ⅝                           | 8         | 25.00                      | 11.34     |                    |           |             |  |                    |  |
| 2½                                          | 65        | 12                                                                                  | 305       | 9½                                                                                   | 241       | 2½          | 64        | 7                         | 178       | 11/16                       | 17        | ⅝                           | 8         | 36.00                      | 16.33     |                    |           |             |  |                    |  |
| 3                                           | 80        | 13                                                                                  | 330       | 10                                                                                   | 254       | 3           | 76        | 7½                        | 191       | ¾                           | 19        | ⅜                           | 10        | 44.00                      | 19.95     |                    |           |             |  |                    |  |
| 4                                           | 100       | 15                                                                                  | 381       | 12                                                                                   | 305       | 3           | 76        | 9                         | 229       | 15/16                       | 24        | ½                           | 13        | 75.00                      | 34.01     |                    |           |             |  |                    |  |
| 5                                           | 125       | 17                                                                                  | 432       | 13½                                                                                  | 343       | 3½          | 89        | 10                        | 254       | 15/16                       | 24        | ½                           | 13        | 96.00                      | 43.54     |                    |           |             |  |                    |  |
| 6                                           | 150       | 18                                                                                  | 457       | 14½                                                                                  | 368       | 3½          | 89        | 11                        | 279       | 1                           | 25        | 9/16                        | 14        | 125.00                     | 56.69     |                    |           |             |  |                    |  |
| 8                                           | 200       | 22                                                                                  | 559       | 17½                                                                                  | 445       | 4½          | 114       | 13½                       | 343       | 1⅝                          | 29        | ⅝                           | 16        | 210.00                     | 95.24     |                    |           |             |  |                    |  |

Note: See page 62 for pressure-temperature ratings.

## Cast Iron Flanged Fittings

### Class 125 (Standard)

| <b>FIGURE 825</b><br><b>Flanged Concentric Reducer</b>                            | Size |     |     |     | F  |     | Unit Weight |       |       |       |
|-----------------------------------------------------------------------------------|------|-----|-----|-----|----|-----|-------------|-------|-------|-------|
|                                                                                   |      |     |     |     |    |     | Black       |       | Galv. |       |
|                                                                                   | NPS  | DN  | NPS | DN  | in | mm  | lbs         | kg    | lbs   | kg    |
|  | 2    | 50  | 1½  | 40  | 5  | 127 | 12.00       | 5.44  | —     | —     |
|                                                                                   | 2½   | 65  | 1½  | 40  | 5  | 127 | 12.00       | 5.44  | —     | —     |
|                                                                                   |      |     | 2   | 50  | 5  | 127 | 14.00       | 6.35  | —     | —     |
|                                                                                   |      |     |     |     |    |     | 14.00       | 6.35  | —     | —     |
|                                                                                   | 3    | 80  | 2   | 50  | 6  | 152 | 16.00       | 7.26  | —     | —     |
|                                                                                   |      |     | 2½  | 65  |    |     | 19.00       | 8.62  | 19.00 | 8.62  |
|                                                                                   |      |     |     |     |    |     | 24.00       | 10.88 | 24.00 | 10.88 |
|                                                                                   | 4    | 100 | 2½  | 65  | 7  | 178 | 26.00       | 11.79 | 26.00 | 11.79 |
|                                                                                   |      |     | 3   | 80  |    |     | 28.00       | 12.70 | 28.00 | 12.70 |
|                                                                                   |      |     |     |     |    |     | 31.00       | 14.06 | —     | —     |
|                                                                                   | 5    | 125 | 3   | 80  | 8  | 203 | 32.00       | 14.51 | —     | —     |
|                                                                                   |      |     | 4   | 100 |    |     | 39.00       | 17.69 | —     | —     |
|                                                                                   |      |     |     |     |    |     | 34.00       | 15.42 | —     | —     |
|                                                                                   |      |     | 2½  | 65  |    |     | 37.00       | 16.78 | —     | —     |
|                                                                                   | 6    | 150 | 3   | 80  | 9  | 229 | 39.00       | 17.69 | —     | —     |
|                                                                                   |      |     | 4   | 100 |    |     | 47.00       | 21.32 | 47.00 | 21.32 |
|                                                                                   |      |     | 5   | 125 |    |     | 50.00       | 22.68 | —     | —     |
|                                                                                   |      |     |     |     |    |     | 66.00       | 29.93 | —     | —     |
|                                                                                   | 8    | 200 | 4   | 100 | 11 | 279 | 71.00       | 32.20 | —     | —     |
|                                                                                   |      |     | 5   | 125 |    |     | 77.00       | 34.92 | 77.00 | 34.92 |
|                                                                                   |      |     | 6   | 150 |    |     | 85.00       | 38.55 | —     | —     |
|                                                                                   |      |     |     |     |    |     | 90.00       | 40.82 | —     | —     |
|                                                                                   | 10   | 250 | 5   | 125 | 12 | 305 | 100.00      | 45.35 | —     | —     |
|                                                                                   |      |     | 6   | 150 |    |     | 120.00      | 54.42 | —     | —     |
|                                                                                   |      |     | 8   | 200 |    |     | 140.00      | 63.49 | —     | —     |
|                                                                                   | 12   | 300 | 6   | 150 | 14 | 356 | 155.00      | 70.29 | —     | —     |
|                                                                                   |      |     | 8   | 200 |    |     | 180.00      | 81.63 | —     | —     |
|                                                                                   |      |     | 10  | 250 |    |     |             |       |       |       |

| <b>FIGURE 826</b><br><b>Flanged Eccentric Reducer</b>                               | Size |     |     |     | F  |     | Unit Weight |       |       |       |
|-------------------------------------------------------------------------------------|------|-----|-----|-----|----|-----|-------------|-------|-------|-------|
|                                                                                     |      |     |     |     |    |     | Black       |       | Galv. |       |
|                                                                                     | NPS  | DN  | NPS | DN  | in | mm  | lbs         | kg    | lbs   | kg    |
|  | 3    | 80  | 2   | 50  | 6  | 152 | 16.00       | 7.26  | —     | —     |
|                                                                                     |      |     | 2½  | 65  |    |     | 22.00       | 9.98  | —     | —     |
|                                                                                     |      |     |     |     |    |     | 28.00       | 12.70 | —     | —     |
|                                                                                     | 4    | 100 | 2   | 50  | 7  | 178 | 28.00       | 12.70 | —     | —     |
|                                                                                     |      |     | 2½  | 65  |    |     | 28.00       | 12.70 | —     | —     |
|                                                                                     |      |     | 3   | 80  |    |     | 28.00       | 12.70 | —     | —     |
|                                                                                     | 5    | 125 | 4   | 100 | 8  | 203 | 39.00       | 17.69 | —     | —     |
|                                                                                     |      |     |     |     |    |     | 47.00       | 21.32 | —     | —     |
|                                                                                     | 6    | 150 | 3   | 80  | 9  | 229 | 50.00       | 22.68 | 50.00 | 22.68 |
|                                                                                     |      |     | 4   | 100 |    |     | 51.00       | 23.13 | —     | —     |
|                                                                                     |      |     | 5   | 125 |    |     | 71.00       | 32.20 | —     | —     |
|                                                                                     | 8    | 200 | 4   | 100 | 11 | 279 | 76.00       | 34.47 | —     | —     |
|                                                                                     |      |     | 5   | 125 |    |     | 77.00       | 34.92 | —     | —     |
|                                                                                     |      |     | 6   | 150 |    |     | 107.00      | 48.53 | —     | —     |
|                                                                                     | 10   | 250 | 6   | 150 | 12 | 305 | 120.00      | 54.42 | —     | —     |
|                                                                                     |      |     | 8   | 200 |    |     | 155.00      | 70.29 | —     | —     |
|                                                                                     | 12   | 300 | 8   | 200 | 14 | 356 | 180.00      | 81.63 | —     | —     |
|                                                                                     |      |     | 10  | 250 |    |     |             |       |       |       |

Note: See page 62 for pressure-temperature ratings.

## Iron Flanges

### Class 125 (Standard)

Class 125 (Standard) Iron Flanges are manufactured to American National Standard ASME B16.1.

| <b>FIGURE 1011</b><br><b>Companion Flange</b>                                                      | Pipe Size |     | Diam. of Flange<br>O |     | Min. Flange Thickness<br>Q |    | Min. Diam. of Hub<br>X |     | Min. Length Through Hub<br>Y |    | Unit Weight |       |       |       |
|----------------------------------------------------------------------------------------------------|-----------|-----|----------------------|-----|----------------------------|----|------------------------|-----|------------------------------|----|-------------|-------|-------|-------|
|                                                                                                    |           |     |                      |     |                            |    |                        |     |                              |    | Black       |       | Galv. |       |
|                                                                                                    | NPS       | DN  | in                   | mm  | in                         | mm | in                     | mm  | in                           | mm | lbs         | kg    | lbs   | kg    |
| <p>When ordering companion flanges, always give outside diameter as well as nominal pipe size.</p> | 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  | 1 1/16                       | 17 | 1.75        | 0.79  | 1.75  | 0.79  |
|                                                                                                    | 1 1/4     | 32  | 4 5/8                | 117 | 1/2                        | 13 | 2 5/16                 | 59  | 1 3/16                       | 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 | 1 1/16                     | 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                      | 22 | 4 13/16                | 124 | 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       | 22.90 | 50.50 | 22.90 |

| <b>FIGURE 1018</b><br><b>Blind Flange</b>                        | Pipe Size<br>I |     | Diam. of Flange<br>O |     | Min. Flange Thickness<br>Q |    | Wall Thickness<br>V |    | Unit Weight |       |       |       |
|------------------------------------------------------------------|----------------|-----|----------------------|-----|----------------------------|----|---------------------|----|-------------|-------|-------|-------|
|                                                                  |                |     |                      |     |                            |    |                     |    | Black       |       | Galv. |       |
|                                                                  | NPS            | DN  | in                   | mm  | in                         | mm | in                  | mm | lbs         | kg    | lbs   | kg    |
| <p>10 x 16 (NPS) and smaller</p> <p>12 x 19 (NPS) and larger</p> | 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 | 1 1/16                     | 17 | 5/8                 | 16 | 6.75        | 3.06  | —     | —     |
|                                                                  | 3              | 80  | 7 1/2                | 191 | 3/4                        | 19 | 1 1/16              | 17 | 8.00        | 3.63  | 8.00  | 3.63  |
|                                                                  | 3 1/2          | 90  | 8 1/2                | 216 | 13/16                      | 22 | 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 | 1 3/16              | 22 | 88.00       | 39.91 | —     | —     |

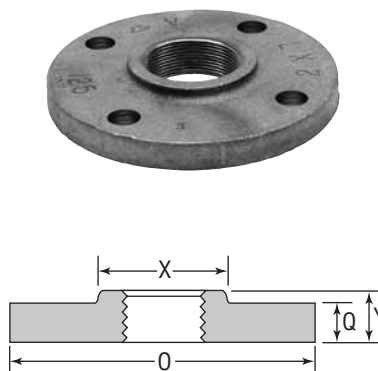
All Class 125 cast iron standard flanges have a flat face. Blind Flange 12 x 19 NPS supplied dished with inside radius to the pipe diameter. When ordering blind flanges, always give the outside diameters.

**Note:** See page 62 for pressure-temperature ratings.

## Iron Flanges

### Class 125 (Standard)

Class 125 (Standard) Iron Flanges are manufactured to American National Standard ASME B16.1.

| FIGURE 1016<br>Reducing Flange                                                    | Pipe<br>Size                  |     | Diam. of<br>Flange<br>O        |     | Min.Flange<br>Thickness<br>Q               |    | Min. Diam.<br>of Hub<br>X                    |     | Min. Length<br>Thru Hub<br>Y               |    | Unit Weight |       |       |       |
|-----------------------------------------------------------------------------------|-------------------------------|-----|--------------------------------|-----|--------------------------------------------|----|----------------------------------------------|-----|--------------------------------------------|----|-------------|-------|-------|-------|
|                                                                                   |                               |     |                                |     |                                            |    |                                              |     |                                            |    | Black       |       | Galv. |       |
|                                                                                   | NPS                           | DN  | in                             | mm  | in                                         | mm | in                                           | mm  | in                                         | mm | lbs         | kg    | lbs   | kg    |
|  | 1                             | 25  | 5                              | 127 | <sup>9</sup> / <sub>16</sub>               | 14 | <sup>1</sup> <sup>15</sup> / <sub>16</sub>   | 49  | <sup>1</sup> <sup>11</sup> / <sub>16</sub> | 17 | 2.75        | 1.25  | —     | —     |
|                                                                                   | 1 <sup>1</sup> / <sub>4</sub> | 32  |                                |     |                                            |    | <sup>2</sup> <sup>5</sup> / <sub>16</sub>    | 59  | <sup>1</sup> <sup>13</sup> / <sub>16</sub> | 22 | 2.50        | 1.13  | —     | —     |
|                                                                                   | 1                             | 25  | 6                              | 152 | <sup>5</sup> / <sub>8</sub>                | 16 | <sup>1</sup> <sup>15</sup> / <sub>16</sub>   | 49  | <sup>1</sup> <sup>11</sup> / <sub>16</sub> | 17 | 5.00        | 2.27  | —     | —     |
|                                                                                   | 1 <sup>1</sup> / <sub>4</sub> | 32  |                                |     |                                            |    | <sup>2</sup> <sup>5</sup> / <sub>16</sub>    | 59  | <sup>1</sup> <sup>13</sup> / <sub>16</sub> | 22 | 4.75        | 2.15  | —     | —     |
|                                                                                   | 1 <sup>1</sup> / <sub>2</sub> | 40  |                                |     |                                            |    | <sup>2</sup> <sup>9</sup> / <sub>16</sub>    | 65  | <sup>7</sup> / <sub>8</sub>                | 22 | 4.50        | 2.04  | 4.50  | 2.04  |
|                                                                                   | 1 <sup>1</sup> / <sub>2</sub> | 40  | 7                              | 178 | <sup>1</sup> <sup>11</sup> / <sub>16</sub> | 27 | <sup>2</sup> <sup>9</sup> / <sub>16</sub>    | 65  | <sup>7</sup> / <sub>8</sub>                | 22 | 7.00        | 3.17  | 7.00  | 3.17  |
|                                                                                   | 2                             | 50  |                                |     |                                            |    | <sup>3</sup> <sup>1</sup> / <sub>16</sub>    | 78  | 1                                          | 25 | 6.75        | 3.06  | 6.75  | 3.06  |
|                                                                                   | 1                             | 25  | 7 <sup>1</sup> / <sub>2</sub>  | 191 | <sup>3</sup> / <sub>4</sub>                | 19 | <sup>1</sup> <sup>15</sup> / <sub>16</sub>   | 49  | <sup>1</sup> <sup>13</sup> / <sub>16</sub> | 22 | 9.00        | 4.08  | —     | —     |
|                                                                                   | 1 <sup>1</sup> / <sub>2</sub> | 40  |                                |     |                                            |    | <sup>2</sup> <sup>9</sup> / <sub>16</sub>    | 65  | <sup>7</sup> / <sub>8</sub>                | 22 | 8.75        | 3.97  | 8.75  | 3.97  |
|                                                                                   | 2                             | 50  |                                |     |                                            |    | <sup>3</sup> <sup>1</sup> / <sub>16</sub>    | 78  | 1                                          | 25 | 8.50        | 3.85  | 8.50  | 3.85  |
|                                                                                   | 2 <sup>1</sup> / <sub>2</sub> | 65  |                                |     |                                            |    | <sup>3</sup> <sup>9</sup> / <sub>16</sub>    | 90  | 1 <sup>1</sup> / <sub>8</sub>              | 29 | 8.00        | 3.63  | 8.00  | 3.63  |
|                                                                                   | 3                             | 80  | 8 <sup>1</sup> / <sub>2</sub>  | 203 | <sup>1</sup> <sup>13</sup> / <sub>16</sub> | 30 | 4 <sup>1</sup> / <sub>4</sub>                | 108 | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 10.00       | 4.54  | —     | —     |
|                                                                                   | 1 <sup>1</sup> / <sub>2</sub> | 40  | 9                              | 229 | <sup>1</sup> <sup>15</sup> / <sub>16</sub> | 33 | <sup>2</sup> <sup>9</sup> / <sub>16</sub>    | 65  | 1                                          | 25 | 14.00       | 6.35  | 14.00 | 6.35  |
|                                                                                   | 2                             | 50  |                                |     |                                            |    | <sup>3</sup> <sup>1</sup> / <sub>16</sub>    | 78  | 1                                          | 25 | 14.00       | 6.35  | 14.00 | 6.35  |
|                                                                                   | 2 <sup>1</sup> / <sub>2</sub> | 65  |                                |     |                                            |    | <sup>3</sup> <sup>9</sup> / <sub>16</sub>    | 90  | 1 <sup>1</sup> / <sub>8</sub>              | 29 | 13.50       | 6.12  | 13.50 | 6.12  |
|                                                                                   | 3                             | 80  |                                |     |                                            |    | 4 <sup>1</sup> / <sub>4</sub>                | 108 | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 12.75       | 5.78  | 12.75 | 5.78  |
|                                                                                   | 3 <sup>1</sup> / <sub>2</sub> | 90  |                                |     |                                            |    | 4 <sup>1</sup> <sup>13</sup> / <sub>16</sub> | 124 | 1 <sup>1</sup> / <sub>4</sub>              | 32 | 12.00       | 5.44  | —     | —     |
|                                                                                   | 3                             | 80  | 10                             | 254 | <sup>1</sup> <sup>15</sup> / <sub>16</sub> | 33 | 4 <sup>1</sup> / <sub>4</sub>                | 108 | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 17.00       | 7.71  | 17.00 | 7.71  |
|                                                                                   | 4                             | 100 |                                |     |                                            |    | <sup>5</sup> <sup>5</sup> / <sub>16</sub>    | 135 | <sup>1</sup> <sup>5</sup> / <sub>16</sub>  | 33 | 16.00       | 7.26  | 16.00 | 7.26  |
|                                                                                   | 1 <sup>1</sup> / <sub>2</sub> | 40  | 11                             | 279 | 1                                          | 25 | <sup>2</sup> <sup>9</sup> / <sub>16</sub>    | 65  | 1 <sup>1</sup> / <sub>16</sub>             | 27 | 27.00       | 12.24 | —     | —     |
|                                                                                   | 2                             | 50  |                                |     |                                            |    | <sup>3</sup> <sup>1</sup> / <sub>16</sub>    | 78  | 1 <sup>1</sup> / <sub>16</sub>             | 27 | 26.00       | 11.79 | 26.00 | 11.79 |
|                                                                                   | 2 <sup>1</sup> / <sub>2</sub> | 65  |                                |     |                                            |    | <sup>3</sup> <sup>9</sup> / <sub>16</sub>    | 90  | 1 <sup>1</sup> / <sub>8</sub>              | 29 | 25.00       | 11.34 | 25.00 | 11.34 |
|                                                                                   | 3                             | 80  |                                |     |                                            |    | 4 <sup>1</sup> / <sub>4</sub>                | 108 | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 23.00       | 10.43 | 23.00 | 10.43 |
|                                                                                   | 4                             | 100 |                                |     |                                            |    | <sup>5</sup> <sup>5</sup> / <sub>16</sub>    | 135 | <sup>1</sup> <sup>5</sup> / <sub>16</sub>  | 33 | 21.00       | 9.52  | 21.00 | 9.52  |
|                                                                                   | 5                             | 125 |                                |     |                                            |    | 6 <sup>7</sup> / <sub>16</sub>               | 164 | 1 <sup>7</sup> / <sub>16</sub>             | 37 | 19.00       | 8.62  | 19.00 | 8.62  |
|                                                                                   | 2                             | 50  | 13 <sup>1</sup> / <sub>2</sub> | 343 | 1 <sup>1</sup> / <sub>8</sub>              | 29 | <sup>3</sup> <sup>1</sup> / <sub>16</sub>    | 78  | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 44.00       | 19.95 | —     | —     |
|                                                                                   | 3                             | 80  |                                |     |                                            |    | 4 <sup>1</sup> / <sub>4</sub>                | 108 | <sup>1</sup> <sup>3</sup> / <sub>16</sub>  | 30 | 40.00       | 18.14 | 40.00 | 18.14 |
|                                                                                   | 4                             | 100 |                                |     |                                            |    | <sup>5</sup> <sup>5</sup> / <sub>16</sub>    | 135 | <sup>1</sup> <sup>5</sup> / <sub>16</sub>  | 33 | 37.00       | 16.78 | 37.00 | 16.78 |
|                                                                                   | 5                             | 125 |                                |     |                                            |    | 6 <sup>7</sup> / <sub>16</sub>               | 164 | 1 <sup>7</sup> / <sub>16</sub>             | 37 | 34.00       | 15.42 | —     | —     |
|                                                                                   | 6                             | 150 |                                |     |                                            |    | 7 <sup>9</sup> / <sub>16</sub>               | 192 | 1 <sup>9</sup> / <sub>16</sub>             | 40 | 31.00       | 14.06 | 31.00 | 14.06 |
|                                                                                   | 6                             | 150 | 16                             | 406 | 1 <sup>3</sup> / <sub>16</sub>             | 30 | 7 <sup>9</sup> / <sub>16</sub>               | 192 | 1 <sup>9</sup> / <sub>16</sub>             | 40 | 53.00       | 24.04 | —     | —     |
|                                                                                   | 8                             | 200 |                                |     |                                            |    | 9 <sup>1</sup> <sup>11</sup> / <sub>16</sub> | 246 | 1 <sup>3</sup> / <sub>4</sub>              | 44 | 50.00       | 22.68 | —     | —     |
|                                                                                   | 6                             | 150 | 19                             | 483 | 1 <sup>1</sup> / <sub>4</sub>              | 32 | 7 <sup>9</sup> / <sub>16</sub>               | 192 | 1 <sup>9</sup> / <sub>16</sub>             | 40 | 88.00       | 39.91 | —     | —     |
|                                                                                   | 8                             | 200 |                                |     |                                            |    | 9 <sup>1</sup> <sup>11</sup> / <sub>16</sub> | 246 | 1 <sup>3</sup> / <sub>4</sub>              | 44 | 81.00       | 36.73 | —     | —     |

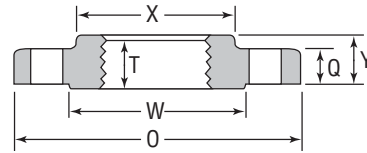
To order reducing companion flanges, specify threaded or reduced size first, then the outside diameter of desired flange. For instance, if a reducing flange is required to connect a 5 NPS (125 DN) pipe to an 8 NPS (200 DN) valve or fitting having a 13<sup>1</sup>/<sub>2</sub> inch (338 DN) OD flange, order 5 NPS x 13<sup>1</sup>/<sub>2</sub> inch (125 x 338 DN) reducing flange.

Note: See page 62 for pressure-temperature ratings.

## Iron Flanges

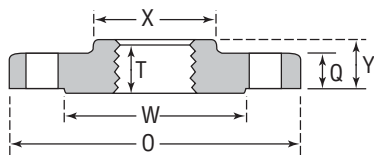
Class 250 (Extra Heavy)

**FIGURE 1025**  
Companion Flange



| Pipe Size |     | Diam. of Flange<br>O |     | Min. Flange Thickness<br>Q |    | Min. Hub Diameter<br>X |     | Min. Length Thru Hub<br>Y |    | Min. Length of Threads<br>T |    | Diam. of Raised Face<br>W |     | Unit Weight |       |       |      |
|-----------|-----|----------------------|-----|----------------------------|----|------------------------|-----|---------------------------|----|-----------------------------|----|---------------------------|-----|-------------|-------|-------|------|
|           |     |                      |     |                            |    |                        |     |                           |    |                             |    |                           |     | Black       |       | Galv. |      |
| 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                      | 22 | 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 |     | Diam. of Flange<br>O |     | Min. Flange Thickness<br>Q |    | Min. Length Thru Hub<br>Y |    | Min. Length of Threads<br>T |    | Diam. of Raised Face<br>W |     | Unit Weight |       |
|-----------|-----|----------------------|-----|----------------------------|----|---------------------------|----|-----------------------------|----|---------------------------|-----|-------------|-------|
|           |     |                      |     |                            |    |                           |    |                             |    |                           |     | Black       |       |
| NPS       | DN  | 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 | 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 | 13.50       | 6.12  |
| 3         | 80  | 10                   | 254 | 1 1/4                      | 32 | 1 9/16                    | 40 | 1.20                        | 30 | 6 15/16                   | 176 | 22.75       | 10.32 |
| 4         | 100 | 11                   | 279 | 1 3/8                      | 35 | 1 3/4                     | 44 | 1.30                        | 33 | 8 5/16                    | 211 | 30.00       | 13.61 |

Note: See page 62 for pressure-temperature ratings.

Iron Flanges  
Class 250 (Extra Heavy)

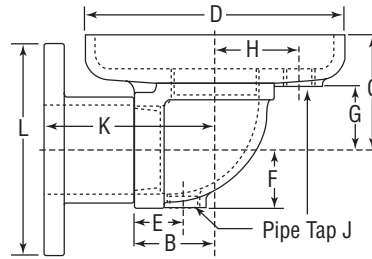
| FIGURE 1021<br>Blind Flange | Pipe Size |     | Diam. of<br>Flange<br>O |     | Diam. of<br>Port<br>I |     | Min. Flange<br>Thickness<br>Q |    | Min. Metal<br>Thickness<br>V |    | Unit Weight |       |
|-----------------------------|-----------|-----|-------------------------|-----|-----------------------|-----|-------------------------------|----|------------------------------|----|-------------|-------|
|                             |           |     |                         |     |                       |     |                               |    |                              |    | Black       |       |
|                             | NPS       | DN  | in                      | mm  | in                    | mm  | in                            | mm | in                           | mm | lbs         | kg    |
|                             | 1½        | 40  | 6⅞                      | 156 | 1½                    | 38  | 1⅜/16                         | 22 | —                            | —  | 5.30        | 2.40  |
|                             | 2         | 50  | 6½                      | 165 | 2                     | 51  | 7/8                           | 22 | —                            | —  | 7.00        | 3.17  |
|                             | 2½        | 65  | 7½                      | 191 | 2½                    | 64  | 1                             | 25 | —                            | —  | 11.00       | 4.99  |
|                             | 3         | 80  | 8¼                      | 210 | 3                     | 76  | 1⅛                            | 29 | —                            | —  | 14.00       | 6.35  |
|                             | 4         | 100 | 10                      | 254 | 4                     | 102 | 1¼                            | 32 | —                            | —  | 23.00       | 10.43 |
|                             | 5         | 125 | 11                      | 279 | 5                     | 127 | 1⅜                            | 35 | —                            | —  | 31.00       | 14.06 |
|                             | 6         | 150 | 12½                     | 318 | 6                     | 152 | 1⅞/16                         | 37 | —                            | —  | 42.00       | 19.05 |
|                             | 8         | 200 | 15                      | 381 | 8                     | 203 | 1⅝                            | 41 | —                            | —  | 70.00       | 31.75 |

Note: See page 62 for pressure-temperature ratings.

## Cast Iron Threaded Fittings

### Safety Valve Discharge Elbows

**FIGURE 1538**  
Screwed  
Cast Iron



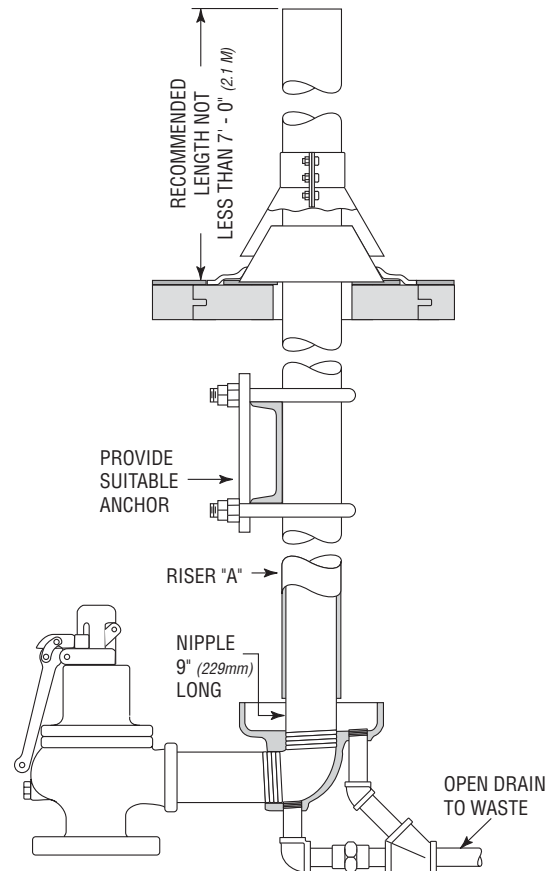
| Elbow<br>Pipe<br>Size | Riser<br>Pipe Size<br>A | B     |    | C      |     | D      |     | E     |    | F     |    | G     |    | H     |    | J    |    | K  |    | L  |    | Unit<br>Weight<br>Black |       |
|-----------------------|-------------------------|-------|----|--------|-----|--------|-----|-------|----|-------|----|-------|----|-------|----|------|----|----|----|----|----|-------------------------|-------|
|                       |                         | in    | mm | in     | mm  | in     | mm  | in    | mm | in    | mm | in    | mm | in    | mm | in   | mm | in | mm | in | mm | lbs                     | kg    |
| 2½ 65                 | 3½ 89                   | 2⅞ 89 | 89 | 4⅝ 110 | 110 | 8½ 216 | 216 | 1⅝ 41 | 41 | 1⅝ 49 | 49 | 2⅛ 54 | 54 | 2¾ 70 | 70 | ¾ 19 | 19 | —  | —  | —  | —  | 12.00                   | 5.44  |
| 3 80                  | 4 102                   | 3⅞ 79 | 79 | 4⅞ 124 | 124 | 9½ 241 | 241 | 1⅝ 41 | 41 | 2⅝ 59 | 59 | 2⅞ 65 | 65 | 3⅛ 79 | 79 | ¾ 19 | 19 | —  | —  | —  | —  | 15.00                   | 6.80  |
| 4 100                 | 5 127                   | 3¾ 95 | 95 | 5¾ 146 | 146 | 11 279 | 279 | 1¾ 44 | 44 | 2⅝ 75 | 75 | 3⅜ 81 | 81 | 3¾ 95 | 95 | ¾ 19 | 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 36 for pressure-temperature ratings.

## Bolt Template

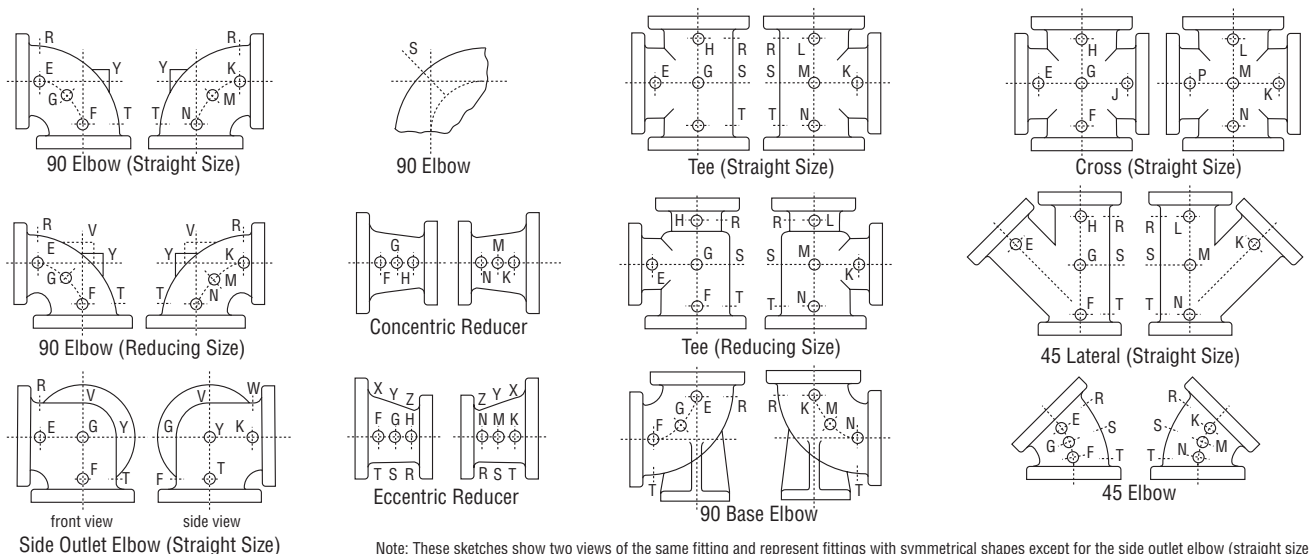
### For Drilling Flanged Fittings

**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  |
| 3/4       | 20       | 3 7/8       | 98  | 7/16                  | 11 | 2 3/4            | 70  | 4           | 5/8            | 16 | 1/2          | 13 | 1 3/4          | 44  | 1 1/16           | 27  | 2 1/4            | 57  |
| 1         | 25       | 4 1/4       | 108 | 7/16                  | 11 | 3 1/8            | 79  | 4           | 5/8            | 16 | 1/2          | 13 | 1 3/4          | 44  | 1 5/16           | 33  | 2 5/8            | 67  |
| 1 1/4     | 32       | 4 5/8       | 117 | 1/2                   | 13 | 3 1/2            | 89  | 4           | 5/8            | 16 | 1/2          | 13 | 2              | 51  | 1 21/32          | 42  | 3                | 76  |
| 1 1/2     | 40       | 5           | 127 | 9/16                  | 14 | 3 7/8            | 98  | 4           | 5/8            | 16 | 1/2          | 13 | 2              | 51  | 1 29/32          | 48  | 3 3/8            | 86  |
| 2         | 50       | 6           | 152 | 5/8                   | 16 | 4 3/4            | 121 | 4           | 3/4            | 19 | 5/8          | 16 | 2 1/4          | 57  | 2 3/8            | 60  | 4 1/8            | 105 |
| 2 1/2     | 65       | 7           | 178 | 1 1/16                | 17 | 5 1/2            | 140 | 4           | 3/4            | 19 | 5/8          | 16 | 2 1/2          | 64  | 2 7/8            | 73  | 4 7/8            | 124 |
| 3         | 80       | 7 1/2       | 191 | 3/4                   | 19 | 6                | 152 | 4           | 3/4            | 19 | 5/8          | 16 | 2 1/2          | 64  | 3 1/2            | 89  | 5 3/8            | 137 |
| 3 1/2     | 90       | 8 1/2       | 216 | 13/16                 | 22 | 7                | 178 | 8           | 3/4            | 19 | 5/8          | 16 | 2 3/4          | 70  | 4                | 102 | 6 3/8            | 162 |
| 4         | 100      | 9           | 229 | 1 5/16                | 24 | 7 1/2            | 191 | 8           | 3/4            | 19 | 5/8          | 16 | 3              | 76  | 4 1/2            | 114 | 6 7/8            | 175 |
| 5         | 125      | 10          | 254 | 1 5/16                | 24 | 8 1/2            | 216 | 8           | 7/8            | 22 | 3/4          | 19 | 3              | 76  | 5 5/16           | 141 | 7 3/4            | 197 |
| 6         | 150      | 11          | 279 | 1                     | 25 | 9 1/2            | 241 | 8           | 7/8            | 22 | 3/4          | 19 | 3 1/4          | 83  | 6 5/8            | 168 | 8 3/4            | 222 |
| 8         | 200      | 13 1/2      | 343 | 1 1/8                 | 29 | 11 3/4           | 298 | 8           | 7/8            | 22 | 3/4          | 19 | 3 1/2          | 89  | 8 5/8            | 219 | 11               | 279 |
| 10        | 250      | 16          | 406 | 1 3/8                 | 30 | 14 1/4           | 362 | 12          | 1              | 25 | 7/8          | 22 | 3 3/4          | 95  | 10 3/4           | 273 | 13 3/8           | 340 |
| 12        | 300      | 19          | 483 | 1 1/4                 | 32 | 17               | 432 | 12          | 1              | 25 | 7/8          | 22 | 3 3/4          | 95  | 12 3/4           | 324 | 16 1/8           | 410 |
| 14 O.D.   | 350 O.D. | 21          | 533 | 1 3/8                 | 35 | 18 3/4           | 476 | 12          | 1 1/8          | 29 | 1            | 25 | 4 1/4          | 108 | 14               | 356 | 17 3/4           | 451 |
| 16 O.D.   | 400 O.D. | 23 1/2      | 597 | 1 7/16                | 37 | 21 1/4           | 540 | 16          | 1 1/8          | 29 | 1            | 25 | 4 1/2          | 114 | 16               | 406 | 20 1/4           | 514 |
| 18 O.D.   | 450 O.D. | 25          | 635 | 1 9/16                | 40 | 22 3/4           | 578 | 16          | 1 1/4          | 32 | 1 1/8        | 29 | 4 3/4          | 121 | 18               | 457 | 21 5/8           | 549 |
| 20 O.D.   | 500 O.D. | 27 1/2      | 699 | 1 11/16               | 43 | 25               | 635 | 20          | 1 1/4          | 32 | 1 1/8        | 29 | 5              | 127 | 20               | 508 | 23 3/8           | 606 |
| 24 O.D.   | 600 O.D. | 32          | 813 | 1 7/8                 | 48 | 29 1/2           | 749 | 20          | 1 3/8          | 35 | 1 1/4        | 32 | 5 1/2          | 140 | 24               | 610 | 28 1/4           | 718 |

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

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



Note: See page 62 for pressure-temperature ratings.

# SMALL STEEL FITTINGS

## 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   |
|  | 1/4 x 1/8         | 8 x 6   | 0.625          | 16 | 0.625              | 16 | 0.02        | 0.01 |
|                                                                                   | 3/8 x 1/8         | 10 x 6  | 0.750          | 19 | 0.687              | 17 | 0.05        | 0.02 |
|                                                                                   | 3/8 x 1/4         | 10 x 8  | 0.750          | 19 | 0.687              | 17 | 0.03        | 0.01 |
|                                                                                   | 1/2 x 1/8         | 15 x 6  | 0.875          | 22 | 0.875              | 22 | 0.11        | 0.05 |
|                                                                                   | 1/2 x 1/4         | 15 x 8  | 0.875          | 22 | 0.875              | 22 | 0.05        | 0.02 |
|                                                                                   | 1/2 x 3/8         | 15 x 10 | 0.875          | 22 | 0.875              | 22 | 0.06        | 0.03 |
|                                                                                   | 3/4 x 1/8         | 20 x 6  | 1.000          | 25 | 1.062              | 27 | 0.21        | 0.10 |
|                                                                                   | 3/4 x 1/4         | 20 x 8  | 1.000          | 25 | 1.062              | 27 | 0.18        | 0.08 |
|                                                                                   | 3/4 x 3/8         | 20 x 10 | 1.000          | 25 | 1.062              | 27 | 0.15        | 0.07 |
|                                                                                   | 3/4 x 1/2         | 20 x 15 | 1.000          | 25 | 1.062              | 27 | 0.10        | 0.05 |
|                                                                                   | 1 x 1/8           | 25 x 6  | 1.062          | 27 | 1.375              | 35 | 0.19        | 0.09 |
|                                                                                   | 1 x 1/4           | 25 x 8  | 1.062          | 27 | 1.375              | 35 | 0.19        | 0.09 |
|                                                                                   | 1 x 3/8           | 25 x 10 | 1.062          | 27 | 1.375              | 35 | 0.19        | 0.09 |
|                                                                                   | 1 x 1/2           | 25 x 15 | 1.062          | 27 | 1.375              | 35 | 0.19        | 0.09 |
|                                                                                   | 1 x 3/4           | 25 x 20 | 1.062          | 27 | 1.375              | 35 | 0.19        | 0.09 |

Canvil Product

All sizes taper tapped  $\frac{3}{4}$ " 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  $\frac{1}{4}$  (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<br>Pipe Size |    | Min. Thread<br>Length |    | Min. Size of Socket |    |     |    | Metal Thickness<br>Bottom<br>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  | —                   | —  | ⅜   | 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 | ⅝                   | 8  | ⅝   | 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  | ⅞   | 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 —  $\frac{3}{4}$ " 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

|  <b>FLUSH BUSHINGS</b> | 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 ⅝             | 8 x 6   | 0.440                           | 11 | 0.260                           | 7  | 0.01        | 0.00 |
|                                                                                                         | ⅜ x ⅝             | 10 x 6  | 0.480                           | 12 | 0.250                           | 6  | 0.03        | 0.01 |
|                                                                                                         | ⅜ x ¾             | 10 x 8  | 0.480                           | 12 | 0.400                           | 10 | 0.02        | 0.01 |
|                                                                                                         | ½ x ¾             | 15 x 8  | 0.560                           | 14 | 0.320                           | 8  | 0.05        | 0.02 |
|                                                                                                         | ½ x ⅞             | 15 x 10 | 0.560                           | 14 | 0.410                           | 11 | 0.03        | 0.01 |

|  <b>CAPS</b> | Nominal Pipe Size |    | Cap Length |    | Nominal Width Across Flats |    | Unit Weight |      |
|------------------------------------------------------------------------------------------------|-------------------|----|------------|----|----------------------------|----|-------------|------|
|                                                                                                | NPS               | DN | in         | mm | in                         | mm | lbs         | kg   |
|                                                                                                | ⅝                 | 6  | 0.563      | 14 | 0.560                      | 14 | 0.02        | 0.01 |
|                                                                                                | ¾                 | 8  | 0.844      | 22 | 0.625                      | 16 | 0.03        | 0.01 |
|                                                                                                | ⅞                 | 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 |

|  <b>SOLID SQUARE HEAD PLUGS</b> | Nominal Pipe Size |    | Minimum Overall Plug Length |    | Nominal Width Across Flats |    | Threads |     | Unit Weight |      |
|--------------------------------------------------------------------------------------------------------------------|-------------------|----|-----------------------------|----|----------------------------|----|---------|-----|-------------|------|
|                                                                                                                    | NPS               | DN | in                          | mm | in                         | mm | in      | mm  | lbs         | kg   |
|                                                                                                                    | ⅝                 | 6  | 0.625                       | 16 | ⅞                          | 7  | 27      | 686 | 0.02        | 0.01 |
|                                                                                                                    | ¾                 | 8  | 0.687                       | 17 | ⅞                          | 10 | 18      | 457 | 0.04        | 0.02 |
|                                                                                                                    | ⅞                 | 10 | 0.812                       | 21 | 7/16                       | 11 | 18      | 457 | 0.06        | 0.03 |
|                                                                                                                    | ½                 | 15 | 0.937                       | 24 | ⅞                          | 14 | 14      | 356 | 0.12        | 0.05 |
|                                                                                                                    | ¾                 | 20 | 1.062                       | 27 | 5/8                        | 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 | 1⅝                         | 29 | 11½     | 292 | 0.82        | 0.37 |
|                                                                                                                    | 2                 | 50 | 1.560                       | 40 | 1⅝                         | 34 | 11½     | 292 | 1.35        | 0.61 |



## Specification

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

**Welded steel nipples (A 53 Type F or Type E)** are available in standard and extra strong sizes  $\frac{1}{8}$ " – 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  $\frac{1}{8}$ " – 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  $\frac{1}{8}$ " – 4" NPS (8 – 50 DN), in 4" (102mm) and 6" (152mm) lengths.

**Nipples** are available from stock in  $\frac{1}{8}$ " – 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.

$\frac{1}{8}$ " 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 STD, XS/XH, SCH 160 and XXS/XXH
- Material designation A106 B
- Heat number for traceability

## Seamless Pipe Nipples

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



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

### Material

ASTM A106 Grade B Seamless Pipe

ASTM A333 Grade 6 Seamless Pipe (For Canada only)

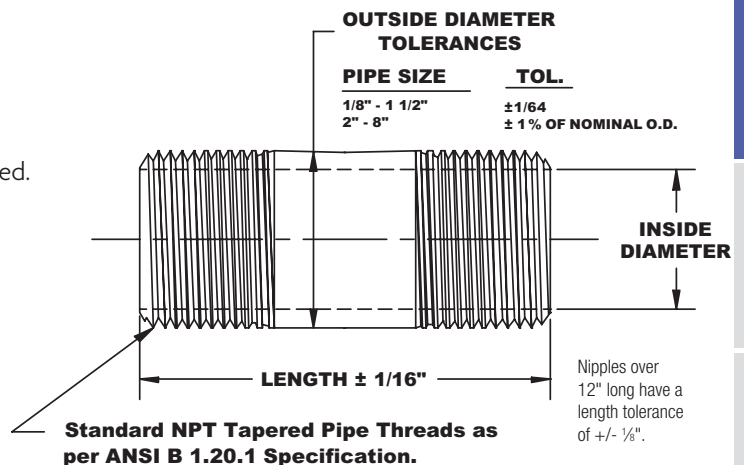
**Note:** Galvanized nipples from Longview Texas plant are electroplated. Galvanized nipples from Beck plant are hot dipped.

### Applicable Specification

ASTM A733

(Refer to the chart below for specific pipe dimensions.)

**Note:** Minimum wall thickness at any point to be not more than 10% over and 3 1/2% under nominal wall thickness specified for that size pipe.



| Pipe Size | Pipe O.D. | Length Close | Pipe Nipple Lengths |   |       |   |       |   |       |   |       |   |   |   |   |    |    |    |
|-----------|-----------|--------------|---------------------|---|-------|---|-------|---|-------|---|-------|---|---|---|---|----|----|----|
| in        | in        | in           | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1/8       | 0.405     | 3/4          | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1/4       | 0.540     | 7/8          | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3/8       | 0.675     | 1            | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1/2       | 0.840     | 1 1/8        | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3/4       | 1.050     | 1 3/8        | 1 1/2               | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1         | 1.315     | 1 1/2        |                     | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 1/4     | 1.660     | 1 7/8        |                     | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 1/2     | 1.900     | 1 3/4        |                     | 2 | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2         | 2.375     | 2            |                     |   | 2 1/2 | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 1/2     | 2.875     | 2 1/2        |                     |   |       | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 3         | 3.500     | 2 5/8        |                     |   |       | 3 | 3 1/2 | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 4         | 4.500     | 2 7/8        |                     |   |       |   |       | 4 | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 5         | 5.563     | 3            |                     |   |       |   |       |   | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 6         | 6.625     | 3 1/8        |                     |   |       |   |       |   | 4 1/2 | 5 | 5 1/2 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

**Note:** Other lengths available.

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



# PIPE NIPPLES

## 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

### Material

ASTM A53 Standard Specification for Pipe Steel, Black, Galvanized, Hot-Dipped, Zinc Coated, Welded.

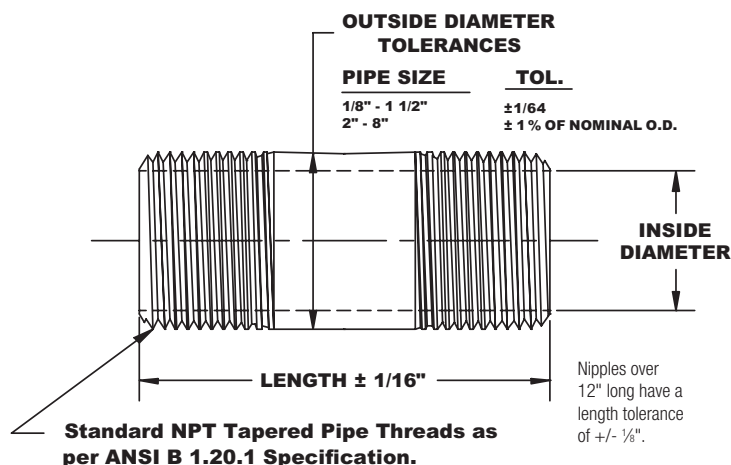
### Applicable specification

ASTM A733

(Refer to the chart below for specific pipe dimensions.)

**Note:** Minimum wall thickness at any point to be not more than  $\pm 10\%$  nominal wall thickness specified for that size pipe.

Standard and Extra Heavy right and left nipples available in  $\frac{1}{8}$  - 4" diameter and 4" and 6" lengths.



| Pipe Size<br>in | Pipe O.D.<br>in | Length Close<br>in | Pipe Nipple Lengths |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
|-----------------|-----------------|--------------------|---------------------|---|----|---|----|---|----|---|----|---|---|---|---|----|----|----|
|                 |                 |                    | 1½                  | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| ⅛               | 0.405           | ¾                  |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| ¼               | 0.540           | ⅞                  |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| ⅜               | 0.675           | 1                  |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| ½               | 0.840           | 1⅛                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| ¾               | 1.050           | 1⅜                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 1               | 1.315           | 1½                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 1¼              | 1.660           | 1⅝                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 1½              | 1.900           | 1¾                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 2               | 2.375           | 2                  |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 2½              | 2.875           | 2½                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 3               | 3.500           | 2⅞                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 3½              | 4.000           | 2¾                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 4               | 4.500           | 2⅞                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 5               | 5.563           | 3                  |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |
| 6               | 6.625           | 3⅞                 |                     |   |    |   |    |   |    |   |    |   |   |   |   |    |    |    |

**Note:** Other lengths available.

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.



# PIPE NIPPLES

## Steel Pipe Nipples

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



### READY CUT PIPE

Black Extra Long— Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1/8            | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 1/4            | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 3/8            | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 1/2            | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 3/4            | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 1              | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
| 1 1/4          | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
| 1 1/2          | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
| 2              | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   |

### SINGLE RUN PACKS

Black — Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | Close | 1 1/2" | 2" | 2 1/2" | 3" | 3 1/2" | 4" | 4 1/2" | 5" | 5 1/2" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|----------------|-------|--------|----|--------|----|--------|----|--------|----|--------|----|---------------|------------------|
| 1/8            | 1     | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 11            | 1.00             |
| 1/4            | 1     | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 11            | 1.50             |
| 3/8            | 1     | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 11            | 2.00             |
| 1/2            | 1     | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 11            | 2.50             |
| 3/4            | 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             |
| 1 1/4          | 1     | -      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 10            | 7.00             |
| 1 1/2          | 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            |
| 2 1/2          | 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 | 1 1/2" | 2" | 2 1/2" | 3" | 3 1/2" | 4" | 4 1/2" | 5" | 5 1/2" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|----------------|-------|--------|----|--------|----|--------|----|--------|----|--------|----|---------------|------------------|
| 1/2            | 1     | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 11            | 3.20             |
| 3/4            | 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             |
| 1 1/4          | 1     | -      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 1      | 1  | 10            | 8.40             |
| 1 1/2          | 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.

### TRAVEL TRAYS (Black & Galvanized)

| Nom. Pipe Size | Close | 1 1/2" | 2" | 2 1/2" | 3" | 3 1/2" | 4" | 4 1/2" | 5" | 5 1/2" | 6" | No. of Pieces | Approx. Wt. Lbs. |
|----------------|-------|--------|----|--------|----|--------|----|--------|----|--------|----|---------------|------------------|
| 1/2            | 6     | 6      | 6  | 6      | 6  | 6      | 6  | 6      | 6  | 6      | 6  | 66            | 15.00            |
| 3/4            | 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.

## Steel Pipe Nipples – Welded



### TANK NIPPLES

Black — Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | Length | Weight | Quantity |
|----------------|--------|--------|----------|
| 1/8            | 6      | 0.13   | -        |
| 1/4            | 6      | 0.20   | -        |
| 3/8            | 6      | 0.28   | -        |
| 1/2            | 6      | 0.40   | -        |
| 3/4            | 6      | 0.53   | -        |
| 1              | 6      | 0.76   | -        |
| 1 1/4          | 6      | 1.04   | -        |
| 1 1/2          | 6      | 1.28   | -        |
| 2              | 6      | 1.56   | -        |

Tank nipples are recommended for use as tank legs. One end has the standard tapered pipe thread and the other end has a straight running thread 4" long. All Tank Nipples ship in quantities of 25.

### BUTT NIPPLES

Black — Figure 339 & Galvanized — Fig. 343

| Nom. Pipe Size | Weight | Quantity |
|----------------|--------|----------|
| 1/8 x 1/2      | 0.02   | -        |
| 1/4 x 3/4      | 0.03   | -        |
| 3/8 x 3/4      | 0.04   | -        |
| 1/2 x 3/4      | 0.04   | -        |
| 3/4 x 1        | 0.06   | -        |
| 1 x 1          | 0.10   | -        |
| 1 1/4 x 1      | 0.16   | -        |
| 1 1/2 x 1 1/4  | 0.17   | -        |
| 2 x 1 1/4      | 0.28   | -        |
| 2 1/2 x 2      | 0.87   | -        |
| 3 x 2          | 1.28   | -        |
| 4 x 2 1/4      | 1.11   | -        |

### RIGHT & LEFT NIPPLES

Black — Figure 339 & Galvanized — Figure 343

| Nom. Pipe Size | Length   | Weight | Quantity |
|----------------|----------|--------|----------|
| 1/8            | 4" or 6" | 0.09   | -        |
| 1/4            | 4" or 6" | 0.13   | -        |
| 3/8            | 4" or 6" | 0.18   | 25       |
| 1/2            | 4" or 6" | 0.25   | 25       |
| 3/4            | 4" or 6" | 0.35   | 25       |
| 1              | 4" or 6" | 0.51   | 25       |
| 1 1/4          | 4" or 6" | 0.68   | 25       |
| 1 1/2          | 4" or 6" | 0.80   | 25       |
| 2              | 4" or 6" | 1.09   | 25       |
| 2 1/2          | 4" or 6" | 1.50   | -        |
| 3              | 4" or 6" | 2.00   | -        |
| 3 1/2          | 4" or 6" | 2.80   | -        |
| 4              | 4" or 6" | 3.24   | -        |

## Specialty Fabrication



### 1. STEEL NIPPLES

- a. NPT (TOE) x Plain end
- b. NPT (TOE) x Plain end square cut
- c. NPT (TOE) x Plain end square cut and deburred (Bevel, Ream?)
- d. NPT (TOE) x Ream other end(ROE)
- e. Plain end x Plain end (cut blank)(roller cut)(square cut) (B&O cut)
- f. ROE x ROE (Ream x Ream)
- g. NPT (TOE) x Bevel (Specify Bevel, ex. Weld Bevel, 45 degree bevel, etc.)
- h. Bevel x Bevel (Specify Bevel)
- i. NPT (TOE) x Straight Thd (Specify NPSL or NPSM) (depends on nipple length)(Straight thread length can be longer than normal thread length if necessary)
- j. Straight Thd x Straight Thd (Specify NPSL or NPSM) (nipple length restrictions)
- k. Straight Thread x British Standard Pipe Thread
- l. NPT (TOE) x BPST
- m. BSPT x BSPT
- n. BSPT x Plain end square cut
- o. BSPT x Plain end square cut and deburred
- p. BSPT x ROE
- q. BSPT x Groove
- r. BSPT X Left Hand Thread
- s. Right Hand Thread x Left Hand Thread
- t. Left Hand Thread x Left Hand Thread
- u. Left Hand x Plain end
- v. LH x Plain end square cut
- w. LH x Plain end square cut and deburred
- x. LH x ROE
- y. LH x Straight Thd (Specify NPSL or NPSM)
- z. LH x Groove
- aa. Grooving of nipples (grooving is outsourced)
- bb. Sandblasting of nipples (length restrictions)
- cc. Phosphate finish for nipples
- dd. Vibra-Seal coated threads for nipples
- ee. Yellow Di-chromate plating of nipples (length restrictions)
- ff. Galvanized plating of threads for nipples (length restrictions)
- gg. Chrome plating of Brass nipples (length restrictions)
- hh. Any length of nipple from close to 120" in increments of 1/16 of an inch
- ii. Nipple w/NPT tapped hole on the side.
- jj. Flat ream.
- kk. Stamping.
- ll. Stainless Steel Specification ASTM A312 Grade 316 & 304 (Sch. 40 & 80)
- mm. Tank Nipples
- nn. Butt Nipples
- oo. Stainless Steel
- pp. Individually Bar Coded product also available.

**NPT National Pipe Thread**

**NPSL Straight Thread – Locknut**

**NPSM Straight Thread – Mechanical**

**BPST British Standard Thread**

### 2. STEEL COUPLINGS

- a. Phosphating
- b. Special Lengths

## Steel Pipe Couplings

### Merchant Couplings



**FIGURE 336**  
Standard, Full & Half



| Size  |     | Outside Diameter<br>(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   |
| 1/8   | 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 |
| 1/4   | 8   | 0.719                          | 18  | 13/16  | 30  | 17/32   | 13 | 18      | 457 | 0.07            | 0.03 | 0.07         | 0.03 | 0.03            | 0.01 | 0.03         | 0.01 |
| 3/8   | 10  | 0.875                          | 22  | 13/16  | 30  | 17/32   | 13 | 18      | 457 | 0.10            | 0.05 | 0.10         | 0.05 | 0.05            | 0.02 | 0.05         | 0.02 |
| 1/2   | 15  | 1.063                          | 27  | 19/16  | 40  | 23/32   | 18 | 14      | 356 | 0.18            | 0.08 | 0.18         | 0.08 | 0.08            | 0.04 | 0.08         | 0.04 |
| 3/4   | 20  | 1.313                          | 33  | 15/8   | 41  | 3/4     | 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 | 11 1/2  | 292 | 0.42            | 0.19 | 0.42         | 0.19 | 0.18            | 0.08 | 0.18         | 0.08 |
| 1 1/4 | 32  | 1.900                          | 48  | 2 1/16 | 52  | 31/32   | 25 | 11 1/2  | 292 | 0.50            | 0.23 | 0.50         | 0.23 | 0.23            | 0.10 | 0.23         | 0.10 |
| 1 1/2 | 40  | 2.200                          | 56  | 2 1/16 | 52  | 31/32   | 25 | 11 1/2  | 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 | 11 1/2  | 292 | 1.03            | 0.47 | 1.03         | 0.47 | 0.47            | 0.21 | 0.47         | 0.21 |
| 2 1/2 | 65  | 3.250                          | 83  | 3 1/8  | 79  | 1 1/2   | 38 | 8       | 203 | 2.09            | 0.95 | 2.15         | 0.98 | 0.96            | 0.44 | 0.96         | 0.44 |
| 3     | 80  | 4.000                          | 102 | 3 1/4  | 83  | 1 9/16  | 40 | 8       | 203 | 3.36            | 1.52 | 3.46         | 1.57 | 1.60            | 0.73 | 1.60         | 0.73 |
| 3 1/2 | 90  | 4.625                          | 117 | 3 3/8  | 86  | 1 5/8   | 41 | 8       | 203 | 4.82            | 2.19 | 5.18         | 2.35 | 2.22            | 1.01 | 2.22         | 1.01 |
| 4     | 100 | 5.000                          | 127 | 3 1/2  | 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 | 3 3/4  | 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.
- Galvanized 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<br>(Coupling) |     | Length |     |        |    | Unit Weight |      |      |      |
|-------|-----|--------------------------------|-----|--------|-----|--------|----|-------------|------|------|------|
|       |     |                                |     | Full   |     | Half   |    | Full        |      | Half |      |
| NPS   | DN  | in                             | mm  | in     | mm  | in     | mm | lbs         | kg   | lbs  | kg   |
| 1/8   | 6   | 0.563                          | 14  | 1 1/16 | 27  | 15/32  | 12 | 0.04        | 0.02 | 0.02 | 0.01 |
| 1/4   | 8   | 0.719                          | 18  | 1 5/8  | 41  | 3/4    | 19 | 0.09        | 0.04 | 0.04 | 0.02 |
| 3/8   | 10  | 0.875                          | 22  | 1 5/8  | 41  | 3/4    | 19 | 0.14        | 0.06 | 0.06 | 0.03 |
| 1/2   | 15  | 1.063                          | 27  | 2 1/8  | 54  | 1      | 25 | 0.25        | 0.11 | 0.11 | 0.05 |
| 3/4   | 20  | 1.313                          | 33  | 2 1/8  | 54  | 1      | 25 | 0.36        | 0.16 | 0.17 | 0.08 |
| 1     | 25  | 1.576                          | 40  | 2 5/8  | 67  | 1 1/4  | 32 | 0.56        | 0.25 | 0.26 | 0.12 |
| 1 1/4 | 32  | 2.054                          | 52  | 2 3/4  | 70  | 1 5/16 | 33 | 1.08        | 0.49 | 0.51 | 0.23 |
| 1 1/2 | 40  | 2.200                          | 56  | 2 3/4  | 70  | 1 5/16 | 33 | 0.98        | 0.44 | 0.61 | 0.28 |
| 2     | 50  | 2.875                          | 73  | 2 7/8  | 73  | 1 3/8  | 35 | 2.01        | 0.91 | 0.92 | 0.42 |
| 2 1/2 | 65  | 3.375                          | 86  | 4 1/8  | 105 | 2      | 51 | 3.53        | 1.60 | 1.72 | 0.78 |
| 3     | 80  | 4.000                          | 102 | 4 1/4  | 108 | 2 1/16 | 52 | 4.61        | 2.09 | 2.12 | 0.96 |
| 3 1/2 | 90  | 4.625                          | 117 | 4 3/8  | 111 | 2 1/8  | 54 | 6.25        | 2.84 | 2.97 | 1.35 |
| 4     | 100 | 5.200                          | 127 | 4 1/2  | 114 | 2 3/16 | 56 | 7.88        | 3.57 | 3.84 | 1.74 |
| 5     | 125 | 6.296                          | 160 | 4 7/8  | 117 | 2 3/16 | 56 | 10.50       | 4.76 | 4.85 | 2.20 |
| 6     | 150 | 7.390                          | 188 | 4 7/8  | 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.
- Galvanized full couplings are also available.

#### Note

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

## Steel Pipe Couplings

### Merchant Couplings



| <b>FIGURE 346</b><br><b>Standard, Right &amp; Left</b> | Size  |    | Outside Diameter<br>(Coupling) |    | Length |    | Unit Weight |      |
|--------------------------------------------------------|-------|----|--------------------------------|----|--------|----|-------------|------|
|                                                        | NPS   | DN | in                             | mm | in     | mm | lbs         | kg   |
|                                                        | 1/2   | 15 | 1.063                          | 27 | 1 1/16 | 40 | 0.17        | 0.08 |
|                                                        | 3/4   | 20 | 1.313                          | 33 | 1 5/8  | 41 | 0.28        | 0.13 |
|                                                        | 1     | 25 | 1.576                          | 40 | 2      | 51 | 0.43        | 0.20 |
|                                                        | 1 1/4 | 32 | 1.900                          | 48 | 2 1/16 | 52 | 0.54        | 0.24 |
|                                                        | 1 1/2 | 40 | 2.200                          | 56 | 2 1/16 | 52 | 0.73        | 0.33 |
|                                                        | 2     | 50 | 2.750                          | 70 | 2 1/8  | 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 3/4" per foot (62.5mm per meter) on the diameter and all are dipped in rust preventative.

| <b>FIGURE 347</b><br><b>Extra Strong (XS), Right &amp; Left</b> | Size  |    | Outside Diameter<br>(Coupling) |    | Length |    | Unit Weight |      |
|-----------------------------------------------------------------|-------|----|--------------------------------|----|--------|----|-------------|------|
|                                                                 | NPS   | DN | in                             | mm | in     | mm | lbs         | kg   |
|                                                                 | 1/2   | 15 | 1.063                          | 27 | 2 1/8  | 54 | 0.25        | 0.11 |
|                                                                 | 3/4   | 20 | 1.313                          | 33 | 2 1/8  | 54 | 0.36        | 0.16 |
|                                                                 | 1     | 25 | 1.576                          | 40 | 2 5/8  | 67 | 0.74        | 0.34 |
|                                                                 | 1 1/4 | 32 | 2.054                          | 52 | 2 3/4  | 70 | 1.08        | 0.49 |
|                                                                 | 1 1/2 | 40 | 2.200                          | 56 | 2 3/4  | 70 | 0.95        | 0.43 |
|                                                                 | 2     | 50 | 2.875                          | 73 | 2 7/8  | 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    |
| 1/8   | 6   | 0.563                       | 14  | 1 1/16 | 27  | 0.04        | 0.02  |
| 1/4   | 8   | 0.719                       | 18  | 1 5/8  | 41  | 0.10        | 0.05  |
| 3/8   | 10  | 0.875                       | 22  | 1 5/8  | 41  | 0.13        | 0.06  |
| 1/2   | 15  | 1.063                       | 27  | 2 1/8  | 54  | 0.24        | 0.11  |
| 3/4   | 20  | 1.313                       | 33  | 2 1/8  | 54  | 0.35        | 0.16  |
| 1     | 25  | 1.576                       | 40  | 2 5/8  | 67  | 0.52        | 0.24  |
| 1 1/4 | 32  | 2.054                       | 52  | 2 3/4  | 70  | 1.00        | 0.45  |
| 1 1/2 | 40  | 2.200                       | 56  | 2 3/4  | 70  | 0.88        | 0.40  |
| 2     | 50  | 2.875                       | 73  | 2 7/8  | 73  | 1.83        | 0.83  |
| 2 1/2 | 65  | 3.375                       | 86  | 4 1/8  | 105 | 3.28        | 1.49  |
| 3     | 80  | 4.000                       | 102 | 4 1/4  | 108 | 4.09        | 1.85  |
| 3 1/2 | 90  | 4.625                       | 117 | 4 3/8  | 111 | 5.92        | 2.68  |
| 4     | 100 | 5.200                       | 132 | 4 1/2  | 114 | 7.59        | 3.44  |
| 5     | 125 | 6.296                       | 160 | 4 5/8  | 117 | 10.00       | 4.54  |
| 6     | 150 | 7.390                       | 188 | 4 7/8  | 124 | 12.92       | 5.86  |
| 8     | 200 | 9.625                       | 244 | 5 1/4  | 133 | 23.18       | 10.51 |
| 10    | 250 | 11.750                      | 298 | 5 3/4  | 146 | 31.55       | 14.31 |
| 12    | 300 | 14.000                      | 356 | 6 1/8  | 156 | 49.27       | 22.34 |

- These couplings are manufactured in accordance with American Petroleum Institute Specification 5L.
- All sizes are taper tapped  $\frac{3}{4}$ " per foot (62.5mm per meter) on the diameter.
- All couplings are phosphated unless galvanized.

## Steel Pipe Couplings



Malleable Iron

Cast Iron

Small Steel Fittings

Pipe Nipples & Pipe Couplings

Forged Steel Fittings & Unions

Anvils

Catawissa

J.B. Smith Products

| <b>FIGURE 349</b><br><b>Water Well Reamed &amp; Drifted Couplings</b>             | 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  | 3⅝     | 86  | 1.58        | 0.72  |
|                                                                                   | 2½   | 65  | 3.250                       | 83  | 3⅝     | 100 | 2.32        | 1.05  |
|                                                                                   | 3    | 80  | 4.000                       | 102 | 4⅞     | 103 | 3.80        | 1.72  |
|                                                                                   | 3½   | 90  | 4.625                       | 117 | 4⅞     | 106 | 5.53        | 2.51  |
|                                                                                   | 4    | 100 | 5.200                       | 132 | 4⅞     | 110 | 7.14        | 3.24  |
|                                                                                   | 5    | 125 | 6.296                       | 160 | 4½     | 114 | 9.57        | 4.34  |
|                                                                                   | 6    | 150 | 7.390                       | 188 | 4⅞     | 119 | 12.32       | 5.59  |
|                                                                                   | 8    | 200 | 9.625                       | 244 | 5⅞     | 129 | 22.35       | 10.14 |
|                                                                                   | 10   | 250 | 11.750                      | 298 | 5⅞     | 141 | 30.60       | 13.88 |
|                                                                                   | 12   | 300 | 14.000                      | 356 | 5⅞     | 151 | 48.00       | 21.77 |

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

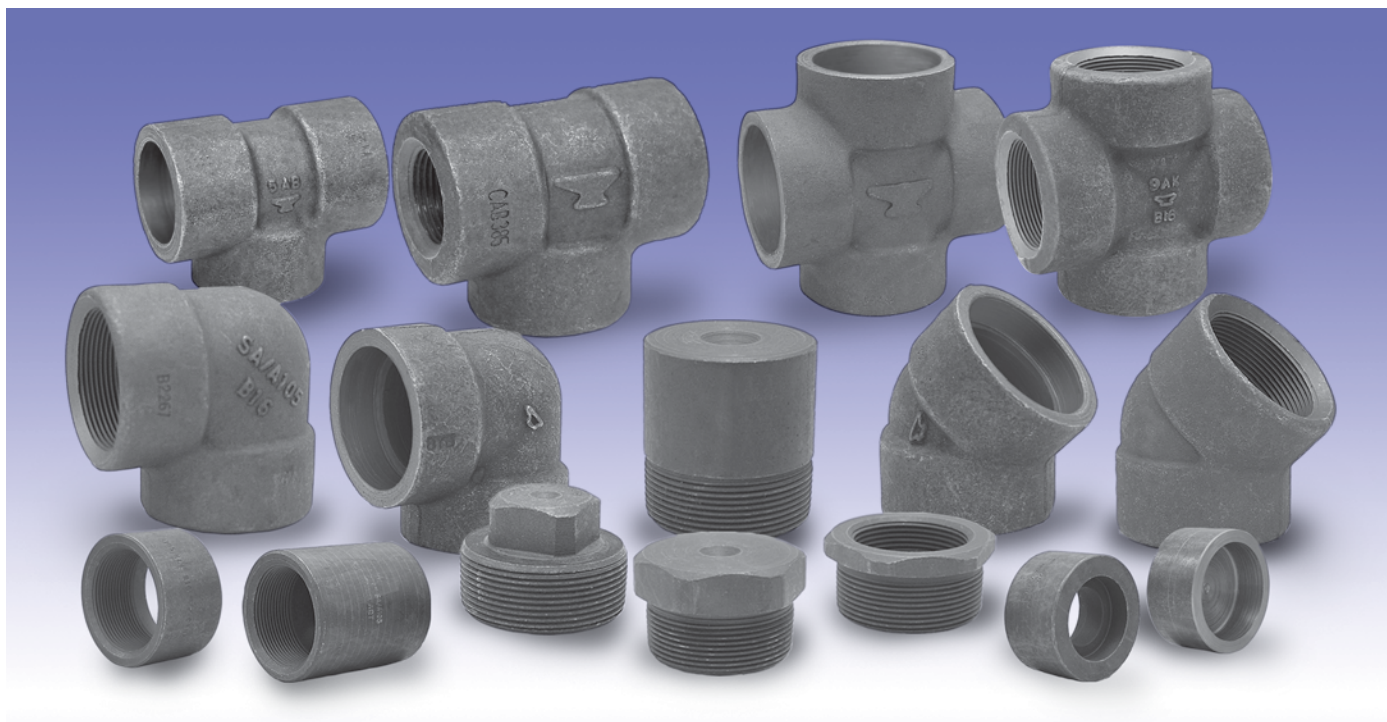
| <b>FIGURE 350</b><br><b>#9 Drive Couplings</b>                                      | Size |    | Outside Diameter (Coupling) |    | Length |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|------|----|-----------------------------|----|--------|----|-------------|------|
|                                                                                     | 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 | 3⅝     | 86 | 2.14        | 0.97 |

- All sizes are Taper Tapped ¾" per foot on diameter.

| <b>FIGURE 379</b><br><b>Shallow Well Couplings</b>                                  | 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 1¼" are Straight Tapped and recessed.
- The 1½" and 2" are Taper Tapped ¾" per foot on diameter and recessed.
- The 2" threads are electroplated.

# FORGED STEEL FITTINGS



## 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

ANSI/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.

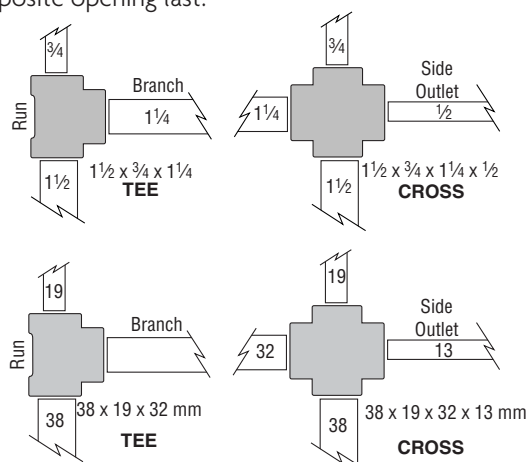
| PRESSURE RATINGS |          |      |
|------------------|----------|------|
| Class            | Schedule |      |
|                  | N.P.T.   | S.W. |
| 2000             | 80       | —    |
| 3000             | 160      | 80   |
| 6000             | XXS/XXH  | 160  |

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

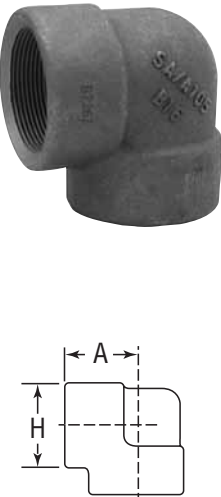
Reducing elbows, tees and crosses are available in both threaded and socket-welding.

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.



## Forged Steel Fittings

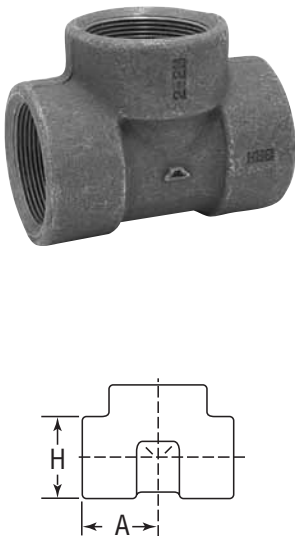
Class 2000 Threaded

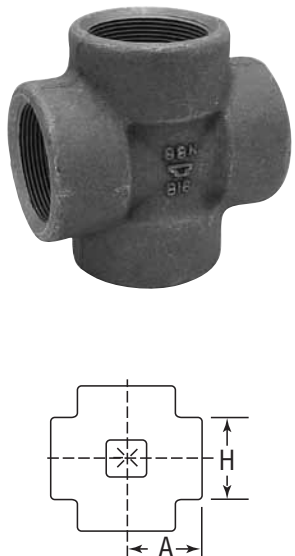
| <b>FIGURE 2101</b><br><b>90° Elbows</b><br> | Size  |     | A    |     | H    |     | Unit Weight |       |
|------------------------------------------------------------------------------------------------------------------------------|-------|-----|------|-----|------|-----|-------------|-------|
|                                                                                                                              | NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg    |
|                                                                                                                              | 1/4   | 8   | 0.81 | 21  | 0.88 | 22  | 0.18        | 0.08  |
|                                                                                                                              | 3/8   | 10  | 0.97 | 25  | 1.00 | 25  | 0.28        | 0.13  |
|                                                                                                                              | 1/2   | 15  | 1.12 | 28  | 1.31 | 33  | 0.55        | 0.25  |
|                                                                                                                              | 3/4   | 20  | 1.31 | 33  | 1.50 | 38  | 0.72        | 0.33  |
|                                                                                                                              | 1     | 25  | 1.50 | 38  | 1.81 | 46  | 1.22        | 0.55  |
|                                                                                                                              | 1 1/4 | 32  | 1.75 | 44  | 2.19 | 56  | 1.65        | 0.75  |
|                                                                                                                              | 1 1/2 | 40  | 2.00 | 51  | 2.44 | 62  | 2.12        | 0.96  |
|                                                                                                                              | 2     | 50  | 2.38 | 60  | 2.97 | 75  | 3.78        | 1.71  |
|                                                                                                                              | 2 1/2 | 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 |

| <b>FIGURE 2102</b><br><b>45° Elbows</b><br> | Size  |    | C    |    | H    |     | Unit Weight |      |
|--------------------------------------------------------------------------------------------------------------------------------|-------|----|------|----|------|-----|-------------|------|
|                                                                                                                                | NPS   | DN | in   | mm | in   | mm  | lbs         | kg   |
|                                                                                                                                | 1/4   | 8  | 0.69 | 17 | 0.88 | 22  | 0.16        | 0.07 |
|                                                                                                                                | 3/8   | 10 | 0.75 | 19 | 1.00 | 25  | 0.25        | 0.11 |
|                                                                                                                                | 1/2   | 15 | 0.88 | 22 | 1.31 | 33  | 0.48        | 0.22 |
|                                                                                                                                | 3/4   | 20 | 1.00 | 25 | 1.50 | 38  | 0.57        | 0.26 |
|                                                                                                                                | 1     | 25 | 1.12 | 28 | 1.81 | 46  | 0.88        | 0.40 |
|                                                                                                                                | 1 1/4 | 32 | 1.31 | 33 | 2.19 | 56  | 1.32        | 0.60 |
|                                                                                                                                | 1 1/2 | 40 | 1.38 | 35 | 2.44 | 62  | 1.62        | 0.73 |
|                                                                                                                                | 2     | 50 | 1.69 | 43 | 2.97 | 75  | 2.83        | 1.28 |
|                                                                                                                                | 2 1/2 | 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

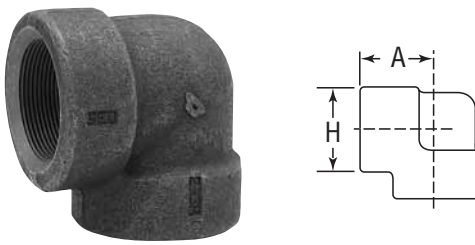
Class 2000 Threaded

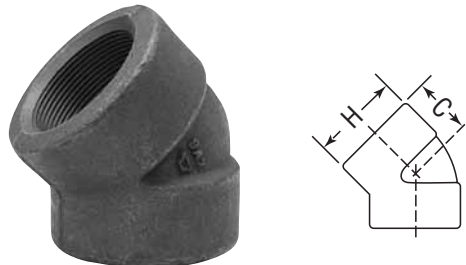
| <b>FIGURE 2103</b><br><b>Tees</b>                                                 | Size  |     | A    |     | H    |     | Unit Weight |       |
|-----------------------------------------------------------------------------------|-------|-----|------|-----|------|-----|-------------|-------|
|                                                                                   | NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg    |
|                                                                                   |       |     |      |     |      |     |             |       |
|  | 1/4   | 8   | 0.81 | 21  | 0.88 | 22  | 0.25        | 0.11  |
|                                                                                   | 3/8   | 10  | 0.97 | 25  | 1.00 | 25  | 0.37        | 0.17  |
|                                                                                   | 1/2   | 15  | 1.12 | 28  | 1.31 | 33  | 0.62        | 0.28  |
|                                                                                   | 3/4   | 20  | 1.31 | 33  | 1.50 | 38  | 0.43        | 0.20  |
|                                                                                   | 1     | 25  | 1.50 | 38  | 1.81 | 46  | 1.33        | 0.60  |
|                                                                                   | 1 1/4 | 32  | 1.75 | 44  | 2.19 | 56  | 2.10        | 0.95  |
|                                                                                   | 1 1/2 | 40  | 2.00 | 51  | 2.44 | 62  | 2.80        | 1.27  |
|                                                                                   | 2     | 50  | 2.38 | 60  | 2.97 | 75  | 4.50        | 2.04  |
|                                                                                   | 2 1/2 | 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 |

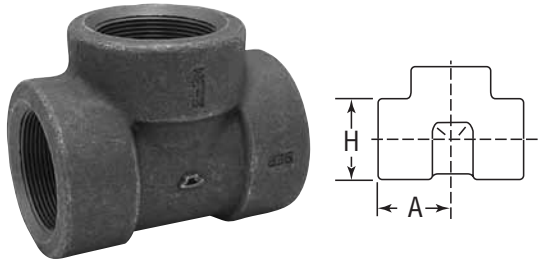
| <b>FIGURE 2104</b><br><b>Crosses</b>                                                | Size  |    | A    |    | H    |     | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|----|------|----|------|-----|-------------|------|
|                                                                                     | NPS   | DN | in   | mm | in   | mm  | lbs         | kg   |
|                                                                                     |       |    |      |    |      |     |             |      |
|  | 1/4   | 8  | 0.81 | 21 | 0.88 | 22  | 0.50        | 0.23 |
|                                                                                     | 3/8   | 10 | 0.97 | 25 | 1.00 | 25  | 0.40        | 0.18 |
|                                                                                     | 1/2   | 15 | 1.12 | 28 | 1.31 | 33  | 0.85        | 0.39 |
|                                                                                     | 3/4   | 20 | 1.31 | 33 | 1.50 | 38  | 1.10        | 0.50 |
|                                                                                     | 1     | 25 | 1.50 | 38 | 1.81 | 46  | 1.70        | 0.77 |
|                                                                                     | 1 1/4 | 32 | 1.75 | 44 | 2.19 | 56  | 2.40        | 1.09 |
|                                                                                     | 1 1/2 | 40 | 2.00 | 51 | 2.44 | 62  | 3.20        | 1.45 |
|                                                                                     | 2     | 50 | 2.38 | 60 | 2.97 | 75  | 5.20        | 2.36 |
|                                                                                     | 2 1/2 | 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<br>90° Elbows                                                         |       | Size |      | A   |      | H   |       | Unit Weight |  |
|-----------------------------------------------------------------------------------|-------|------|------|-----|------|-----|-------|-------------|--|
|  | NPS   | DN   | in   | mm  | in   | mm  | lbs   | kg          |  |
|                                                                                   | 1/8   | 6    | 0.81 | 21  | 0.88 | 22  | 0.23  | 0.10        |  |
|                                                                                   | 1/4   | 8    | 0.97 | 25  | 1.00 | 25  | 0.35  | 0.16        |  |
|                                                                                   | 3/8   | 10   | 1.12 | 28  | 1.31 | 33  | 0.66  | 0.30        |  |
|                                                                                   | 1/2   | 15   | 1.31 | 33  | 1.50 | 38  | 0.93  | 0.42        |  |
|                                                                                   | 3/4   | 20   | 1.50 | 38  | 1.81 | 46  | 1.48  | 0.67        |  |
|                                                                                   | 1     | 25   | 1.75 | 44  | 2.19 | 56  | 2.30  | 1.04        |  |
|                                                                                   | 1 1/4 | 32   | 2.00 | 51  | 2.44 | 62  | 2.68  | 1.22        |  |
|                                                                                   | 1 1/2 | 40   | 2.38 | 60  | 2.97 | 75  | 5.30  | 2.40        |  |
|                                                                                   | 2     | 50   | 2.50 | 64  | 3.31 | 84  | 5.85  | 2.65        |  |
|                                                                                   | 2 1/2 | 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<br>45° Elbows                                                           |       | Size |      | C  |      | H   |       | Unit Weight |  |
|-------------------------------------------------------------------------------------|-------|------|------|----|------|-----|-------|-------------|--|
|  | NPS   | DN   | in   | mm | in   | mm  | lbs   | kg          |  |
|                                                                                     | 1/8   | 6    | 0.69 | 17 | 0.88 | 22  | 0.18  | 0.08        |  |
|                                                                                     | 1/4   | 8    | 0.75 | 19 | 1.00 | 25  | 0.25  | 0.11        |  |
|                                                                                     | 3/8   | 10   | 0.88 | 22 | 1.31 | 33  | 0.53  | 0.24        |  |
|                                                                                     | 1/2   | 15   | 1.00 | 25 | 1.50 | 38  | 0.78  | 0.35        |  |
|                                                                                     | 3/4   | 20   | 1.12 | 28 | 1.81 | 46  | 1.20  | 0.54        |  |
|                                                                                     | 1     | 25   | 1.31 | 33 | 2.19 | 56  | 1.90  | 0.86        |  |
|                                                                                     | 1 1/4 | 32   | 1.38 | 35 | 2.44 | 62  | 2.30  | 1.04        |  |
|                                                                                     | 1 1/2 | 40   | 1.69 | 43 | 2.97 | 75  | 4.16  | 1.89        |  |
|                                                                                     | 2     | 50   | 1.72 | 44 | 3.31 | 84  | 5.12  | 2.32        |  |
|                                                                                     | 2 1/2 | 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        |  |

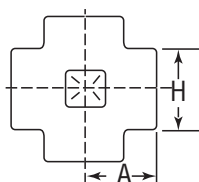
| FIGURE 2114<br>Tees                                                                 |       | Size |      | A   |      | H   |       | Unit Weight |  |
|-------------------------------------------------------------------------------------|-------|------|------|-----|------|-----|-------|-------------|--|
|  | NPS   | DN   | in   | mm  | in   | mm  | lbs   | kg          |  |
|                                                                                     | 1/8   | 6    | 0.81 | 21  | 0.88 | 22  | 0.31  | 0.14        |  |
|                                                                                     | 1/4   | 8    | 0.97 | 25  | 1.00 | 25  | 0.42  | 0.19        |  |
|                                                                                     | 3/8   | 10   | 1.12 | 28  | 1.31 | 33  | 0.93  | 0.42        |  |
|                                                                                     | 1/2   | 15   | 1.31 | 33  | 1.50 | 38  | 1.20  | 0.54        |  |
|                                                                                     | 3/4   | 20   | 1.50 | 38  | 1.81 | 46  | 1.84  | 0.83        |  |
|                                                                                     | 1     | 25   | 1.75 | 44  | 2.19 | 56  | 3.05  | 1.38        |  |
|                                                                                     | 1 1/4 | 32   | 2.00 | 51  | 2.44 | 62  | 3.62  | 1.64        |  |
|                                                                                     | 1 1/2 | 40   | 2.38 | 60  | 2.97 | 75  | 6.65  | 3.02        |  |
|                                                                                     | 2     | 50   | 2.50 | 64  | 3.31 | 84  | 7.15  | 3.24        |  |
|                                                                                     | 2 1/2 | 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

## Forged Steel Fittings

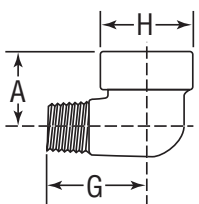
Class 3000 Threaded

**FIGURE 2115**  
Crosses



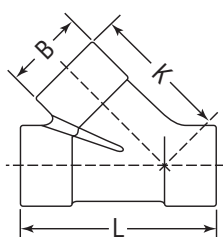
| Size  |     | A    |     | H    |     | Unit Weight |       |
|-------|-----|------|-----|------|-----|-------------|-------|
| NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg    |
| 1/8   | 6   | 0.81 | 21  | 0.88 | 22  | —           | —     |
| 1/4   | 8   | 0.97 | 25  | 1.00 | 25  | —           | —     |
| 3/8   | 10  | 1.12 | 28  | 1.31 | 33  | —           | —     |
| 1/2   | 15  | 1.31 | 33  | 1.50 | 38  | 1.40        | 0.63  |
| 3/4   | 20  | 1.50 | 38  | 1.81 | 46  | 2.10        | 0.95  |
| 1     | 25  | 1.75 | 44  | 2.19 | 56  | 3.50        | 1.59  |
| 1 1/4 | 32  | 2.00 | 51  | 2.44 | 62  | 4.30        | 1.95  |
| 1 1/2 | 40  | 2.38 | 60  | 2.97 | 75  | 8.20        | 3.72  |
| 2     | 50  | 2.50 | 64  | 3.31 | 84  | 8.40        | 3.81  |
| 2 1/2 | 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   |
| 1/8   | 6  | 0.75 | 19 | 1.00 | 25 | 0.75 | 19 | —           | —    |
| 1/4   | 8  | 0.88 | 22 | 1.25 | 32 | 1.00 | 25 | 0.23        | 0.10 |
| 3/8   | 10 | 1.00 | 25 | 1.50 | 38 | 1.25 | 32 | 0.38        | 0.17 |
| 1/2   | 15 | 1.12 | 28 | 1.62 | 41 | 1.50 | 38 | 0.53        | 0.24 |
| 3/4   | 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 |
| 1 1/4 | 32 | 2.00 | 51 | 2.62 | 66 | 2.44 | 62 | 2.40        | 1.09 |
| 1 1/2 | 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 |

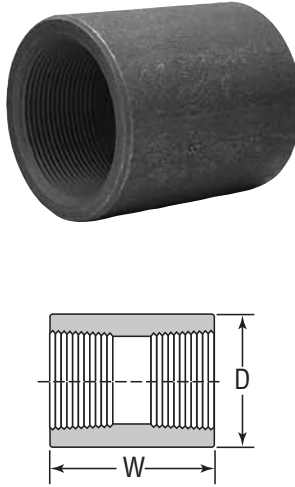
**FIGURE 2116**  
Laterals

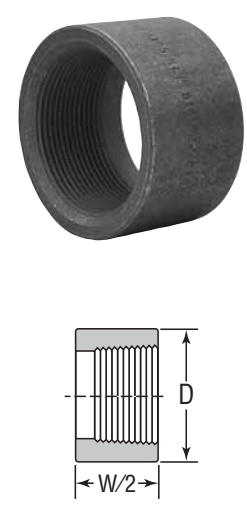


| Size  |    | B    |       | K    |        | L    |        | Unit Weight |      |
|-------|----|------|-------|------|--------|------|--------|-------------|------|
| NPS   | DN | in   | mm    | in   | mm     | in   | mm     | lbs         | kg   |
| 1/2   | 15 | 1.56 | 39.62 | 2.56 | 65.02  | 3.56 | 90.42  | 1.75        | 0.79 |
| 3/4   | 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 |
| 1 1/4 | 32 | 2.50 | 63.50 | 3.94 | 100.08 | 5.38 | 136.65 | 5.50        | 2.48 |
| 1 1/2 | 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

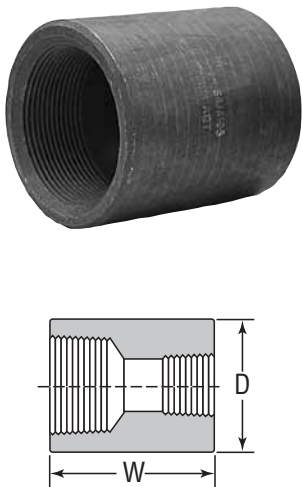
| FIGURE 2117<br>Couplings                                                          | Size  |     | D    |     | W    |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------|-----|------|-----|-------------|------|
|                                                                                   | NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg   |
|  | 1/8   | 6   | 0.62 | 16  | 1.25 | 32  | 0.14        | 0.06 |
|                                                                                   | 1/4   | 8   | 0.75 | 19  | 1.38 | 35  | 0.10        | 0.05 |
|                                                                                   | 3/8   | 10  | 0.88 | 22  | 1.50 | 38  | 0.13        | 0.06 |
|                                                                                   | 1/2   | 15  | 1.12 | 28  | 1.88 | 48  | 0.28        | 0.13 |
|                                                                                   | 3/4   | 20  | 1.38 | 35  | 2.00 | 51  | 0.44        | 0.20 |
|                                                                                   | 1     | 25  | 1.75 | 44  | 2.38 | 60  | 1.08        | 0.49 |
|                                                                                   | 1 1/4 | 32  | 2.25 | 57  | 2.62 | 67  | 1.68        | 0.76 |
|                                                                                   | 1 1/2 | 40  | 2.50 | 64  | 3.12 | 79  | 2.17        | 0.98 |
|                                                                                   | 2     | 50  | 3.00 | 76  | 3.38 | 86  | 3.20        | 1.45 |
|                                                                                   | 2 1/2 | 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 |

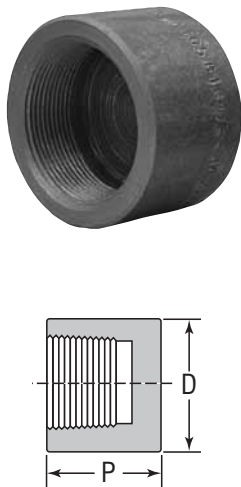
| FIGURE 2119<br>Half Couplings                                                       | Size  |     | D    |     | W/2  |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------|-----|------|----|-------------|------|
|                                                                                     | NPS   | DN  | in   | mm  | in   | mm | lbs         | kg   |
|  | 1/8   | 6   | 0.62 | 16  | 0.63 | 16 | 0.05        | 0.02 |
|                                                                                     | 1/4   | 8   | 0.75 | 19  | 0.69 | 18 | 0.04        | 0.02 |
|                                                                                     | 3/8   | 10  | 0.88 | 22  | 0.75 | 19 | 0.06        | 0.03 |
|                                                                                     | 1/2   | 15  | 1.12 | 28  | 0.94 | 24 | 0.12        | 0.05 |
|                                                                                     | 3/4   | 20  | 1.38 | 35  | 1.00 | 26 | 0.21        | 0.10 |
|                                                                                     | 1     | 25  | 1.75 | 44  | 1.19 | 30 | 0.43        | 0.20 |
|                                                                                     | 1 1/4 | 32  | 2.25 | 57  | 1.31 | 34 | 0.76        | 0.34 |
|                                                                                     | 1 1/2 | 40  | 2.50 | 64  | 1.56 | 40 | 1.14        | 0.52 |
|                                                                                     | 2     | 50  | 3.00 | 76  | 1.69 | 43 | 1.50        | 0.68 |
|                                                                                     | 2 1/2 | 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

## Forged Steel Fittings

Class 3000 Threaded

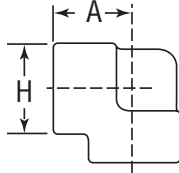
| <b>FIGURE 2118</b><br><b>Reducing Couplings</b>                                   | Size  |     |       |    | D    |     | W    |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|-------|----|------|-----|------|-----|-------------|------|
|                                                                                   | NPS   | DN  | NPS   | DN | in   | mm  | in   | mm  | lbs         | kg   |
|                                                                                   |       |     |       |    |      |     |      |     |             |      |
|  | 1/4   | 8   | 1/8   | 6  | 0.75 | 19  | 1.38 | 35  | 0.10        | 0.05 |
|                                                                                   | 3/8   | 10  | 1/8   | 6  | 0.88 | 22  | 1.50 | 38  | 0.15        | 0.07 |
|                                                                                   | 1/2   | 15  | 1/8   | 6  | 1.12 | 28  | 1.88 | 48  | 0.35        | 0.16 |
|                                                                                   | 3/4   | 20  | 1/8   | 6  | 1.38 | 35  | 2.00 | 51  | 0.52        | 0.24 |
|                                                                                   | 1     | 25  | 1/8   | 6  | 1.75 | 44  | 2.38 | 60  | 1.10        | 0.50 |
|                                                                                   | 1 1/4 | 32  | 1/4   | 8  | 2.25 | 57  | 2.62 | 67  | 2.08        | 0.94 |
|                                                                                   | 1 1/2 | 40  | 1/4   | 8  | 2.50 | 64  | 3.12 | 79  | 2.93        | 1.33 |
|                                                                                   | 2     | 50  | 1/4   | 8  | 3.00 | 76  | 3.38 | 86  | 4.40        | 2.00 |
|                                                                                   | 2 1/2 | 65  | 3/4   | 20 | 3.62 | 92  | 3.62 | 92  | 7.50        | 3.40 |
|                                                                                   | 3     | 80  | 3/4   | 20 | 4.25 | 108 | 4.25 | 108 | 11.00       | 4.99 |
|                                                                                   | 4     | 100 | 1 1/2 | 40 | 5.50 | 140 | 4.75 | 121 | 20.50       | 9.30 |

| <b>FIGURE 2120</b><br><b>Pipe Caps</b>                                              | Size  |     | D    |     | P    |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------|-----|------|----|-------------|------|
|                                                                                     | NPS   | DN  | in   | mm  | in   | mm | lbs         | kg   |
|                                                                                     |       |     |      |     |      |    |             |      |
|  | 1/8   | 6   | 0.62 | 16  | 0.75 | 19 | 0.07        | 0.03 |
|                                                                                     | 1/4   | 8   | 0.75 | 19  | 1.00 | 25 | 0.08        | 0.04 |
|                                                                                     | 3/8   | 10  | 0.88 | 22  | 1.00 | 25 | 0.11        | 0.05 |
|                                                                                     | 1/2   | 15  | 1.12 | 28  | 1.25 | 32 | 0.23        | 0.10 |
|                                                                                     | 3/4   | 20  | 1.38 | 35  | 1.44 | 37 | 0.40        | 0.18 |
|                                                                                     | 1     | 25  | 1.75 | 44  | 1.62 | 41 | 0.79        | 0.36 |
|                                                                                     | 1 1/4 | 32  | 2.25 | 57  | 1.75 | 44 | 1.21        | 0.55 |
|                                                                                     | 1 1/2 | 40  | 2.50 | 64  | 1.75 | 44 | 1.75        | 0.79 |
|                                                                                     | 2     | 50  | 3.00 | 76  | 1.88 | 48 | 2.46        | 1.12 |
|                                                                                     | 2 1/2 | 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

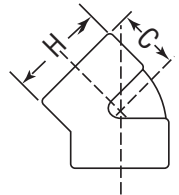
Class 6000 Threaded

**FIGURE 2131**  
90° Elbows



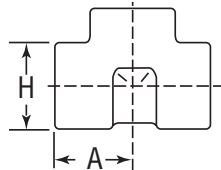
| Size  |     | A    |     | H    |     | Unit Weight |       |
|-------|-----|------|-----|------|-----|-------------|-------|
| NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg    |
| 1/8   | 6   | 0.97 | 25  | 1.00 | 25  | —           | —     |
| 1/4   | 8   | 1.12 | 28  | 1.31 | 33  | —           | —     |
| 3/8   | 10  | 1.31 | 33  | 1.50 | 38  | —           | —     |
| 1/2   | 15  | 1.50 | 38  | 1.81 | 46  | 1.50        | 0.68  |
| 3/4   | 20  | 1.75 | 44  | 2.19 | 56  | 2.60        | 1.18  |
| 1     | 25  | 2.00 | 51  | 2.44 | 62  | 3.50        | 1.59  |
| 1 1/4 | 32  | 2.38 | 60  | 2.97 | 75  | 6.00        | 2.72  |
| 1 1/2 | 40  | 2.50 | 64  | 3.31 | 84  | 8.00        | 3.63  |
| 2     | 50  | 3.25 | 83  | 4.00 | 102 | 13.00       | 5.90  |
| 2 1/2 | 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    |
| 1/8   | 6   | 0.75 | 19 | 1.00 | 25  | —           | —     |
| 1/4   | 8   | 0.88 | 22 | 1.31 | 33  | —           | —     |
| 3/8   | 10  | 1.00 | 25 | 1.50 | 38  | —           | —     |
| 1/2   | 15  | 1.12 | 28 | 1.81 | 46  | 2.25        | 1.02  |
| 3/4   | 20  | 1.31 | 33 | 2.19 | 56  | 2.30        | 1.04  |
| 1     | 25  | 1.38 | 35 | 2.44 | 62  | 2.69        | 1.22  |
| 1 1/4 | 32  | 1.69 | 43 | 2.97 | 75  | 4.69        | 2.13  |
| 1 1/2 | 40  | 1.72 | 44 | 3.31 | 84  | 5.60        | 2.54  |
| 2     | 50  | 2.06 | 52 | 4.00 | 102 | 9.50        | 4.31  |
| 2 1/2 | 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

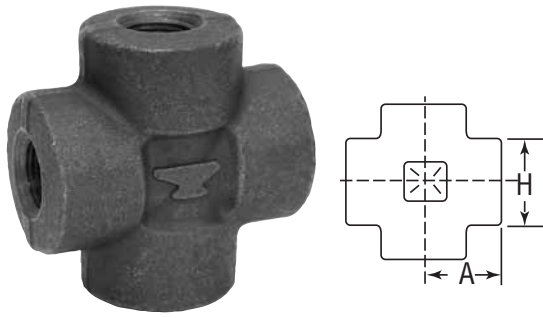


| Size  |     | A    |     | H    |     | Unit Weight |       |
|-------|-----|------|-----|------|-----|-------------|-------|
| NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg    |
| 1/8   | 6   | 0.97 | 25  | 1.00 | 25  | —           | —     |
| 1/4   | 8   | 1.12 | 28  | 1.31 | 33  | —           | —     |
| 3/8   | 10  | 1.31 | 33  | 1.50 | 38  | —           | —     |
| 1/2   | 15  | 1.50 | 38  | 1.81 | 46  | 2.25        | 1.02  |
| 3/4   | 20  | 1.75 | 44  | 2.19 | 56  | 2.30        | 1.04  |
| 1     | 25  | 2.00 | 51  | 2.44 | 62  | 2.69        | 1.22  |
| 1 1/4 | 32  | 2.38 | 60  | 2.97 | 75  | 4.69        | 2.13  |
| 1 1/2 | 40  | 2.50 | 64  | 3.31 | 84  | 5.60        | 2.54  |
| 2     | 50  | 3.25 | 83  | 4.00 | 102 | 9.50        | 4.31  |
| 2 1/2 | 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 | —           | —     |

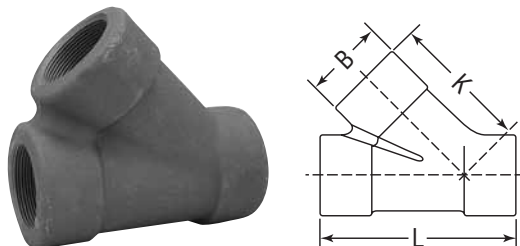
# FORGED STEEL FITTINGS

## Forged Steel Fittings

Class 6000 Threaded

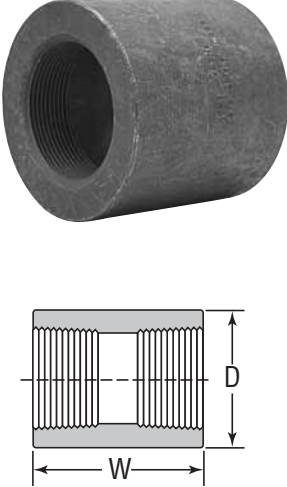
| FIGURE 2135<br>Crosses                                                            |       | Size |      | A   |      | H   |       | Unit Weight |  |
|-----------------------------------------------------------------------------------|-------|------|------|-----|------|-----|-------|-------------|--|
|  | NPS   | DN   | in   | mm  | in   | mm  | lbs   | kg          |  |
|                                                                                   | 1/8   | 6    | 0.97 | 25  | 1.00 | 25  | 0.56  | 0.25        |  |
|                                                                                   | 1/4   | 8    | 1.12 | 28  | 1.31 | 33  | 1.19  | 0.54        |  |
|                                                                                   | 3/8   | 10   | 1.31 | 33  | 1.50 | 38  | 1.50  | 0.68        |  |
|                                                                                   | 1/2   | 15   | 1.50 | 38  | 1.81 | 46  | 2.60  | 1.18        |  |
|                                                                                   | 3/4   | 20   | 1.75 | 44  | 2.19 | 56  | 4.30  | 1.95        |  |
|                                                                                   | 1     | 25   | 2.00 | 51  | 2.44 | 62  | 5.70  | 2.59        |  |
|                                                                                   | 1 1/4 | 32   | 2.38 | 60  | 2.97 | 75  | 9.60  | 4.35        |  |
|                                                                                   | 1 1/2 | 40   | 2.50 | 64  | 3.31 | 84  | 11.40 | 5.17        |  |
|                                                                                   | 2     | 50   | 3.25 | 83  | 4.00 | 102 | 21.40 | 9.71        |  |
|                                                                                   | 2 1/2 | 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       |  |

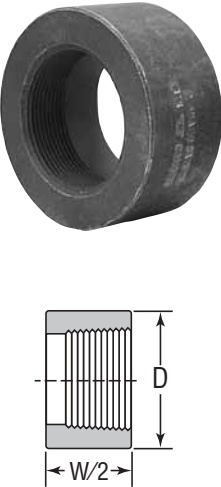
| FIGURE 2133<br>90° Street Elbows |       | Size |      | A  |      | G  |      | H  |      | Unit Weight |  |
|----------------------------------|-------|------|------|----|------|----|------|----|------|-------------|--|
|                                  | NPS   | DN   | in   | mm | in   | mm | in   | mm | lbs  | kg          |  |
|                                  | 1/8   | 6    | 0.88 | 22 | 1.25 | 32 | 1.00 | 25 | —    | —           |  |
|                                  | 1/4   | 8    | 1.00 | 25 | 1.50 | 38 | 1.25 | 32 | 0.38 | 0.17        |  |
|                                  | 3/8   | 10   | 1.12 | 28 | 1.62 | 41 | 1.50 | 38 | 0.44 | 0.20        |  |
|                                  | 1/2   | 15   | 1.38 | 35 | 1.88 | 48 | 1.75 | 44 | 1.10 | 0.50        |  |
|                                  | 3/4   | 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        |  |
|                                  | 1 1/4 | 32   | 2.12 | 54 | 2.81 | 71 | 2.75 | 70 | 3.80 | 1.72        |  |
|                                  | 1 1/2 | 40   | 2.50 | 64 | 3.31 | 84 | 3.31 | 84 | 7.20 | 3.27        |  |

| FIGURE 2136<br>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

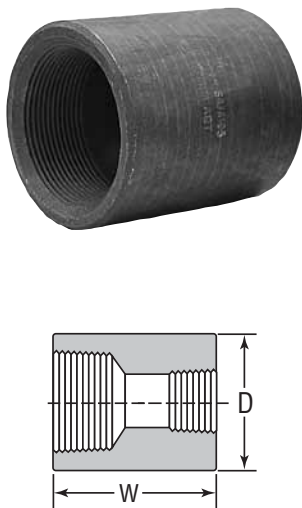
| FIGURE 2137<br>Couplings                                                          | Size  |     | D    |     | W    |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------|-----|------|-----|-------------|------|
|                                                                                   | NPS   | DN  | in   | mm  | in   | mm  | lbs         | kg   |
|  | 1/8   | 6   | 0.88 | 22  | 1.25 | 32  | 0.17        | 0.08 |
|                                                                                   | 1/4   | 8   | 1.00 | 25  | 1.38 | 35  | 0.30        | 0.14 |
|                                                                                   | 3/8   | 10  | 1.25 | 32  | 1.50 | 38  | 0.45        | 0.20 |
|                                                                                   | 1/2   | 15  | 1.50 | 38  | 1.88 | 48  | 0.70        | 0.32 |
|                                                                                   | 3/4   | 20  | 1.75 | 44  | 2.00 | 51  | 1.15        | 0.52 |
|                                                                                   | 1     | 25  | 2.25 | 57  | 2.38 | 60  | 1.83        | 0.83 |
|                                                                                   | 1 1/4 | 32  | 2.50 | 64  | 2.62 | 67  | 2.08        | 0.94 |
|                                                                                   | 1 1/2 | 40  | 3.00 | 76  | 3.12 | 79  | 3.95        | 1.79 |
|                                                                                   | 2     | 50  | 3.62 | 92  | 3.38 | 86  | 6.50        | 2.95 |
|                                                                                   | 2 1/2 | 65  | 4.25 | 108 | 3.62 | 92  | —           | —    |
|                                                                                   | 3     | 80  | 5.00 | 127 | 4.25 | 108 | —           | —    |
|                                                                                   | 4     | 100 | 6.25 | 159 | 4.75 | 121 | —           | —    |

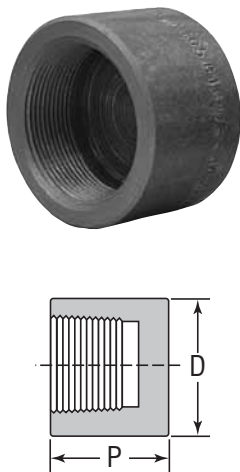
| FIGURE 2141<br>Half Couplings                                                       | Size  |     | D    |     | W/2  |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------|-----|------|----|-------------|------|
|                                                                                     | NPS   | DN  | in   | mm  | in   | mm | lbs         | kg   |
|  | 1/8   | 6   | 0.88 | 22  | 0.63 | 16 | 0.08        | 0.04 |
|                                                                                     | 1/4   | 8   | 1.00 | 25  | 0.69 | 18 | 0.13        | 0.06 |
|                                                                                     | 3/8   | 10  | 1.25 | 32  | 0.75 | 19 | 0.22        | 0.10 |
|                                                                                     | 1/2   | 15  | 1.50 | 38  | 0.94 | 24 | 0.35        | 0.16 |
|                                                                                     | 3/4   | 20  | 1.75 | 44  | 1.00 | 26 | 0.46        | 0.21 |
|                                                                                     | 1     | 25  | 2.25 | 57  | 1.19 | 30 | 0.95        | 0.43 |
|                                                                                     | 1 1/4 | 32  | 2.50 | 64  | 1.31 | 34 | 1.10        | 0.50 |
|                                                                                     | 1 1/2 | 40  | 3.00 | 76  | 1.56 | 40 | 2.12        | 0.96 |
|                                                                                     | 2     | 50  | 3.62 | 92  | 1.69 | 43 | 3.00        | 1.36 |
|                                                                                     | 2 1/2 | 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

## Forged Steel Fittings

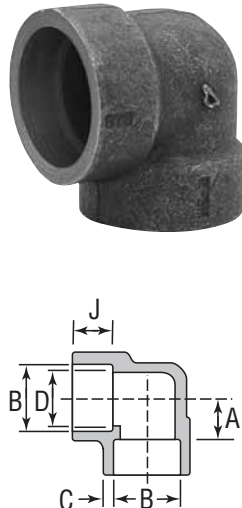
Class 6000 Threaded

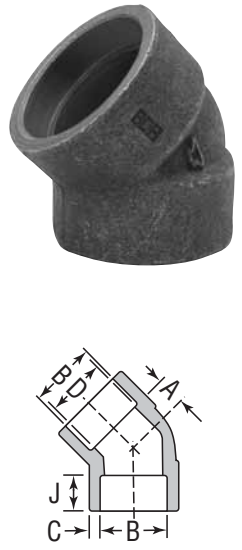
| <b>FIGURE 2138</b><br><b>Reducing Couplings</b>                                   | Size  |     |       |    | D    |     | W    |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|-------|----|------|-----|------|-----|-------------|------|
|                                                                                   | NPS   | DN  | NPS   | DN | in   | mm  | in   | mm  | lbs         | kg   |
|                                                                                   |       |     |       |    |      |     |      |     |             |      |
|  | 1/4   | 8   | 1/8   | 6  | 1.00 | 25  | 1.38 | 35  | —           | —    |
|                                                                                   | 3/8   | 10  | 1/8   | 6  | 1.25 | 32  | 1.50 | 38  | —           | —    |
|                                                                                   | 1/2   | 15  | 1/8   | 6  | 1.50 | 38  | 1.88 | 48  | 0.78        | 0.35 |
|                                                                                   | 3/4   | 20  | 1/4   | 8  | 1.75 | 44  | 2.00 | 51  | 1.16        | 0.53 |
|                                                                                   | 1     | 25  | 1/4   | 8  | 2.25 | 57  | 2.38 | 60  | 2.03        | 0.92 |
|                                                                                   | 1 1/4 | 32  | 1/2   | 15 | 2.50 | 64  | 2.62 | 67  | 2.73        | 1.24 |
|                                                                                   | 1 1/2 | 40  | 3/4   | 20 | 3.00 | 76  | 3.12 | 79  | 4.70        | 2.13 |
|                                                                                   | 2     | 50  | 3/4   | 20 | 3.62 | 92  | 3.38 | 86  | 7.50        | 3.40 |
|                                                                                   | 2 1/2 | 65  | 1 1/4 | 32 | 4.25 | 108 | 3.62 | 92  | —           | —    |
|                                                                                   | 3     | 80  | 1 1/2 | 40 | 5.00 | 127 | 4.25 | 108 | —           | —    |
|                                                                                   | 4     | 100 | 2     | 50 | 6.25 | 159 | 4.75 | 121 | —           | —    |

| <b>FIGURE 2143</b><br><b>Pipe Caps</b>                                              | Size  |     | D    |     | P    |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------|-----|------|----|-------------|------|
|                                                                                     | NPS   | DN  | in   | mm  | in   | mm | lbs         | kg   |
|                                                                                     |       |     |      |     |      |    |             |      |
|  | 1/8   | 6   | 0.88 | 22  | 1.00 | 25 | 0.01        | 0.00 |
|                                                                                     | 1/4   | 8   | 1.00 | 25  | 1.06 | 27 | 0.01        | 0.00 |
|                                                                                     | 3/8   | 10  | 1.25 | 32  | 1.06 | 27 | 0.01        | 0.00 |
|                                                                                     | 1/2   | 15  | 1.50 | 38  | 1.31 | 33 | 0.41        | 0.19 |
|                                                                                     | 3/4   | 20  | 1.75 | 44  | 1.50 | 38 | 0.57        | 0.26 |
|                                                                                     | 1     | 25  | 2.25 | 57  | 1.69 | 43 | 1.17        | 0.53 |
|                                                                                     | 1 1/4 | 32  | 2.50 | 64  | 1.81 | 46 | 1.42        | 0.64 |
|                                                                                     | 1 1/2 | 40  | 3.00 | 76  | 1.88 | 48 | 2.17        | 0.98 |
|                                                                                     | 2     | 50  | 3.62 | 92  | 2.00 | 51 | 3.66        | 1.66 |
|                                                                                     | 2 1/2 | 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

| <b>FIGURE 2150</b><br><b>90° Elbows</b>                                           | Size  |     | A<br>Nominal |      | B<br>Socket Dia. |                | C<br>Minimum |      | D<br>Bore Dia. |                | J<br>Socket Depth<br>Minimum |      | Unit Weight |       |
|-----------------------------------------------------------------------------------|-------|-----|--------------|------|------------------|----------------|--------------|------|----------------|----------------|------------------------------|------|-------------|-------|
|                                                                                   | NPS   | DN  | in           | mm   | in               | mm             | in           | mm   | in             | mm             | in                           | mm   | lbs         | kg    |
|                                                                                   |       |     |              |      |                  |                |              |      |                |                |                              |      |             |       |
|  | 1/8   | 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  |
|                                                                                   | 1/4   | 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  |
|                                                                                   | 3/8   | 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  |
|                                                                                   | 1/2   | 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  |
|                                                                                   | 3/4   | 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  |
|                                                                                   | 1 1/4 | 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  |
|                                                                                   | 1 1/2 | 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  |
|                                                                                   | 2 1/2 | 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 |

| <b>FIGURE 2151</b><br><b>45° Elbows</b>                                             | Size  |     | A<br>Nominal |      | B<br>Socket Dia. |                | C<br>Minimum |      | D<br>Bore Dia. |                | J<br>Socket Depth<br>Minimum |      | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|--------------|------|------------------|----------------|--------------|------|----------------|----------------|------------------------------|------|-------------|------|
|                                                                                     | NPS   | DN  | in           | mm   | in               | mm             | in           | mm   | in             | mm             | in                           | mm   | lbs         | kg   |
|                                                                                     |       |     |              |      |                  |                |              |      |                |                |                              |      |             |      |
|  | 1/8   | 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 |
|                                                                                     | 1/4   | 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 |
|                                                                                     | 3/8   | 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 |
|                                                                                     | 1/2   | 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 |
|                                                                                     | 3/4   | 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 |
|                                                                                     | 1 1/4 | 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 |
|                                                                                     | 1 1/2 | 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 |
|                                                                                     | 2 1/2 | 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.

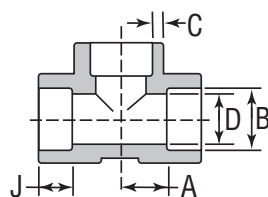
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# FORGED STEEL FITTINGS

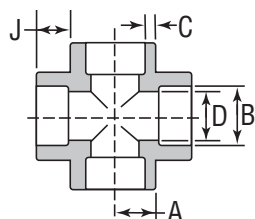
## Forged Steel Fittings

### Class 3000 Socket Weld

| FIGURE 2152<br>Tees |     | Size |      | A<br>Nominal   |                | B<br>Socket Dia. |      | C<br>Minimum   |                | D<br>Bore Dia. |      | J<br>Socket Depth<br>Minimum |       | Unit Weight |    |
|---------------------|-----|------|------|----------------|----------------|------------------|------|----------------|----------------|----------------|------|------------------------------|-------|-------------|----|
| NPS                 | DN  | in   | mm   | in             | mm             | in               | mm   | in             | mm             | in             | mm   | in                           | mm    | lbs         | kg |
| 1/8                 | 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  |             |    |
| 1/4                 | 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  |             |    |
| 3/8                 | 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  |             |    |
| 1/2                 | 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  |             |    |
| 3/4                 | 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  |             |    |
| 1 1/4               | 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  |             |    |
| 1 1/2               | 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  |             |    |
| 2 1/2               | 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<br>Crosses |     | Size |      | A<br>Nominal   |                | B<br>Socket Dia. |      | C<br>Minimum   |                | D<br>Bore Dia. |      | J<br>Socket Depth<br>Minimum |      | Unit Weight |    |
|------------------------|-----|------|------|----------------|----------------|------------------|------|----------------|----------------|----------------|------|------------------------------|------|-------------|----|
| NPS                    | DN  | in   | mm   | in             | mm             | in               | mm   | in             | mm             | in             | mm   | in                           | mm   | lbs         | kg |
| 1/8                    | 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 |             |    |
| 1/4                    | 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 |             |    |
| 3/8                    | 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 |             |    |
| 1/2                    | 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 |             |    |
| 3/4                    | 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 |             |    |
| 1 1/4                  | 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 |             |    |
| 1 1/2                  | 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 |             |    |
| 2 1/2                  | 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 | —                            | —    |             |    |

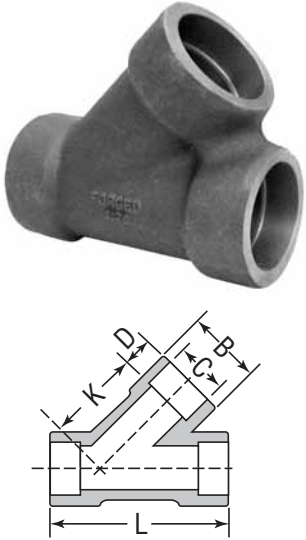


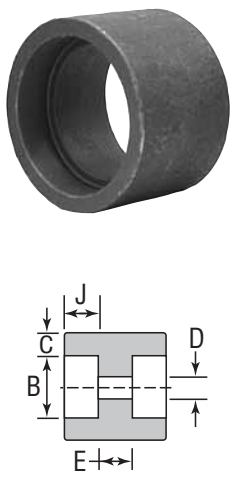
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.

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<br>Laterals                                                           | Size  |    | B    |       | C     |       | D     |       | K     |        | L     |        | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|----|------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------------|------|
|                                                                                   | NPS   | DN | in   | mm    | in    | mm    | in    | mm    | in    | mm     | in    | mm     | lbs         | kg   |
|  | 1/2   | 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 |
|                                                                                   | 3/4   | 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 |
|                                                                                   | 1 1/4 | 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 |
|                                                                                   | 1 1/2 | 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<br>Couplings                                                            | Size  |     | B<br>Socket Dia. |                | C<br>Minimum |      | D<br>Bore Dia. |                | E    |      | J<br>Socket Depth Minimum |      | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------------------|----------------|--------------|------|----------------|----------------|------|------|---------------------------|------|-------------|------|
|                                                                                     | NPS   | DN  | in               | mm             | in           | mm   | in             | mm             | in   | mm   | in                        | mm   | lbs         | kg   |
|  | 1/8   | 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 |
|                                                                                     | 1/4   | 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 |
|                                                                                     | 3/8   | 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 |
|                                                                                     | 1/2   | 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 |
|                                                                                     | 3/4   | 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 |
|                                                                                     | 1 1/4 | 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 |
|                                                                                     | 1 1/2 | 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 |
|                                                                                     | 2 1/2 | 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 |

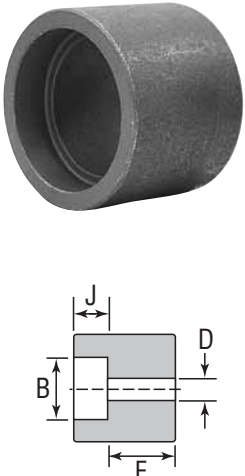
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.

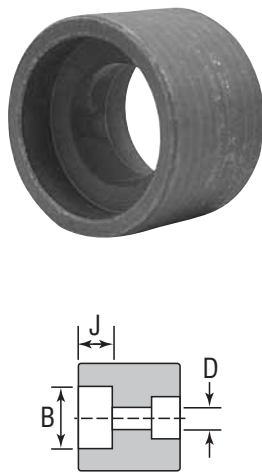
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# FORGED STEEL FITTINGS

## Forged Steel Fittings

### Class 3000 Socket Weld

| <b>FIGURE 2155</b><br><b>Half Couplings</b>                                       | Size  |     | B<br>Socket Dia. |                | D<br>Bore Dia. |                | F    |      | J<br>Socket Depth<br>Minimum |      | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------------------|----------------|----------------|----------------|------|------|------------------------------|------|-------------|------|
|                                                                                   | NPS   | DN  | in               | mm             | in             | mm             | in   | mm   | in                           | mm   | lbs         | kg   |
|                                                                                   |       |     |                  |                |                |                |      |      |                              |      |             |      |
|  | 1/8   | 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 |
|                                                                                   | 1/4   | 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 |
|                                                                                   | 3/8   | 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 |
|                                                                                   | 1/2   | 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 |
|                                                                                   | 3/4   | 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 |
|                                                                                   | 1 1/4 | 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 |
|                                                                                   | 1 1/2 | 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 |
|                                                                                   | 2 1/2 | 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<br>Reducing Couplings                                                   | Size             |     |       |    | B<br>Socket Dia. |                | D<br>Bore Dia. |                | E    |      | J<br>Socket Depth<br>Minimum |      | Unit Weight |      |
|-------------------------------------------------------------------------------------|------------------|-----|-------|----|------------------|----------------|----------------|----------------|------|------|------------------------------|------|-------------|------|
|                                                                                     | Lowest Reduction |     |       |    |                  |                |                |                |      |      |                              |      |             |      |
|                                                                                     | NPS              | DN  | NPS   | DN | in               | mm             | in             | mm             | in   | mm   | in                           | mm   | lbs         | kg   |
|  | 1/4              | 8   | 1/8   | 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 |
|                                                                                     | 3/8              | 10  | 1/8   | 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 |
|                                                                                     | 1/2              | 15  | 1/8   | 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 |
|                                                                                     | 3/4              | 20  | 1/8   | 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  | 1/8   | 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 |
|                                                                                     | 1 1/4            | 32  | 1/4   | 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 |
|                                                                                     | 1 1/2            | 40  | 1/4   | 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  | 1/2   | 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 |
|                                                                                     | 2 1/2            | 65  | 1/2   | 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  | 1 1/2 | 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

| <b>FIGURE 2157</b><br><b>Pipe Caps</b>                                            | Size  |     | B<br>Socket Dia. |                | C<br>Minimum |      | J<br>Socket Depth<br>Minimum |      | K    |      | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------------------|----------------|--------------|------|------------------------------|------|------|------|-------------|------|
|                                                                                   | NPS   | DN  | in               | mm             | in           | mm   | in                           | mm   | in   | mm   | lbs         | kg   |
|                                                                                   |       |     |                  |                |              |      |                              |      |      |      |             |      |
|  | 1/8   | 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 |
|                                                                                   | 1/4   | 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 |
|                                                                                   | 3/8   | 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 |
|                                                                                   | 1/2   | 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 |
|                                                                                   | 3/4   | 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 |
|                                                                                   | 1 1/4 | 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 |
|                                                                                   | 1 1/2 | 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 |
|                                                                                   | 2 1/2 | 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 |

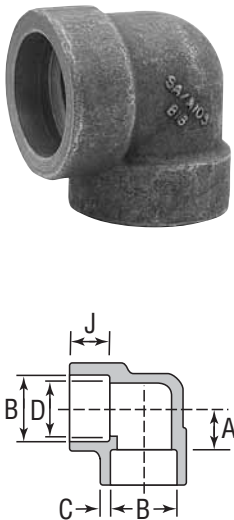
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.

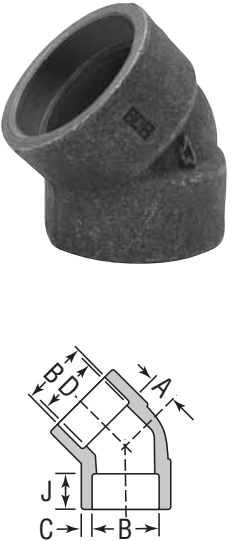
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

# FORGED STEEL FITTINGS

## Forged Steel Fittings

### Class 6000 Socket Weld

| <b>FIGURE 2170</b><br><b>90° Elbows</b>                                           | Size  |     | A<br>Nominal |      | B<br>Socket Dia. |                | C<br>Minimum |       | D<br>Bore Dia. |              | J<br>Socket Depth<br>Minimum |      | Unit Weight |       |
|-----------------------------------------------------------------------------------|-------|-----|--------------|------|------------------|----------------|--------------|-------|----------------|--------------|------------------------------|------|-------------|-------|
|                                                                                   | NPS   | DN  | in           | mm   | in               | mm             | in           | mm    | in             | mm           | in                           | mm   | lbs         | kg    |
|                                                                                   |       |     |              |      |                  |                |              |       |                |              |                              |      |             |       |
|  | 1/2   | 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  |
|                                                                                   | 3/4   | 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  |
|                                                                                   | 1 1/4 | 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  |
|                                                                                   | 1 1/2 | 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  |
|                                                                                   | 2 1/2 | 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 |

| <b>FIGURE 2171</b><br><b>45° Elbows</b>                                             | Size  |     | A    |      | B<br>Socket Dia. |                | C<br>Minimum |       | D<br>Bore Dia. |              | J<br>Socket Depth<br>Minimum |      | Unit Weight |       |
|-------------------------------------------------------------------------------------|-------|-----|------|------|------------------|----------------|--------------|-------|----------------|--------------|------------------------------|------|-------------|-------|
|                                                                                     | NPS   | DN  | in   | mm   | in               | mm             | in           | mm    | in             | mm           | in                           | mm   | lbs         | kg    |
|                                                                                     |       |     |      |      |                  |                |              |       |                |              |                              |      |             |       |
|  | 1/2   | 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  |
|                                                                                     | 3/4   | 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  |
|                                                                                     | 1 1/4 | 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  |
|                                                                                     | 1 1/2 | 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  |
|                                                                                     | 2 1/2 | 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

| <b>FIGURE 2172</b><br>Tees |     | <b>Size</b> |      | <b>A</b>       |                | <b>B</b><br>Socket Dia. |       | <b>C</b><br>Minimum |              | <b>D</b><br>Bore Dia. |      | <b>J</b><br>Socket Depth<br>Minimum |       | <b>Unit Weight</b> |    |
|----------------------------|-----|-------------|------|----------------|----------------|-------------------------|-------|---------------------|--------------|-----------------------|------|-------------------------------------|-------|--------------------|----|
| NPS                        | DN  | in          | mm   | in             | mm             | in                      | mm    | in                  | mm           | in                    | mm   | in                                  | mm    | lbs                | kg |
| 1/2                        | 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  |                    |    |
| 3/4                        | 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  |                    |    |
| 1 1/4                      | 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  |                    |    |
| 1 1/2                      | 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  |                    |    |
| 2 1/2                      | 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 |                    |    |

| <b>FIGURE 2173</b><br>Crosses |    | <b>Size</b> |      | <b>A</b>       |              | <b>B</b><br>Socket Dia. |      | <b>C</b><br>Minimum |              | <b>D</b><br>Bore Dia. |      | <b>J</b><br>Socket Depth<br>Minimum |      | <b>Unit Weight</b> |    |
|-------------------------------|----|-------------|------|----------------|--------------|-------------------------|------|---------------------|--------------|-----------------------|------|-------------------------------------|------|--------------------|----|
| NPS                           | DN | in          | mm   | in             | mm           | in                      | mm   | in                  | mm           | in                    | mm   | in                                  | mm   | lbs                | kg |
| 1/2                           | 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 |                    |    |
| 3/4                           | 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 |                    |    |
| 1 1/4                         | 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 |                    |    |
| 1 1/2                         | 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 |                    |    |

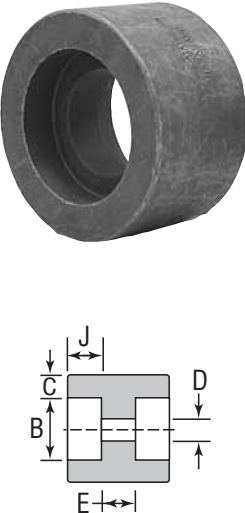
| <b>FIGURE 2178</b><br>Laterals |    | <b>Size</b> |       | <b>B</b> |       | <b>C</b> |       | <b>D</b> |        | <b>K</b> |        | <b>L</b> |      | <b>Unit Weight</b> |    |
|--------------------------------|----|-------------|-------|----------|-------|----------|-------|----------|--------|----------|--------|----------|------|--------------------|----|
| NPS                            | DN | in          | mm    | in       | mm    | in       | mm    | in       | mm     | in       | mm     | in       | mm   | lbs                | kg |
| 1/2                            | 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 |                    |    |
| 3/4                            | 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 |                    |    |
| 1 1/4                          | 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 |                    |    |
| 1 1/2                          | 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 |                    |    |

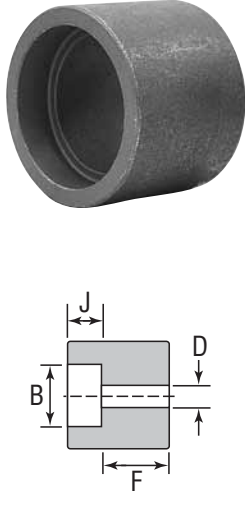
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.  
Average of socket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

# FORGED STEEL FITTINGS

## Forged Steel Fittings

### Class 6000 Socket Weld

| <b>FIGURE 2174</b><br>Couplings                                                   | Size  |     | B<br>Socket Dia. |                | C<br>Minimum |       | D<br>Bore Dia. |              | E    |      | J<br>Socket Depth<br>Minimum |      | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------------------|----------------|--------------|-------|----------------|--------------|------|------|------------------------------|------|-------------|------|
|                                                                                   | NPS   | DN  | in               | mm             | in           | mm    | in             | mm           | in   | mm   | in                           | mm   | lbs         | kg   |
|                                                                                   |       |     |                  |                |              |       |                |              |      |      |                              |      |             |      |
|  | 1/2   | 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 |
|                                                                                   | 3/4   | 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 |
|                                                                                   | 1 1/4 | 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 |
|                                                                                   | 1 1/2 | 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 |
|                                                                                   | 2 1/2 | 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 | —           | —    |

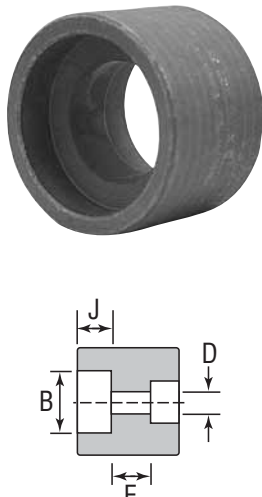
| <b>FIGURE 2175</b><br>Half Couplings                                                | Size  |     | B<br>Socket Dia. |                | D<br>Bore Dia. |              | F    |      | J<br>Socket Depth<br>Minimum |      | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------------------|----------------|----------------|--------------|------|------|------------------------------|------|-------------|------|
|                                                                                     | NPS   | DN  | in               | mm             | in             | mm           | in   | mm   | in                           | mm   | lbs         | kg   |
|                                                                                     |       |     |                  |                |                |              |      |      |                              |      |             |      |
|  | 1/2   | 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 |
|                                                                                     | 3/4   | 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 |
|                                                                                     | 1 1/4 | 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 |
|                                                                                     | 1 1/2 | 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 |
|                                                                                     | 2 1/2 | 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 | —           | —    |

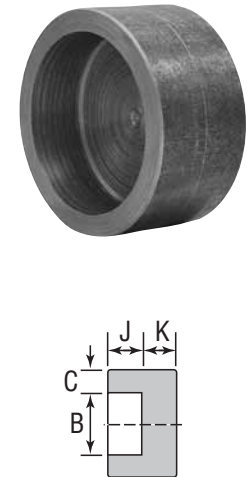
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.

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<br>Reducing Couplings                                                 | Size             |     |     |    | B<br>Socket Dia. |                | D<br>Bore Dia. |              | E    |      | J<br>Socket Depth<br>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 | —           | —    |

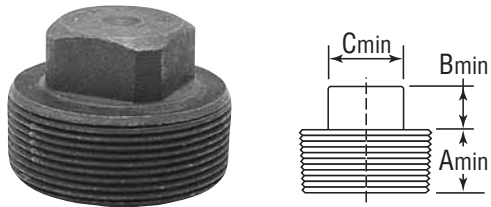
| <b>FIGURE 2177</b><br><b>Pipe Caps</b>                                              | Size  |     | B<br>Socket Dia. |                | C<br>Minimum |       | J<br>Socket Depth<br>Minimum |      | K<br>Minimum |      | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|-----|------------------|----------------|--------------|-------|------------------------------|------|--------------|------|-------------|------|
|                                                                                     | NPS   | DN  | in               | mm             | in           | mm    | in                           | mm   | in           | mm   | lbs         | kg   |
|                                                                                     |       |     |                  |                |              |       |                              |      |              |      |             |      |
|  | 1/2   | 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 |
|                                                                                     | 3/4   | 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 |
|                                                                                     | 1 1/4 | 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 |
|                                                                                     | 1 1/2 | 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 |
|                                                                                     | 2 1/2 | 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 | —           | —    |

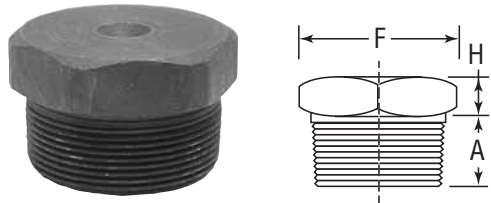
**Note:** When the pipe is seated against the bottom of the socket prior to welding, to prevent possible cracking of the fillet welds, it is recommended that the pipe be withdrawn approximately 1/16 in (1.6mm) away from contact with the bottom of the socket before starting the weld.

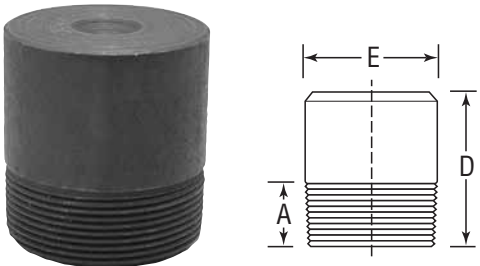
Average of socket wall thickness around periphery shall be no less than listed values. The minimum values are permitted in localized areas.

## Forged Steel Fittings

### High Pressure Plugs

| FIGURE 2122<br>Square Head Plugs                                                  |       | Size |      | A  |      | B  |      | C  |      | Unit Weight |  |
|-----------------------------------------------------------------------------------|-------|------|------|----|------|----|------|----|------|-------------|--|
|  | NPS   | DN   | in   | mm | in   | mm | in   | mm | lbs  | kg          |  |
|                                                                                   | 1/8   | 6    | 0.38 | 10 | 0.25 | 6  | 0.28 | 7  | 0.02 | 0.01        |  |
|                                                                                   | 1/4   | 8    | 0.44 | 11 | 0.25 | 6  | 0.38 | 10 | 0.03 | 0.01        |  |
|                                                                                   | 3/8   | 10   | 0.50 | 13 | 0.31 | 8  | 0.44 | 11 | 0.06 | 0.03        |  |
|                                                                                   | 1/2   | 15   | 0.56 | 14 | 0.38 | 10 | 0.56 | 14 | 0.10 | 0.05        |  |
|                                                                                   | 3/4   | 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        |  |
|                                                                                   | 1 1/4 | 32   | 0.81 | 21 | 0.56 | 14 | 0.94 | 24 | 0.62 | 0.28        |  |
|                                                                                   | 1 1/2 | 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        |  |
|                                                                                   | 2 1/2 | 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        |  |

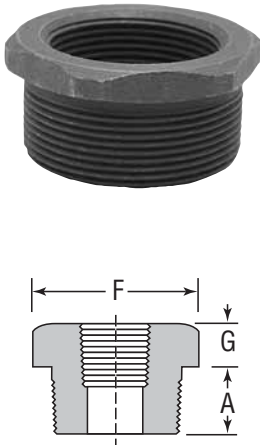
| FIGURE 2142<br>Hex Head Plugs                                                       |       | Size |      | A  |      | F<br><i>Across Flats</i> |      | H  |       | Unit Weight |  |
|-------------------------------------------------------------------------------------|-------|------|------|----|------|--------------------------|------|----|-------|-------------|--|
|  | NPS   | DN   | in   | mm | in   | mm                       | in   | mm | lbs   | kg          |  |
|                                                                                     | 1/8   | 6    | 0.38 | 10 | 0.44 | 11                       | 0.25 | 6  | 0.03  | 0.01        |  |
|                                                                                     | 1/4   | 8    | 0.44 | 11 | 0.62 | 16                       | 0.25 | 6  | 0.05  | 0.02        |  |
|                                                                                     | 3/8   | 10   | 0.50 | 13 | 0.69 | 18                       | 0.31 | 8  | 0.09  | 0.04        |  |
|                                                                                     | 1/2   | 15   | 0.56 | 14 | 0.88 | 22                       | 0.31 | 8  | 0.13  | 0.06        |  |
|                                                                                     | 3/4   | 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        |  |
|                                                                                     | 1 1/4 | 32   | 0.81 | 21 | 1.75 | 46                       | 0.56 | 14 | 0.94  | 0.43        |  |
|                                                                                     | 1 1/2 | 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        |  |
|                                                                                     | 2 1/2 | 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        |  |

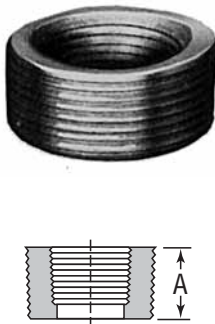
| FIGURE 2121<br>Round Head Plugs                                                     |       | Size |      | A  |      | D  |      | E   |      | Unit Weight |    |
|-------------------------------------------------------------------------------------|-------|------|------|----|------|----|------|-----|------|-------------|----|
|                                                                                     |       | NPS  | DN   | in | mm   | in | mm   | in  | mm   | lbs         | kg |
|  | 1/8   | 6    | 0.38 | 10 | 1.38 | 35 | 0.41 | 10  | 0.05 | 0.02        |    |
|                                                                                     | 1/4   | 8    | 0.44 | 11 | 1.62 | 41 | 0.53 | 13  | 0.10 | 0.05        |    |
|                                                                                     | 3/8   | 10   | 0.50 | 13 | 1.62 | 41 | 0.69 | 18  | 0.16 | 0.07        |    |
|                                                                                     | 1/2   | 15   | 0.56 | 14 | 1.75 | 44 | 0.84 | 21  | 0.28 | 0.13        |    |
|                                                                                     | 3/4   | 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        |    |
|                                                                                     | 1 1/4 | 32   | 0.81 | 21 | 2.00 | 51 | 1.69 | 43  | 1.20 | 0.54        |    |
|                                                                                     | 1 1/2 | 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        |    |
|                                                                                     | 2 1/2 | 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

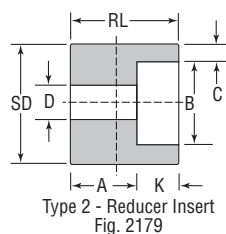
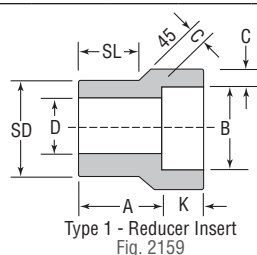
| FIGURE 2139<br>Hex Head Bushings                                                  | Size  |     |                  |    | A    |    | F    |     | G    |    | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------|-----|------------------|----|------|----|------|-----|------|----|-------------|------|
|                                                                                   |       |     | Lowest Reduction |    |      |    |      |     |      |    |             |      |
|                                                                                   | NPS   | DN  | NPS              | DN | in   | mm | in   | mm  | in   | mm | lbs         | kg   |
|  | 1/4   | 8   | 1/8              | 6  | 0.44 | 11 | 0.62 | 16  | 0.12 | 3  | 0.02        | 0.01 |
|                                                                                   | 3/8   | 10  | 1/8              | 6  | 0.50 | 13 | 0.69 | 18  | 0.16 | 4  | 0.03        | 0.01 |
|                                                                                   | 1/2   | 15  | 1/8              | 6  | 0.56 | 14 | 0.88 | 22  | 0.19 | 5  | 0.06        | 0.03 |
|                                                                                   | 3/4   | 20  | 1/8              | 6  | 0.62 | 16 | 1.06 | 27  | 0.22 | 6  | 0.11        | 0.05 |
|                                                                                   | 1     | 25  | 1/8              | 6  | 0.75 | 19 | 1.38 | 36  | 0.25 | 6  | 0.20        | 0.09 |
|                                                                                   | 1 1/4 | 32  | 1/8              | 6  | 0.81 | 21 | 1.75 | 46  | 0.28 | 7  | 0.40        | 0.18 |
|                                                                                   | 1 1/2 | 40  | 1/4              | 8  | 0.81 | 21 | 2.00 | 50  | 0.31 | 8  | 0.50        | 0.23 |
|                                                                                   | 2     | 50  | 1/4              | 8  | 0.88 | 22 | 2.50 | 65  | 0.34 | 9  | 0.85        | 0.39 |
|                                                                                   | 2 1/2 | 65  | 1/2              | 15 | 1.06 | 27 | 3.00 | 75  | 0.38 | 10 | 1.20        | 0.54 |
|                                                                                   | 3     | 80  | 1/2              | 15 | 1.12 | 28 | 3.50 | 90  | 0.41 | 10 | 2.60        | 1.18 |
|                                                                                   | 4     | 100 | 1 1/2            | 40 | 1.25 | 32 | 4.62 | 115 | 0.50 | 13 | 7.00        | 3.17 |

| FIGURE 2140<br>Flush Bushings                                                       | Size  |    |                  |    | A    |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------|----|------------------|----|------|----|-------------|------|
|                                                                                     |       |    | Lowest Reduction |    |      |    |             |      |
|                                                                                     | NPS   | DN | NPS              | DN | in   | mm | lbs         | kg   |
|  | 1/4   | 8  | 1/8              | 6  | 0.44 | 11 | 0.03        | 0.01 |
|                                                                                     | 3/8   | 10 | 1/8              | 6  | 0.50 | 13 | 0.03        | 0.01 |
|                                                                                     | 1/2   | 15 | 1/8              | 6  | 0.56 | 14 | 0.06        | 0.03 |
|                                                                                     | 3/4   | 20 | 1/8              | 6  | 0.62 | 16 | 0.09        | 0.04 |
|                                                                                     | 1     | 25 | 1/8              | 6  | 0.75 | 19 | 0.12        | 0.05 |
|                                                                                     | 1 1/4 | 32 | 1/8              | 6  | 0.81 | 21 | 0.15        | 0.07 |
|                                                                                     | 1 1/2 | 40 | 1/4              | 8  | 0.81 | 21 | 0.20        | 0.09 |
|                                                                                     | 2     | 50 | 1/4              | 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



### 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.

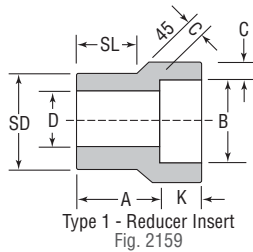
| Size |    |     |    | Class 3000 – For use with Schedule 40 and 80 Pipe |      |       |       |       |        |      |       |       |      |       |         |    |             |      |
|------|----|-----|----|---------------------------------------------------|------|-------|-------|-------|--------|------|-------|-------|------|-------|---------|----|-------------|------|
| 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.

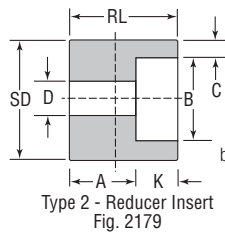
To minimize the possibility of cracking of the fillet welds, it is recommended that the shank portion of the reducer be withdrawn approximately .0625 in. (1.6 mm) away from the contact with the bottom of the socket before starting the weld. Likewise, the pipe is to be kept away from contacting the bottom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

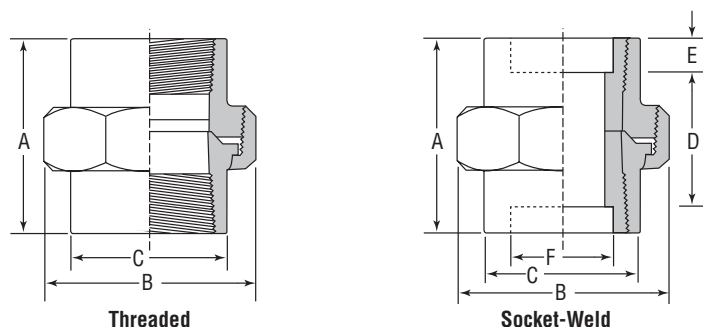
| Size |    |     |    | Class 6000 – For use with Schedule 160 Pipe |      |       |       |       |        |      |       |       |      |       |         |    |             |      |
|------|----|-----|----|---------------------------------------------|------|-------|-------|-------|--------|------|-------|-------|------|-------|---------|----|-------------|------|
| 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)

**FIGURE 2125: Threaded 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   |
| 1/4                           | 8  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1 <sup>31</sup> / <sub>64</sub> | 38  | 53/ <sub>64</sub>               | 21  | 25/ <sub>32</sub>               | 20 | 7/ <sub>16</sub>               | 11 | 0.555<br>0.575 | 14<br>15 | 0.30        | 0.14 |
| 3/8                           | 10 | 1 <sup>27</sup> / <sub>32</sub> | 47  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1                               | 25  | 31/ <sub>32</sub>               | 25 | 7/ <sub>16</sub>               | 11 | 0.690<br>0.710 | 18<br>18 | 0.50        | 0.23 |
| 1/2                           | 15 | 2                               | 51  | 1 <sup>15</sup> / <sub>16</sub> | 49  | 1 <sup>3</sup> / <sub>16</sub>  | 30  | 1 <sup>3</sup> / <sub>32</sub>  | 28 | 7/ <sub>16</sub>               | 11 | 0.855<br>0.875 | 22<br>22 | 0.70        | 0.32 |
| 3/4                           | 20 | 2 <sup>5</sup> / <sub>16</sub>  | 59  | 2 <sup>3</sup> / <sub>8</sub>   | 60  | 1 <sup>15</sup> / <sub>32</sub> | 37  | 1 <sup>5</sup> / <sub>32</sub>  | 29 | 9/ <sub>16</sub>               | 14 | 1.065<br>1.085 | 27<br>28 | 1.20        | 0.54 |
| 1                             | 25 | 2 <sup>7</sup> / <sub>16</sub>  | 62  | 2 <sup>25</sup> / <sub>32</sub> | 71  | 1 <sup>25</sup> / <sub>32</sub> | 45  | 1 <sup>3</sup> / <sub>8</sub>   | 35 | 9/ <sub>16</sub>               | 14 | 1.330<br>1.350 | 34<br>34 | 1.70        | 0.77 |
| 1 <sup>1</sup> / <sub>4</sub> | 32 | 2 <sup>7</sup> / <sub>8</sub>   | 73  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>7</sup> / <sub>32</sub>  | 686 | 1 <sup>45</sup> / <sub>64</sub> | 43 | 9/ <sub>16</sub>               | 14 | 1.675<br>1.695 | 43<br>43 | 2.50        | 1.13 |
| 1 <sup>1</sup> / <sub>2</sub> | 40 | 3                               | 76  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>35</sup> / <sub>64</sub> | 65  | 1 <sup>7</sup> / <sub>8</sub>   | 48 | 9/ <sub>16</sub>               | 14 | 1.915<br>1.935 | 49<br>49 | 3.30        | 1.50 |
| 2                             | 50 | 3 <sup>1</sup> / <sub>2</sub>   | 89  | 4 <sup>27</sup> / <sub>64</sub> | 112 | 3 <sup>1</sup> / <sub>16</sub>  | 78  | 2 <sup>1</sup> / <sub>16</sub>  | 52 | 1 <sup>1</sup> / <sub>16</sub> | 17 | 2.406<br>2.426 | 61<br>62 | 5.30        | 2.40 |
| 2 <sup>1</sup> / <sub>2</sub> | 65 | 4 <sup>1</sup> / <sub>4</sub>   | 108 | 5 <sup>15</sup> / <sub>64</sub> | 133 | 3 <sup>9</sup> / <sub>16</sub>  | 90  | 2 <sup>3</sup> / <sub>8</sub>   | 60 | 7/ <sub>8</sub>                | 22 | 2.906<br>2.931 | 74<br>74 | 8.60        | 3.90 |
| 3                             | 80 | 4 <sup>7</sup> / <sub>16</sub>  | 113 | 6 <sup>5</sup> / <sub>32</sub>  | 156 | 4 <sup>9</sup> / <sub>32</sub>  | 109 | 2 <sup>7</sup> / <sub>16</sub>  | 62 | 1                              | 25 | 3.535<br>3.560 | 90<br>90 | 12.70       | 5.76 |

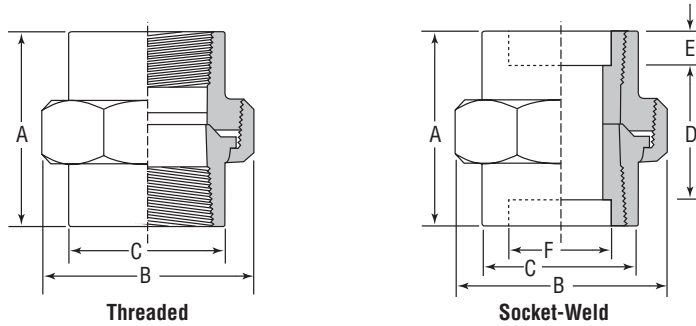
**FIGURE 2126: Socket-Weld Union**

| 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   |
| 1/4                           | 8  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1 <sup>31</sup> / <sub>64</sub> | 38  | 53/ <sub>64</sub>               | 21  | 25/ <sub>32</sub>               | 20 | 7/ <sub>16</sub>               | 11 | 0.555<br>0.575 | 14<br>15 | 0.30        | 0.14 |
| 3/8                           | 10 | 1 <sup>27</sup> / <sub>32</sub> | 47  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1                               | 25  | 31/ <sub>32</sub>               | 25 | 7/ <sub>16</sub>               | 11 | 0.690<br>0.710 | 18<br>18 | 0.50        | 0.23 |
| 1/2                           | 15 | 2                               | 51  | 1 <sup>15</sup> / <sub>16</sub> | 49  | 1 <sup>3</sup> / <sub>16</sub>  | 30  | 1 <sup>3</sup> / <sub>32</sub>  | 28 | 7/ <sub>16</sub>               | 11 | 0.855<br>0.875 | 22<br>22 | 0.70        | 0.32 |
| 3/4                           | 20 | 2 <sup>5</sup> / <sub>16</sub>  | 59  | 2 <sup>3</sup> / <sub>8</sub>   | 60  | 1 <sup>15</sup> / <sub>32</sub> | 37  | 1 <sup>5</sup> / <sub>32</sub>  | 29 | 9/ <sub>16</sub>               | 14 | 1.065<br>1.085 | 27<br>28 | 1.20        | 0.54 |
| 1                             | 25 | 2 <sup>7</sup> / <sub>16</sub>  | 62  | 2 <sup>25</sup> / <sub>32</sub> | 71  | 1 <sup>25</sup> / <sub>32</sub> | 45  | 1 <sup>3</sup> / <sub>8</sub>   | 35 | 9/ <sub>16</sub>               | 14 | 1.330<br>1.350 | 34<br>34 | 1.70        | 0.77 |
| 1 <sup>1</sup> / <sub>4</sub> | 32 | 2 <sup>7</sup> / <sub>8</sub>   | 73  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>7</sup> / <sub>32</sub>  | 686 | 1 <sup>45</sup> / <sub>64</sub> | 43 | 9/ <sub>16</sub>               | 14 | 1.675<br>1.695 | 43<br>43 | 2.50        | 1.13 |
| 1 <sup>1</sup> / <sub>2</sub> | 40 | 3                               | 76  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>35</sup> / <sub>64</sub> | 65  | 1 <sup>7</sup> / <sub>8</sub>   | 48 | 9/ <sub>16</sub>               | 14 | 1.915<br>1.935 | 49<br>49 | 3.30        | 1.50 |
| 2                             | 50 | 3 <sup>1</sup> / <sub>2</sub>   | 89  | 4 <sup>27</sup> / <sub>64</sub> | 112 | 3 <sup>1</sup> / <sub>16</sub>  | 78  | 2 <sup>1</sup> / <sub>16</sub>  | 52 | 1 <sup>1</sup> / <sub>16</sub> | 17 | 2.406<br>2.426 | 61<br>62 | 5.30        | 2.40 |
| 2 <sup>1</sup> / <sub>2</sub> | 65 | 4 <sup>1</sup> / <sub>4</sub>   | 108 | 5 <sup>15</sup> / <sub>64</sub> | 133 | 3 <sup>9</sup> / <sub>16</sub>  | 90  | 2 <sup>3</sup> / <sub>8</sub>   | 60 | 7/ <sub>8</sub>                | 22 | 2.906<br>2.931 | 74<br>74 | 8.60        | 3.90 |
| 3                             | 80 | 4 <sup>7</sup> / <sub>16</sub>  | 113 | 6 <sup>5</sup> / <sub>32</sub>  | 156 | 4 <sup>9</sup> / <sub>32</sub>  | 109 | 2 <sup>7</sup> / <sub>16</sub>  | 62 | 1                              | 25 | 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 2<sup>1</sup>/<sub>2</sub>" 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



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

**FIGURE 2127: Threaded 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   |
| 1/4                           | 8  | 1 <sup>27</sup> / <sub>32</sub> | 47  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1                               | 25  | 3 <sup>1</sup> / <sub>32</sub>  | 25 | 7 <sup>1</sup> / <sub>16</sub> | 11 | 0.555<br>0.575 | 14<br>15 | 0.60        | 0.27 |
| 3/8                           | 10 | 2                               | 51  | 1 <sup>15</sup> / <sub>16</sub> | 49  | 1 <sup>3</sup> / <sub>16</sub>  | 30  | 1 <sup>3</sup> / <sub>32</sub>  | 28 | 7 <sup>1</sup> / <sub>16</sub> | 11 | 0.690<br>0.710 | 18<br>18 | 0.80        | 0.36 |
| 1/2                           | 15 | 2 <sup>5</sup> / <sub>16</sub>  | 59  | 2 <sup>3</sup> / <sub>8</sub>   | 60  | 1 <sup>15</sup> / <sub>32</sub> | 37  | 1 <sup>5</sup> / <sub>32</sub>  | 29 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 0.855<br>0.875 | 22<br>22 | 1.40        | 0.63 |
| 3/4                           | 20 | 2 <sup>7</sup> / <sub>16</sub>  | 62  | 2 <sup>25</sup> / <sub>32</sub> | 71  | 1 <sup>25</sup> / <sub>32</sub> | 45  | 1 <sup>3</sup> / <sub>8</sub>   | 35 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.065<br>1.085 | 27<br>28 | 2.00        | 0.91 |
| 1                             | 25 | 2 <sup>7</sup> / <sub>8</sub>   | 73  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>7</sup> / <sub>32</sub>  | 686 | 1 <sup>45</sup> / <sub>64</sub> | 43 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.330<br>1.350 | 34<br>34 | 3.10        | 1.41 |
| 1 <sup>1</sup> / <sub>4</sub> | 32 | 3                               | 76  | 3 <sup>23</sup> / <sub>32</sub> | 94  | 2 <sup>35</sup> / <sub>64</sub> | 65  | 1 <sup>7</sup> / <sub>8</sub>   | 48 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.675<br>1.695 | 43<br>43 | 5.90        | 2.68 |
| 1 <sup>1</sup> / <sub>2</sub> | 40 | 3 <sup>1</sup> / <sub>2</sub>   | 89  | 4 <sup>27</sup> / <sub>64</sub> | 112 | 3 <sup>1</sup> / <sub>16</sub>  | 78  | 2 <sup>1</sup> / <sub>16</sub>  | 52 | 1 <sup>1</sup> / <sub>16</sub> | 17 | 1.915<br>1.935 | 49<br>49 | 6.60        | 2.99 |
| 2                             | 50 | 4 <sup>1</sup> / <sub>8</sub>   | 105 | 5 <sup>15</sup> / <sub>64</sub> | 133 | 3 <sup>9</sup> / <sub>16</sub>  | 90  | 2 <sup>3</sup> / <sub>8</sub>   | 60 | 7 <sup>1</sup> / <sub>8</sub>  | 22 | 2.406<br>2.426 | 61<br>62 | 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   |
| 1/4                           | 8  | 1 <sup>27</sup> / <sub>32</sub> | 47  | 1 <sup>11</sup> / <sub>16</sub> | 43  | 1                               | 25  | 3 <sup>1</sup> / <sub>32</sub>  | 25 | 7 <sup>1</sup> / <sub>16</sub> | 11 | 0.555<br>0.575 | 14<br>15 | 0.60        | 0.27 |
| 3/8                           | 10 | 2                               | 51  | 1 <sup>15</sup> / <sub>16</sub> | 49  | 1 <sup>3</sup> / <sub>16</sub>  | 30  | 1 <sup>3</sup> / <sub>32</sub>  | 28 | 7 <sup>1</sup> / <sub>16</sub> | 11 | 0.690<br>0.710 | 18<br>18 | 0.80        | 0.36 |
| 1/2                           | 15 | 2 <sup>5</sup> / <sub>16</sub>  | 59  | 2 <sup>3</sup> / <sub>8</sub>   | 60  | 1 <sup>15</sup> / <sub>32</sub> | 37  | 1 <sup>5</sup> / <sub>32</sub>  | 29 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 0.855<br>0.875 | 22<br>22 | 1.40        | 0.63 |
| 3/4                           | 20 | 2 <sup>7</sup> / <sub>16</sub>  | 62  | 2 <sup>25</sup> / <sub>32</sub> | 71  | 1 <sup>25</sup> / <sub>32</sub> | 45  | 1 <sup>3</sup> / <sub>8</sub>   | 35 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.065<br>1.085 | 27<br>28 | 2.00        | 0.91 |
| 1                             | 25 | 2 <sup>7</sup> / <sub>8</sub>   | 73  | 3 <sup>23</sup> / <sub>64</sub> | 85  | 2 <sup>7</sup> / <sub>32</sub>  | 686 | 1 <sup>45</sup> / <sub>64</sub> | 43 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.330<br>1.350 | 34<br>34 | 3.10        | 1.41 |
| 1 <sup>1</sup> / <sub>4</sub> | 32 | 3                               | 76  | 3 <sup>23</sup> / <sub>32</sub> | 94  | 2 <sup>35</sup> / <sub>64</sub> | 65  | 1 <sup>7</sup> / <sub>8</sub>   | 48 | 9 <sup>1</sup> / <sub>16</sub> | 14 | 1.675<br>1.695 | 43<br>43 | 5.90        | 2.68 |
| 1 <sup>1</sup> / <sub>2</sub> | 40 | 3 <sup>1</sup> / <sub>2</sub>   | 89  | 4 <sup>27</sup> / <sub>64</sub> | 112 | 3 <sup>1</sup> / <sub>16</sub>  | 78  | 2 <sup>1</sup> / <sub>16</sub>  | 52 | 1 <sup>1</sup> / <sub>16</sub> | 17 | 1.915<br>1.935 | 49<br>49 | 6.60        | 2.99 |
| 2                             | 50 | 4 <sup>1</sup> / <sub>8</sub>   | 105 | 5 <sup>15</sup> / <sub>64</sub> | 133 | 3 <sup>9</sup> / <sub>16</sub>  | 90  | 2 <sup>3</sup> / <sub>8</sub>   | 60 | 7 <sup>1</sup> / <sub>8</sub>  | 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 2<sup>1</sup>/<sub>2</sub>" 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

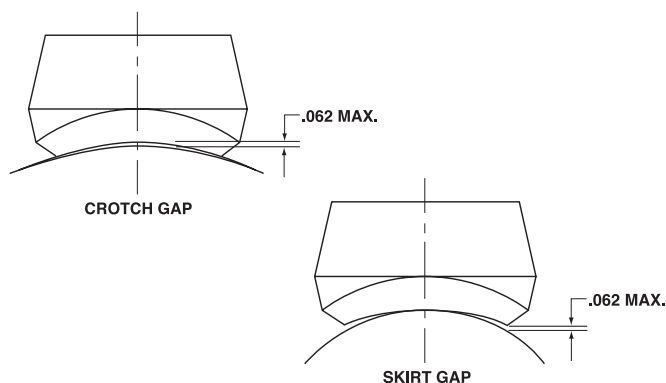
### Forging Markings

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  $\frac{1}{16}$ " 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

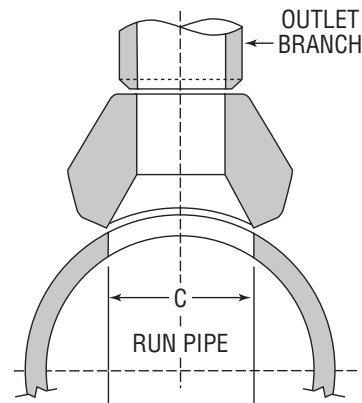
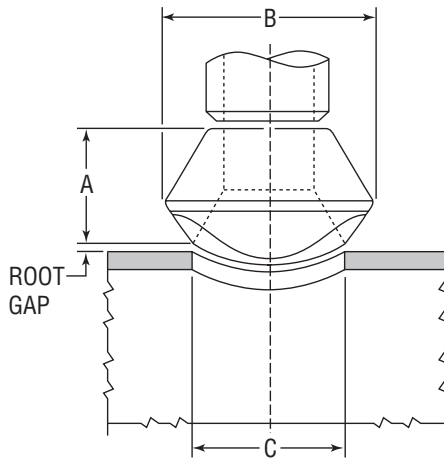
MSS standard Practice SP-97 gives the following correlation between fitting pressure class and pipe schedule number/wall thickness designation for calculation of pressure-temperature ratings:

| Branch Connection Type | Pressure Class of Fitting | Branch Connection Size |          | Pipe Wall for Rating Basis |
|------------------------|---------------------------|------------------------|----------|----------------------------|
|                        |                           | NPS                    | DN       |                            |
| Buttweld               | STD                       | $\frac{1}{8}$ - 24     | 6 - 600  | STD                        |
|                        | XS/XH                     | $\frac{1}{8}$ - 24     | 6 - 600  | XS/XH                      |
|                        | SCH 160                   | $\frac{1}{2}$ - 6      | 15 - 150 | SCH 160                    |
| Threaded               | 3,000                     | $\frac{1}{4}$ - 4      | 8 - 100  | XS/XH                      |
|                        | 6,000                     | $\frac{1}{2}$ - 2      | 15 - 50  | SCH 160                    |
| Socket-Welding         | 3,000                     | $\frac{1}{2}$ - 2      | 15 - 50  | XS/XH                      |
|                        | 6,000                     | $\frac{1}{2}$ - 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 Butt weld



### 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 3/16   | 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 3/8      | 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 5/16     | 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 3/8   | 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 |

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 121 for run pipe size combination table(s).

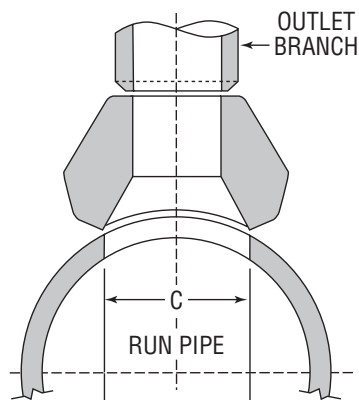
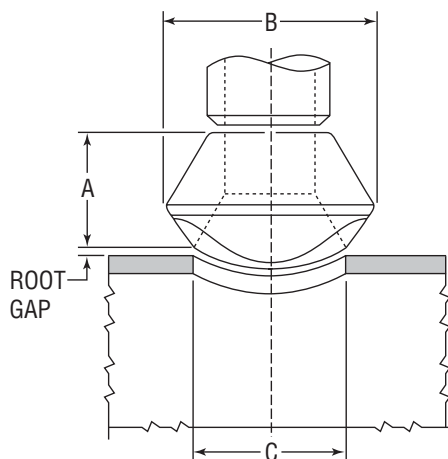
**SCHEDULES** Standard Weight Fittings are the same as schedule 40 fittings through 10". A schedule 40 butt-welded Universal Forged Steel Anvilet for sizes 12" and larger is available. Dimensions and prices on application. Extra Strong Fittings are the same as schedule 80 fittings through 8". A schedule 80 butt-welded Universal Forged Steel Anvilet for sizes 10" and larger is available. Dimensions and prices on application. 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 Butt weld



| <div>BUTTWELD<br/>XXS, Sch. 160</div> <div></div> | 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         | 1⅝ | 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         | 2⅛ | 62  | 1.313 | 33 | 1.25 | 0.57        |    |
| 1½                                                                                                                                  | 40          | 2  | 51         | 2¾ | 70  | 1.500 | 38 | 1.75 | 0.79        |    |
| 2                                                                                                                                   | 50          | 2⅔ | 56         | 3⅛ | 81  | 1.688 | 43 | 2.15 | 0.98        |    |
| 2½                                                                                                                                  | 65          | 2⅞ | 62         | 3⅜ | 97  | 2.125 | 54 | 3.40 | 1.54        |    |
| 3                                                                                                                                   | 80          | 2⅞ | 73         | 4¾ | 121 | 2.875 | 73 | 6.30 | 2.86        |    |
| 4                                                                                                                                   | 100         | 3⅝ | 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 121 for run pipe size combination table(s).

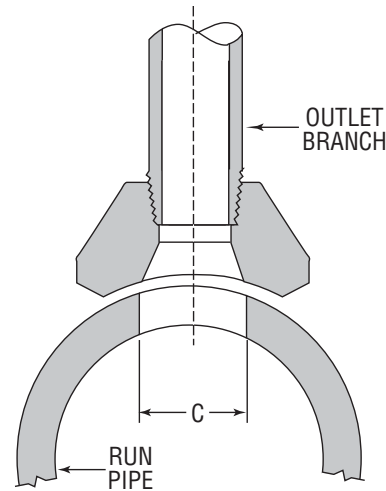
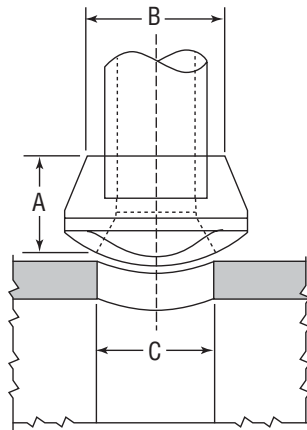
**SCHEDULES** Standard Weight Fittings are the same as schedule 40 fittings through 10". A schedule 40 butt-welded Universal Forged Steel Anvilet for sizes 12" and larger is available. Dimensions and prices on application. Extra Strong Fittings are the same as schedule 80 fittings through 8". A schedule 80 butt-welded Universal Forged Steel Anvilet for sizes 10" and larger is available. Dimensions and prices on application. 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   |
| 1/8         | 6   | 3/4        | 19 | 1       | 25  | 0.625 | 16  | 0.10        | 0.05 |
| 1/4         | 8   | 3/4        | 19 | 1 1/16  | 27  | 0.437 | 11  | 0.14        | 0.06 |
| 3/8         | 10  | 13/16      | 21 | 1 1/16  | 27  | 0.578 | 15  | 0.14        | 0.06 |
| 1/2         | 15  | 1          | 25 | 1 15/32 | 37  | 0.718 | 18  | 0.28        | 0.13 |
| 3/4         | 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 |
| 1 1/4       | 32  | 1 5/16     | 33 | 2 17/32 | 64  | 1.500 | 38  | 0.96        | 0.44 |
| 1 1/2       | 40  | 1 3/8      | 35 | 2 25/32 | 71  | 1.734 | 44  | 1.12        | 0.51 |
| 2           | 50  | 1 1/2      | 38 | 3 5/16  | 84  | 2.218 | 56  | 1.66        | 0.75 |
| 2 1/2       | 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 | 2 1/4      | 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 | 1⅞         | 37 | 2⅛ | 52  | 0.922 | 24 | 0.39        | 0.18 |
| 1           | 25 | 1⅞         | 40 | 2⅞ | 64  | 1.156 | 31 | 0.73        | 0.33 |
| 1¼          | 32 | 1⅞         | 41 | 2½ | 64  | 1.500 | 40 | 0.96        | 0.44 |
| 1½          | 40 | 1⅞         | 43 | 3⅞ | 84  | 1.734 | 46 | 1.12        | 0.51 |
| 2           | 50 | 2⅞         | 52 | 3⅞ | 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.

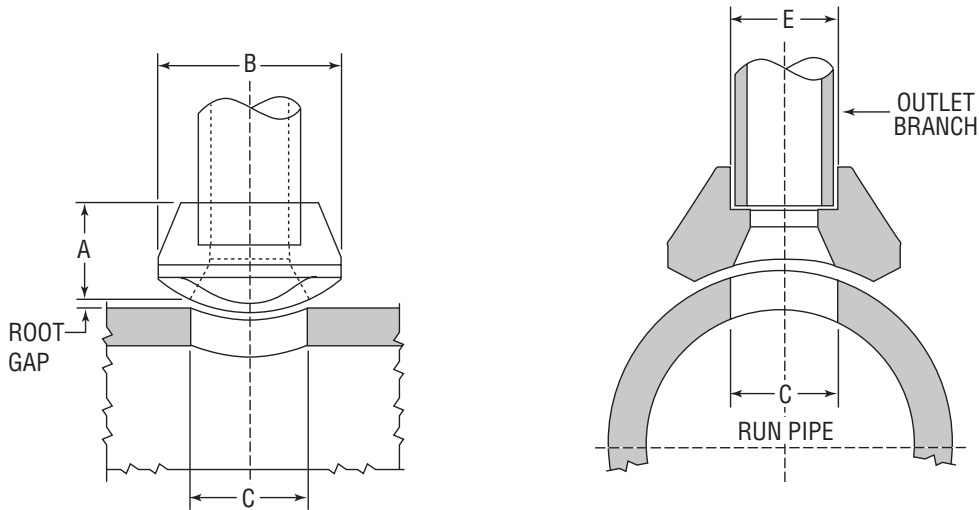
**RUN PIPE SIZES** Outlet sizes noted above fit a number of run pipe sizes, and the fittings are marked accordingly. See page 121 for run pipe size combination table(s).

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

**SOCKET-WELD Class 6000**



| Outlet Size |    | Dimensions |    |    |     |       |    |       |    | Unit Weight |      |
|-------------|----|------------|----|----|-----|-------|----|-------|----|-------------|------|
|             |    | A          |    | B  |     | C     |    | E     |    |             |      |
| NPS         | DN | in         | mm | in | mm  | in    | mm | in    | mm | lbs         | kg   |
| ½           | 15 | 1¼         | 32 | 1¾ | 44  | 0.464 | 12 | 13⁄16 | 21 | 0.28        | 0.13 |
| ¾           | 20 | 1⅞         | 37 | 2⅛ | 52  | 0.612 | 16 | 15⁄16 | 24 | 0.39        | 0.18 |
| 1           | 25 | 1⅞         | 40 | 2⅞ | 64  | 0.815 | 21 | 1⅓    | 26 | 0.73        | 0.33 |
| 1¼          | 32 | 1⅞         | 41 | 2½ | 64  | 1.160 | 29 | 1⅓    | 26 | 0.96        | 0.44 |
| 1½          | 40 | 1⅞         | 43 | 3⅞ | 84  | 1.338 | 34 | 1⅞    | 27 | 1.63        | 0.74 |
| 2           | 50 | 2⅞         | 52 | 3⅞ | 101 | 1.687 | 43 | 1⅞    | 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 121 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

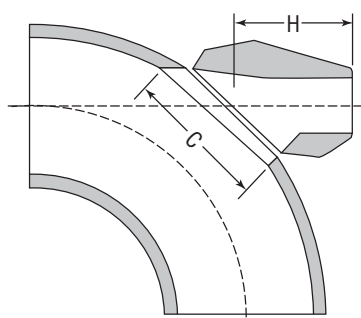
| Outlet Size (in)         |          |           |            |             |               |           |           |           |         |           |         |         |
|--------------------------|----------|-----------|------------|-------------|---------------|-----------|-----------|-----------|---------|-----------|---------|---------|
| Buttweld<br>Standard     | 1/4      | 3/8       | 1/2        | 3/4         | 1             | 1 1/4     | 1 1/2     | 2         | 2 1/2   | 3         | 4       | 6       |
|                          | 1/4      | 1/2 - 3/8 | 1 - 1/2    | 2 - 3/4     | 1             | 1 1/4     | 1 1/2     | 2         | 2 1/2   | 3         | 4       | 6       |
|                          | 36 - 3/8 | 36 - 3/4  | 36 - 1 1/4 | 36 - 2 1/2  | 1 1/2 - 1 1/4 | 2 - 1 1/2 | 3 1/2 - 2 | 3 - 2 1/2 | 4 - 3   | 4 - 3 1/2 | 6 - 5   | 8       |
|                          |          |           |            |             | 36 - 2        | 6 - 2 1/2 | 36 - 4    | 6 - 3 1/2 | 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 |
| Buttweld<br>Extra Strong | 1/4      | 3/8       | 1/2        | 3/4         | 1             | 1 1/4     | 1 1/2     | 2         | 2 1/2   | 3         | 4       | 6       |
|                          | 36 - 1/4 | 3/8       | 3/4 - 1/2  | 1 1/2 - 3/4 | 1             | 2 - 1 1/4 | 1 1/2     | 2         | 2 1/2   | 3         | 4       | 6       |
|                          |          | 36 - 1/2  | 36 - 1     | 36 - 2      | 1 1/2 - 1 1/4 | 5 - 2 1/2 | 3 1/2 - 2 | 3 - 2 1/2 | 4 - 3   | 4 - 3 1/2 | 6 - 5   | 8       |
|                          |          |           |            |             | 36 - 2        | 36 - 6    | 36 - 4    | 6 - 3 1/2 | 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<br>Class 3000 | 1/4       | 3/8        | 1/2      | 3/4         | 1             | 1 1/4         | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                        | 3/8 - 1/4 | 1 - 3/8    | 1/2      | 1 1/4 - 3/4 | 1             | 1 1/2 - 1 1/4 | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                        | 36 - 1/2  | 36 - 1 1/4 | 36 - 3/4 | 36 - 1 1/2  | 2 1/2 - 1 1/4 | 3 1/2 - 2     | 2 1/2 - 2 | 3 1/2 - 2 1/2 | 3 1/2 - 3 | 5 - 3 1/2 | 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 |
| Threaded<br>Class 6000 | 1/4       | 3/8        | 1/2      | 3/4         | 1             | 1 1/4         | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                        | 3/8 - 1/4 | 1 - 3/8    | 1/2      | 3/4         | 1             | 1 1/2 - 1 1/4 | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                        | 36 - 1/2  | 36 - 1 1/4 | 36 - 3/4 | 1 1/4 - 1   | 2 1/2 - 1 1/4 | 3 1/2 - 2     | 2 1/2 - 2 | 3 1/2 - 2 1/2 | 3 1/2 - 3 | 3 1/2     | 5       |
|                        |           |            |          | 36 - 1 1/2  | 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 |
|                        |           |            |          |             |               |               |           |               |           |           |         |

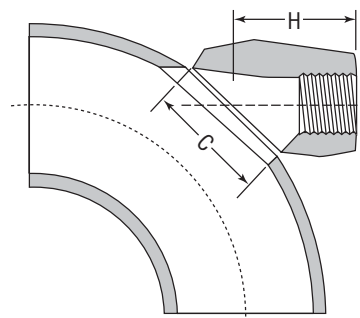
| Outlet Size (in)          |          |           |          |             |               |               |           |               |           |           |         |
|---------------------------|----------|-----------|----------|-------------|---------------|---------------|-----------|---------------|-----------|-----------|---------|
| Socket-Weld<br>Class 3000 | 1/4      | 3/8       | 1/2      | 3/4         | 1             | 1 1/4         | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                           | 1/4      | 1/2 - 3/8 | 1/2      | 1 1/4 - 3/4 | 1             | 1 1/2 - 1 1/4 | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                           | 36 - 3/8 | 36 - 3/4  | 36 - 3/4 | 36 - 1 1/2  | 2 1/2 - 1 1/4 | 3 1/2 - 2     | 2 1/2 - 2 | 3 1/2 - 2 1/2 | 3 1/2 - 3 | 5 - 3 1/2 | 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 |
| Socket-Weld<br>Class 6000 | 1/4      | 3/8       | 1/2      | 3/4         | 1             | 1 1/4         | 1 1/2     | 2             | 2 1/2     | 3         | 4       |
|                           | 36 - 1/4 | 36 - 3/8  | 1/2      | 1 - 3/4     | 1             | 1 1/4         | 1 1/2     | 2             | 3 - 2 1/2 | 3 1/2 - 3 | 4       |
|                           |          |           | 36 - 3/4 | 36 - 1 1/4  | 2 1/2 - 1 1/4 | 4 - 1 1/2     | 2 1/2 - 2 | 3 1/2 - 2 1/2 | 5 - 3 1/2 | 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

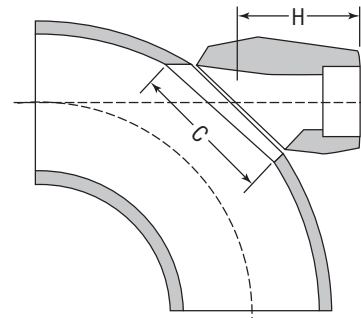
Class 3000 and 6000 Buttweld, Threaded and Socket-Weld



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   |
| 1/2         | 15 | 36 - 3/4        | 900 - 32 | 1 1/2   | 38  | 1 9/32 | 40 | 0.65        | 0.29 |
| 3/4         | 20 | 36 - 1          | 900 - 32 | 1 23/32 | 44  | 1 7/8  | 48 | 0.75        | 0.34 |
| 1           | 25 | 36 - 2          | 900 - 32 | 2 1/8   | 54  | 2 3/16 | 56 | 1.10        | 0.52 |
| 1 1/4       | 32 | 36 - 2          | 900 - 32 | 1 21/32 | 42  | 2 3/8  | 60 | 1.90        | 0.86 |
| 1 1/2       | 40 | 36 - 2          | 900 - 32 | 3       | 76  | 2 5/8  | 67 | 2.60        | 1.20 |
| 2           | 50 | 36 - 3          | 900 - 32 | 4 1/8   | 105 | 3 3/16 | 81 | 5.30        | 2.40 |

### CLASS 6000 THREADED AND SOCKET-WELD

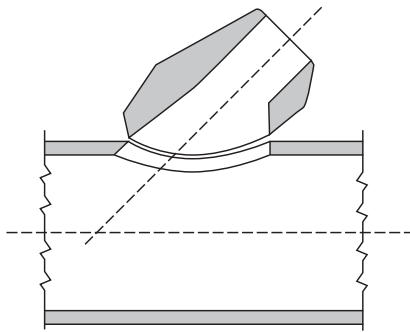
|       |    |          |          |         |     |        |    |      |      |
|-------|----|----------|----------|---------|-----|--------|----|------|------|
| 1/2   | 15 | 36 - 3/4 | 900 - 32 | 1 23/32 | 44  | 1 7/8  | 48 | 0.85 | 0.39 |
| 3/4   | 20 | 36 - 1   | 900 - 50 | 2 1/8   | 54  | 2 3/16 | 56 | 1.30 | 0.57 |
| 1     | 25 | 36 - 2   | 900 - 50 | 2 21/32 | 67  | 2 3/8  | 60 | 2.20 | 1.00 |
| 1 1/4 | 32 | 36 - 2   | 900 - 50 | 3       | 76  | 2 5/8  | 67 | 3.90 | 1.80 |
| 1 1/2 | 40 | 36 - 2   | 900 - 50 | 4 1/8   | 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.

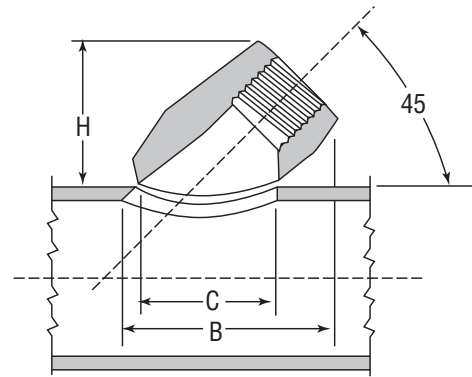
## Lateral Anvilets

### Class 3000 Butt weld 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   |
| 1/2         | 15 | 2 1/2 - 1 1/4 / 12 - 3         | 65 - 32 / 300 - 80                | 1 3/8   | 35 | 2 5/32  | 55  | 1 7/16 | 37  | 0.65        | 0.29 |
| 3/4         | 20 | 1 1/2 - 1 1/4 / 5 - 2 / 12 - 6 | 40 - 32 / 125 - 50 / 300 - 150    | 1 11/16 | 43 | 2 17/32 | 64  | 1 3/4  | 44  | 0.75        | 0.34 |
| 1           | 25 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 1 31/32 | 50 | 3       | 76  | 2 1/8  | 54  | 1.10        | 0.52 |
| 1 1/4       | 32 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 2 9/32  | 58 | 3 19/32 | 91  | 2 5/8  | 67  | 1.90        | 0.86 |
| 1 1/2       | 40 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 2 15/32 | 63 | 3 31/32 | 101 | 3 1/32 | 77  | 2.60        | 1.20 |
| 2           | 50 | 5 - 4 / 8 - 6 / 12 - 10        | 125 - 100 / 200 - 150 / 300 - 150 | 3 3/16  | 81 | 5 1/4   | 133 | 4 1/8  | 105 | 5.30        | 2.40 |

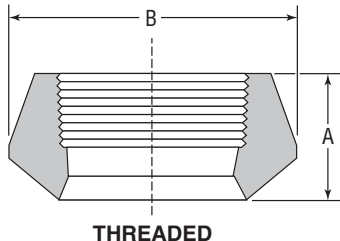
#### CLASS 3000 THREADED/STANDARD

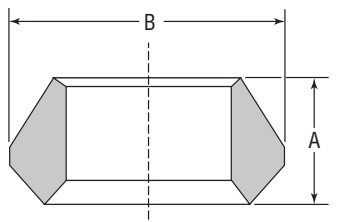
| Outlet Size |    | Nominal Run Pipe Size          |                                   | H      |    | B       |     | C      |     | Unit Weight |      |
|-------------|----|--------------------------------|-----------------------------------|--------|----|---------|-----|--------|-----|-------------|------|
| NPS         | DN | NPS                            | DN                                | in     | mm | in      | mm  | in     | mm  | lbs         | kg   |
| 1/2         | 15 | 2 1/2 - 1 1/4 / 12 - 3         | 65 - 32 / 300 - 80                | 1 9/16 | 40 | 2 11/32 | 60  | 1 7/16 | 37  | 0.65        | 0.29 |
| 3/4         | 20 | 1 1/2 - 1 1/4 / 5 - 2 / 12 - 6 | 40 - 32 / 125 - 50 / 300 - 150    | 1 7/8  | 48 | 2 3/4   | 70  | 1 3/4  | 44  | 0.75        | 0.34 |
| 1           | 25 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 2 3/16 | 56 | 3 1/4   | 83  | 2 1/8  | 54  | 1.10        | 0.52 |
| 1 1/4       | 32 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 2 1/2  | 64 | 3 27/32 | 98  | 2 5/8  | 67  | 1.90        | 0.86 |
| 1 1/2       | 40 | 2 1/2 - 2 / 5 - 3 / 12 - 6     | 65 - 50 / 125 - 80 / 300 - 150    | 2 3/4  | 70 | 4 7/32  | 107 | 3 1/32 | 77  | 2.60        | 1.20 |
| 2           | 50 | 5 - 4 / 8 - 6 / 12 - 10        | 125 - 100 / 200 - 150 / 300 - 150 | 3 3/8  | 86 | 5 7/16  | 138 | 4 1/8  | 105 | 5.30        | 2.40 |

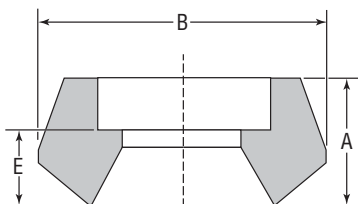
## Flat Anvilets

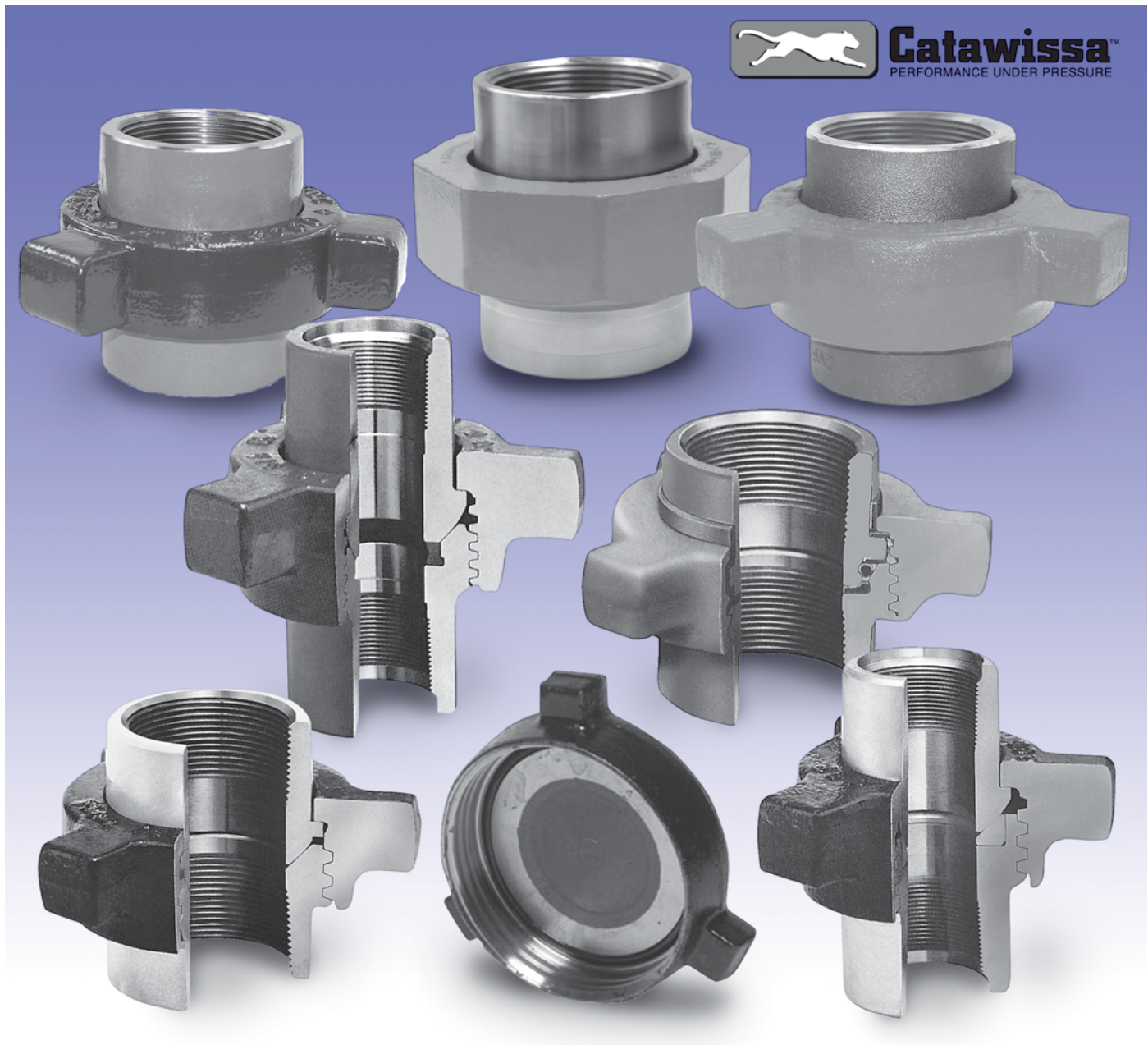
### Class 3000 Threaded, Butt Weld and Socket-Weld

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

| THREADED<br>Class 3000 Flat Anvilet                                               | Outlet Size |    | Dimensions |    |         |     | Unit Weight |      |
|-----------------------------------------------------------------------------------|-------------|----|------------|----|---------|-----|-------------|------|
|                                                                                   |             |    | A          |    | B       |     |             |      |
|                                                                                   | NPS         | DN | in         | mm | in      | mm  | lbs         | kg   |
|  | 1/4         | 8  | 3/4        | 19 | 1       | 25  | 0.10        | 0.05 |
|                                                                                   | 3/8         | 10 | 13/16      | 21 | 1 1/4   | 32  | 0.20        | 0.09 |
|                                                                                   | 1/2         | 15 | 1          | 25 | 1 13/32 | 36  | 0.25        | 0.11 |
|                                                                                   | 3/4         | 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 |
|                                                                                   | 1 1/4       | 32 | 1 5/16     | 33 | 2 9/16  | 65  | 0.90        | 0.41 |
|                                                                                   | 1 1/2       | 40 | 1 3/8      | 35 | 2 27/32 | 72  | 1.00        | 0.45 |
|                                                                                   | 2           | 50 | 1 1/2      | 38 | 3 15/32 | 88  | 1.75        | 0.79 |
|                                                                                   | 2 1/2       | 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 |

| <div>BUTTWELD</div> <div>Class 3000 Flat Anvilet</div>                              | 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 | 1⅙         | 27 | 2⅛ | 54  | 0.50        | 0.23 |
|                                                                                     | 1¼          | 32 | 1¼         | 32 | 2⅑ | 65  | 0.90        | 0.41 |
|                                                                                     | 1½          | 40 | 1⅕         | 33 | 2⅞ | 73  | 1.10        | 0.50 |
|                                                                                     | 2           | 50 | 1½         | 38 | 3½ | 89  | 1.75        | 0.79 |
|                                                                                     | 2½          | 65 | 1⅞         | 41 | 4⅙ | 103 | 2.60        | 1.18 |
|                                                                                     | 3           | 80 | 1¾         | 44 | 4⅔ | 122 | 4.10        | 1.86 |

| SOCKET-WELD<br>Class 3000 Flat Anvilet                                              | Outlet Size |    | Dimensions |    |         |     |       |    | Unit Weight |      |
|-------------------------------------------------------------------------------------|-------------|----|------------|----|---------|-----|-------|----|-------------|------|
|                                                                                     |             |    | A          |    | B       |     | E     |    |             |      |
|                                                                                     | NPS         | DN | in         | mm | in      | mm  | in    | mm | lbs         | kg   |
|  | 1/4         | 8  | 3/4        | 19 | 1       | 25  | 9/32  | 7  | 0.10        | 0.05 |
|                                                                                     | 3/8         | 10 | 13/16      | 21 | 1 1/4   | 32  | 7/16  | 11 | 0.20        | 0.09 |
|                                                                                     | 1/2         | 15 | 1          | 25 | 1 13/32 | 36  | 9/16  | 14 | 0.30        | 0.14 |
|                                                                                     | 3/4         | 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 |
|                                                                                     | 1 1/4       | 32 | 1 5/16     | 33 | 2 9/16  | 65  | 3/4   | 19 | 0.85        | 0.39 |
|                                                                                     | 1 1/2       | 40 | 1 3/8      | 35 | 2 27/32 | 72  | 3/4   | 19 | 1.00        | 0.45 |
|                                                                                     | 2           | 50 | 1 1/2      | 38 | 3 15/32 | 88  | 13/16 | 21 | 1.60        | 0.73 |
|                                                                                     | 2 1/2       | 65 | 1 1/16     | 40 | 4 1/16  | 103 | 3/4   | 19 | 2.75        | 1.25 |
|                                                                                     | 3           | 80 | 1 3/4      | 44 | 4 13/16 | 122 | 15/16 | 24 | 3.80        | 1.72 |



Malleable Iron

Cast Iron

Small Steel Fittings

Pipe Nipples & Pipe Couplings

Forged Steel Fittings & Unions

Anvilets

Catawissa

J.B. Smith Products

## Material

ASTM A29, A105, A395, A536

## Full Traceability:

All Catawissa Oilfield Wing 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.

## Standard Service:

Catawissa Unions are available for Standard Service. Catawissa Oilfield Unions meet or exceed National Association of Corrosion Engineers standard NACE MR-01-75 and API RP-14E, and are made in an ISO 9001-2008 certified facility. (Sour gas unions are available upon request only.)

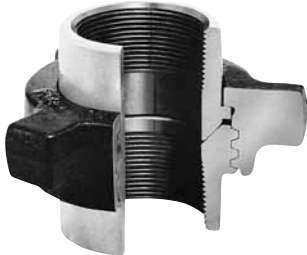
## Full Range of End Connections:

Catawissa Oilfield Wing Unions are also available in threaded ends as well as butt weld and non-pressure seal ends. When you choose Catawissa you receive the utmost in quality, the widest selection and unmatched on-time deliveries.

## Wing Unions

1,000 psi cwp – 1,500 psi test



| <b>FIGURE 100</b><br><b>Threaded Ends</b><br><b>Black Nut/Yellow Subs</b>         | Size |     | Item           | Unit Weight |       | A     |        | B     |        | C+     |        | TPI      | Material |      |
|-----------------------------------------------------------------------------------|------|-----|----------------|-------------|-------|-------|--------|-------|--------|--------|--------|----------|----------|------|
|                                                                                   | NPS  | DN  |                | lbs         | kg    | in    | mm     | in    | mm     | in     | mm     |          | Nuts     | Subs |
|  | 2    | 50  | Union Complete | 6.25        | 2.83  | 3.940 | 100.08 | 2.840 | 72.14  | 6.250  | 158.75 | 3<br>MOD | DI       | DI   |
|                                                                                   |      |     | 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<br>MOD | DI       | DI   |
|                                                                                   |      |     | 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<br>MOD | DI       | DI   |
|                                                                                   |      |     | 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<br>MOD | DI       | DI   |
|                                                                                   |      |     | 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<br>STD | DI       | DI   |
|                                                                                   |      |     | Nut            | 21.75       | 9.86  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Male Sub       | 11.10       | 5.03  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Female Sub     | 13.00       | 5.90  |       |        |       |        |        |        |          |          |      |
|                                                                                   | 8    | 200 | Union Complete | 66.65       | 30.23 | 7.230 | 183.64 | 9.700 | 246.38 | 16.125 | 409.58 | 3<br>STD | DI       | DI   |
|                                                                                   |      |     | Nut            | 27.40       | 12.43 |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Male Sub       | 18.10       | 8.21  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Female Sub     | 21.15       | 9.59  |       |        |       |        |        |        |          |          |      |

Low pressure service. Manifold and general service. Female threaded ends. 2" available with 8RD thread. Consult Factory.

| <b>FIGURE 100C</b><br><b>Threaded Ends</b><br><b>Black Nut/Yellow Subs</b>          | Size |    | Item      | Unit Weight |      | A     |        | B     |       | C+    |        | TPI      | Material |      |
|-------------------------------------------------------------------------------------|------|----|-----------|-------------|------|-------|--------|-------|-------|-------|--------|----------|----------|------|
|                                                                                     | NPS  | DN |           | lbs         | kg   | in    | mm     | in    | mm    | in    | mm     |          | Nuts     | Subs |
|  | 2    | 50 | Lug Union | 6.25        | 3.06 | 3.940 | 100.08 | 2.840 | 72.14 | 6.250 | 158.75 | 3<br>MOD | SF       | SF   |

Note: Available in import only. Ideal for low-pressure service. Manifold and general service. Female threaded ends.

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

2,000 psi cwp – 3,000 psi test



| <b>FIGURE 200</b><br><b>Threaded Ends</b><br><b>Blue Nut/Gray Subs</b> | Size |                      | Item           | Unit Weight |       | A    |        | B    |        | C+    |        | D | TPI      | Material |      |
|------------------------------------------------------------------------|------|----------------------|----------------|-------------|-------|------|--------|------|--------|-------|--------|---|----------|----------|------|
|                                                                        | NPS  | Dn                   |                | lbs         | kg    | in   | mm     | in   | mm     | in    | mm     |   |          | Nuts     | Subs |
|                                                                        | 1    | 25                   | Union Complete | 1.75        | 0.79  | 2.67 | 67.82  | 1.64 | 41.66  | 4.07  | 103.25 | ▲ | 6<br>STD | DI       | 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<br>STD | DI       | 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<br>STD | DI       | SF   |
|                                                                        |      |                      | Nut            | 1.30        | 0.59  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Male Sub       | 0.70        | 0.32  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Female Sub     | 0.75        | 0.34  |      |        |      |        |       |        |   |          |          |      |
|                                                                        | † 2  | 50<br>(Ductile Iron) | Union Complete | 4.75        | 2.15  | 3.28 | 83.19  | 2.83 | 71.76  | 5.90  | 149.86 | ▲ | 4<br>STD | DI       | DI   |
|                                                                        |      |                      | Nut            | 2.20        | 1.00  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Male Sub       | 1.15        | 0.52  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Female Sub     | 1.40        | 0.63  |      |        |      |        |       |        |   |          |          |      |
|                                                                        | 2    | 50<br>(Forged Steel) | Union Complete | 5.60        | 2.54  | 3.28 | 83.19  | 2.83 | 71.76  | 5.90  | 149.86 | ▲ | 4<br>STD | DI       | 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<br>STD | DI       | 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<br>STD | DI       | 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<br>MOD | DI       | SF   |
|                                                                        |      |                      | Nut            | 7.40        | 3.36  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Male Sub       | 5.30        | 2.40  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Female Sub     | 6.00        | 2.72  |      |        |      |        |       |        |   |          |          |      |
|                                                                        | 6    | 150                  | Union Complete | 46.10       | 20.91 | 6.61 | 167.89 | 7.41 | 188.21 | 12.80 | 325.12 | ▲ | 3<br>STD | DI       | SF   |
|                                                                        |      |                      | Nut            | 18.18       | 8.24  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Male Sub       | 12.74       | 5.78  |      |        |      |        |       |        |   |          |          |      |
|                                                                        |      |                      | Female Sub     | 15.18       | 6.88  |      |        |      |        |       |        |   |          |          |      |

General purpose union. Threaded and butt weld ends available.

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



## Wing Unions

2,000 psi cwp – 3,000 psi test



| <b>FIGURE 200</b><br><b>Buttweld Ends</b><br><b>Schedule 40</b><br><b>Blue Nut/Gray Subs</b> | Size |    | Item           | Unit Weight |      | A     |        | B     |        | C+    |        | D | TPI   | Material |      |
|----------------------------------------------------------------------------------------------|------|----|----------------|-------------|------|-------|--------|-------|--------|-------|--------|---|-------|----------|------|
|                                                                                              | NPS  | Dn |                | lbs         | kg   | in    | mm     | in    | mm     | in    | mm     |   |       | Nuts     | Subs |
|                                                                                              |      |    |                |             |      |       |        |       |        |       |        |   |       |          |      |
| † 2 50                                                                                       |      |    | Union Complete | 5.50        | 2.49 | 3.275 | 83.19  | 2.825 | 71.76  | 5.900 | 149.86 | ▲ | 4 STD | DI       | DI   |
|                                                                                              |      |    | Nut            | 2.20        | 1.00 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Male Sub       | 1.50        | 0.68 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Female Sub     | 1.80        | 0.82 |       |        |       |        |       |        |   |       |          |      |
| 3 80                                                                                         |      |    | Union Complete | 14.50       | 6.58 | 4.660 | 118.36 | 4.170 | 105.92 | 8.100 | 205.74 | ▲ | 4 STD | DI       | SF   |
|                                                                                              |      |    | Nut            | 6.00        | 2.72 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Male Sub       | 3.50        | 1.59 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Female Sub     | 4.50        | 2.04 |       |        |       |        |       |        |   |       |          |      |
| 4 100                                                                                        |      |    | Union Complete | 20.90       | 9.48 | 4.910 | 124.71 | 5.075 | 128.91 | 9.060 | 230.12 | ▲ | 3 MOD | DI       | SF   |
|                                                                                              |      |    | Nut            | 7.40        | 3.36 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Male Sub       | 6.18        | 2.80 |       |        |       |        |       |        |   |       |          |      |
|                                                                                              |      |    | Female Sub     | 7.38        | 3.35 |       |        |       |        |       |        |   |       |          |      |

General purpose union. Threaded and butt weld ends available.

| <b>FIGURE 200C</b><br><b>Threaded Ends</b><br><b>Blue Nut/Gray Subs</b>             | Size |    | Item      | Unit Weight |      | A     |       | B     |       | C+    |        | D | TPI   | Material |      |
|-------------------------------------------------------------------------------------|------|----|-----------|-------------|------|-------|-------|-------|-------|-------|--------|---|-------|----------|------|
|                                                                                     | NPS  | Dn |           | lbs         | kg   | in    | mm    | in    | mm    | in    | mm     |   |       | Nuts     | Subs |
|                                                                                     |      |    |           |             |      |       |       |       |       |       |        |   |       |          |      |
|  | 1    | 25 | Lug Union | 1.75        | 0.79 | 2.670 | 67.82 | 1.640 | 41.66 | 4.065 | 103.25 | * | 6 STD | SF       | SF   |
|                                                                                     | 2    | 50 | Lug Union | 4.90        | 2.22 | 3.275 | 83.19 | 2.825 | 71.76 | 5.900 | 149.86 | * | 4 STD | SF       | SF   |

Note: Available in import only. General purpose union. Available in threaded ends. \*Consult Factory.

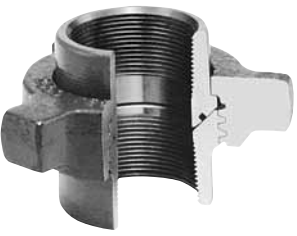
- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

2,000 psi cwp – 3,000 psi test



| FIGURE 206<br>Threaded Ends<br>Blue Nut/Gray Subs<br>with Seal Ring | Size                                                                              |                | Item           | Unit Weight    |       | A      |        | B      |        | C+     |        | D        | TPI      | Material |      |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------|----------------|----------------|-------|--------|--------|--------|--------|--------|--------|----------|----------|----------|------|
|                                                                     | NPS                                                                               | Dn             |                | lbs            | kg    | in     | mm     | in     | mm     | in     | mm     |          |          | Nuts     | Subs |
|                                                                     |  | 1              | 25             | Union Complete | 1.75  | 0.79   | 2.670  | 67.82  | 1.640  | 41.66  | 4.065  | 103.25   | ▲        | 6<br>STD | DI   |
| Nut                                                                 |                                                                                   |                |                | 0.95           | 0.43  |        |        |        |        |        |        |          |          |          |      |
| Male w/O-Ring                                                       |                                                                                   |                |                | 0.40           | 0.18  |        |        |        |        |        |        |          |          |          |      |
| Female Sub                                                          |                                                                                   |                |                | 0.40           | 0.18  |        |        |        |        |        |        |          |          |          |      |
| O-Ring                                                              |                                                                                   |                |                | —              | —     |        |        |        |        |        |        |          |          |          |      |
| 1¼                                                                  |                                                                                   | 32             | Union Complete | 2.25           | 1.02  | 2.730  | 69.34  | 1.935  | 49.15  | 4.635  | 117.73 | ▲        | 6<br>STD | DI       | SF   |
|                                                                     |                                                                                   |                | Nut            | 1.20           | 0.54  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Male w/O-Ring  | 0.50           | 0.23  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Female Sub     | 0.55           | 0.25  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | O-Ring         | —              | —     |        |        |        |        |        |        |          |          |          |      |
| 1½                                                                  |                                                                                   | 40             | Union Complete | 2.75           | 1.25  | 2.770  | 70.36  | 2.250  | 57.15  | 4.750  | 120.65 | ▲        | 6<br>STD | DI       | 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<br>STD | DI       | DI   |
|                                                                     |                                                                                   |                | Nut            | 2.20           | 1.00  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Male w/O-Ring  | 1.15           | 0.52  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Female Sub     | 1.40           | 0.63  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | O-Ring         | —              | —     |        |        |        |        |        |        |          |          |          |      |
| 2½                                                                  |                                                                                   | 65             | Union Complete | 10.70          | 4.85  | 4.250  | 107.95 | 3.400  | 86.36  | 7.900  | 200.66 | ▲        | 4<br>STD | DI       | SF   |
|                                                                     |                                                                                   |                | Nut            | 6.40           | 2.90  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Male w/O-Ring  | 2.00           | 0.91  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | Female Sub     | 2.30           | 1.04  |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   |                | O-Ring         | —              | —     |        |        |        |        |        |        |          |          |          |      |
| 3                                                                   |                                                                                   | 80             | Union Complete | 13.00          | 5.90  | 4.660  | 118.36 | 4.170  | 105.92 | 8.100  | 205.74 | ▲        | 4<br>STD | DI       | 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<br>MOD | DI       | 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<br>STD | DI       | SF       |      |
|                                                                     |                                                                                   | Nut            | 18.18          | 8.24           |       |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   | Male w/O-Ring  | 12.74          | 5.78           |       |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   | Female Sub     | 15.18          | 6.88           |       |        |        |        |        |        |        |          |          |          |      |
|                                                                     |                                                                                   | O-Ring         | —              | —              |       |        |        |        |        |        |        |          |          |          |      |

O-Ring in male sub for improved sealing. Available in threaded and butt weld ends.

**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



## Wing Unions

2,000 psi cwp – 3,000 psi test



|                                                                                                                       | Size |     | Item           | Unit Weight |       | A     |        | B     |        | C+     |        | D | TPI      | Material |      |
|-----------------------------------------------------------------------------------------------------------------------|------|-----|----------------|-------------|-------|-------|--------|-------|--------|--------|--------|---|----------|----------|------|
|                                                                                                                       | NPS  | Dn  |                | lbs         | kg    | in    | mm     | in    | mm     | in     | mm     |   |          | Nuts     | Subs |
|                                                                                                                       |      |     |                |             |       |       |        |       |        |        |        |   |          |          |      |
| <b>FIGURE 206</b><br><b>Buttweld Ends</b><br><b>Schedule 40</b><br><b>Blue Nut/Gray Subs</b><br><b>with Seal Ring</b> | † 2  | 50  | Union Complete | 6.00        | 2.72  | 3.275 | 83.19  | 2.825 | 71.76  | 5.900  | 149.86 | ▲ | 4<br>STD | DI       | DI   |
|                                                                                                                       |      |     | Nut            | 2.20        | 1.00  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Male w/O-Ring  | 1.50        | 0.68  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Female Sub     | 1.50        | 0.68  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | O-Ring         | —           | —     |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       | 3    | 80  | Union Complete | 14.50       | 6.58  | 4.660 | 118.36 | 4.170 | 105.92 | 8.100  | 205.74 | ▲ | 4<br>STD | DI       | SF   |
|                                                                                                                       |      |     | Nut            | 6.00        | 2.73  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Male w/O-Ring  | 3.50        | 1.59  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Female Sub     | 4.50        | 2.04  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | O-Ring         | —           | —     |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       | 4    | 100 | Union Complete | 20.90       | 9.48  | 4.910 | 124.71 | 5.075 | 128.91 | 9.060  | 230.12 | ▲ | 3<br>MOD | DI       | SF   |
|                                                                                                                       |      |     | Nut            | 7.40        | 3.36  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Male w/O-Ring  | 6.18        | 2.80  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Female Sub     | 7.38        | 3.35  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | O-Ring         | —           | —     |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       | 6    | 150 | Union Complete | 45.00       | 20.41 | 6.610 | 167.89 | 7.410 | 188.21 | 12.800 | 325.12 | ▲ | 3<br>STD | DI       | SF   |
|                                                                                                                       |      |     | Nut            | 18.18       | 8.26  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Male w/O-Ring  | 13.00       | 5.90  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | Female Sub     | 14.00       | 6.35  |       |        |       |        |        |        |   |          |          |      |
|                                                                                                                       |      |     | O-Ring         | —           | —     |       |        |       |        |        |        |   |          |          |      |

O-Ring in male sub for improved sealing. Available in threaded and butt weld ends.

| <b>FIGURE 202</b><br><b>Blanking Cap Only</b><br><b>with O-Ring</b>                 | Size |     | Unit Weight |      | Description                                                                                |
|-------------------------------------------------------------------------------------|------|-----|-------------|------|--------------------------------------------------------------------------------------------|
|                                                                                     | NPS  | Dn  | lbs         | kg   |                                                                                            |
|  | 4    | 100 | 9.00        | 4.10 | O-Ring seated dead-end cap.<br>Perfect for transport, completion and stimulation services. |

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
2. Do not make up or break out Unions in pressurized lines.  
3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

2,000 psi cwp – 3,000 psi test



| <b>FIGURE 211</b><br><b>Insulating Union</b><br><b>Threaded Ends</b><br><b>Gray Nut/Light Blue Subs</b> | 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<br>STD | SF       | SF   |
|                                                                                                         |      |    | Nut            | 1.42        | 0.64 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Male Sub       | 0.40        | 0.18 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Female Sub     | 0.52        | 0.24 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Seal Ring Kit  | —           | —    |       |       |       |       |       |        |          |          |      |
|                                                                                                         | 2    | 50 | Union Complete | 6.24        | 2.83 | 3.510 | 89.15 | 2.880 | 73.15 | 6.250 | 158.75 | 6<br>STD | SF       | SF   |
|                                                                                                         |      |    | Nut            | 2.96        | 1.34 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Male Sub       | 1.42        | 0.64 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Female Sub     | 1.86        | 0.84 |       |       |       |       |       |        |          |          |      |
|                                                                                                         |      |    | Seal Ring Kit  | —           | —    |       |       |       |       |       |        |          |          |      |

Laminated rings provide full insulation from electrolytic corrosion. Total of 35 million OHMS resistance. O-Ring in male sub and seal ring in female sub provide primary and secondary seals. All seal rings are field-replaceable. Available in threaded and butt weld ends.

| <b>FIGURE 300</b><br><b>Flat-Face Union</b><br><b>Gray Nut/Yellow Subs</b> | Size |     | Item                | Unit Weight |      | A     |        | B     |        | C     |        | Material |      |
|----------------------------------------------------------------------------|------|-----|---------------------|-------------|------|-------|--------|-------|--------|-------|--------|----------|------|
|                                                                            | NPS  | Dn  |                     | lbs         | kg   | in    | mm     | in    | mm     | in    | mm     | Nuts     | Subs |
|                                                                            |      |     |                     |             |      |       |        |       |        |       |        |          |      |
| <br><b>Straight Away Breakout</b>                                          | 1    | 25  | Union Complete      | 2.21        | 1.00 | 2.625 | 66.68  | 1.560 | 39.62  | 4.250 | 107.95 | DI       | 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 | DI       | 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  | DI       | 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  | DI       | 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 | DI       | SF   |
|                                                                            |      |     | Nut                 | 8.31        | 3.77 |       |        |       |        |       |        |          |      |
|                                                                            |      |     | Male Sub            | 5.57        | 2.53 |       |        |       |        |       |        |          |      |
|                                                                            |      |     | Female Sub w/O-Ring | 6.63        | 3.01 |       |        |       |        |       |        |          |      |
|                                                                            |      |     | Seal Ring           | —           | —    |       |        |       |        |       |        |          |      |

Flat Face Fig. 300 Unions permit lateral removal of valves and other fittings for easy replacement or inspection. Unions seal equally well in low or high pressure liquid or vapor service.

## Wing Unions

3,000 psi cwp – 4,500 psi test



| FIGURE 301<br>Steam Service Union<br>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 |
|  | 1 | 25   | Union Complete | 1.75  | 0.79        | 2.670 | 67.82  | 1.640 | 41.66  | 4.065 | 103.38 | 6<br>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<br>STD | SF  | SF       |      |
|                                                                                   |   |      | Nut            | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Male Sub       | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Female Sub     | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Seal Ring      | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   | 3 | 80   | Union Complete | 13.25 | 6.01        | 4.660 | 118.36 | 4.170 | 105.92 | 8.100 | 205.74 | 4<br>STD  | SF  | SF       |      |
|                                                                                   |   |      | Nut            | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Male Sub       | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Female Sub     | —     | —           |       |        |       |        |       |        |           |     |          |      |
|                                                                                   |   |      | Seal Ring      | —     | —           |       |        |       |        |       |        |           |     |          |      |

4,000 psi cwp – 6,000 psi test

| FIGURE 400<br>Threaded Ends<br>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 |
|  | 2    | 50  | Union Complete | 11.05       | 5.01  | 5.225 | 132.72 | 3.000 | 76.20  | 7.125 | 180.98 | 3<br>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<br>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<br>STD | SF       | SF   |
|                                                                                     |      |     | Nut            | 10.15       | 4.60  |       |        |       |        |       |        |          |          |      |
|                                                                                     |      |     | Male Sub       | 8.85        | 4.01  |       |        |       |        |       |        |          |          |      |
|                                                                                     |      |     | Female Sub     | 10.15       | 4.60  |       |        |       |        |       |        |          |          |      |

Ideal for manifold and pumping service. Available in threaded and butt weld ends.

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

4,000 psi cwp – 6,000 psi test

| <b>FIGURE 400</b><br><b>Buttweld Ends</b><br><b>Schedule 80</b><br><b>Black Nut/Red Subs</b> | Size |    | Item           | Unit Weight |      | A     |        | B    |       | C     |        | TPI      | Material |      |
|----------------------------------------------------------------------------------------------|------|----|----------------|-------------|------|-------|--------|------|-------|-------|--------|----------|----------|------|
|                                                                                              | NPS  | Dn |                | lbs         | kg   | in    | mm     | in   | mm    | in    | mm     |          | Nuts     | Subs |
|                                                                                              | 2    | 50 | Union Complete | 10.75       | 4.88 | 5.225 | 132.72 | 3.00 | 76.20 | 7.125 | 180.98 | 3<br>STD | SF       | SF   |
|                                                                                              |      |    | Nut            | 5.60        | 2.54 |       |        |      |       |       |        |          |          |      |
|                                                                                              |      |    | Male Sub       | 2.75        | 1.25 |       |        |      |       |       |        |          |          |      |
|                                                                                              |      |    | Female Sub     | 3.00        | 1.36 |       |        |      |       |       |        |          |          |      |

Ideal for manifold and pumping service. Available in threaded and butt weld ends.

6,000 psi cwp – 9,000 psi test

| <div>FIGURE 600</div> <div>Threaded Ends</div> <div>Black Nut/Silver Subs</div> <div></div> | 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           | 3.65        | 1.66    | 3.565  | 90.55  | 1.750  | 44.45  | 4.500  | 114.3    | 6<br>STD | SF       | BS                         |
|                                                                                                                                                                               |      |                          | Nut                      | 1.95        | 0.88    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Male Sub                 | 0.65        | 0.29    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Female Sub w/Bronze Seat | 1.05        | 0.48    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Bronze Seat Insert       | 0.05        | 0.023   |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               | 1½   | 40                       | Union Complete           | —           | —       | *      | *      | *      | *      | *      | *        | 4<br>STD | SF       | BS                         |
|                                                                                                                                                                               |      |                          | Nut                      | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Male Sub                 | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Female Sub w/Bronze Seat | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Bronze Seat Insert       | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               | 2    | 50                       | Union Complete           | 15.64       | 7.09    | 6.440  | 163.58 | 3.010  | 76.45  | 7.160  | 181.86   | 2<br>STD | SF       | (F)<br>ST<br><br>(M)<br>SF |
|                                                                                                                                                                               |      |                          | Nut                      | 7.08        | 3.21    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Male Sub                 | 3.22        | 1.46    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Female Sub w/Bronze Seat | 5.34        | 2.42    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Bronze Seat Insert       | 0.65        | 0.30    |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               | 3    | 80                       | Union Complete           | 27.25       | 12.36   | 8.875  | 225.43 | 4.1875 | 106.36 | 8.750  | 222.25   | 2<br>STD | SF       | SF                         |
|                                                                                                                                                                               |      |                          | Nut                      | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Male Sub                 | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Female Sub w/Bronze Seat | —           | —       |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      |                          | Bronze Seat Insert       | —           | —       |        |        |        |        |        |          |          |          |                            |
| 4                                                                                                                                                                             | 100  | Union Complete           | 40.00                    | 18.14       | 10.0625 | 255.59 | 5.250  | 133.35 | 10.625 | 269.88 | 2<br>STD | SF       | SF       |                            |
|                                                                                                                                                                               |      | Nut                      | 14.25                    | 6.48        |         |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      | Male Sub                 | 11.00                    | 5.00        |         |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      | Female Sub w/Bronze Seat | 12.65                    | 5.75        |         |        |        |        |        |        |          |          |          |                            |
|                                                                                                                                                                               |      | Bronze Seat Insert       | 2.15                     | 0.98        |         |        |        |        |        |        |          |          |          |                            |

Features bronze seat for primary seal to prevent rust and corrosion in well servicing and drilling. Available in threaded and butt weld ends. \*Consult Factory.

**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

6,000 psi cwp – 9,000 psi test



| FIGURE 602<br>Threaded Ends<br>Black Nut/Orange 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    | 3.55        | 1.61  | 6.625 | 168.28 | 1.750 | 44.45  | 4.500  | 114.30 | 6<br>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<br>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<br>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<br>MOD | SF       | SF   |
|                                                                                   |      |     | Nut               | 9.95        | 4.51  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Male Sub          | 5.20        | 2.36  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Female Sub w/Ring | 7.15        | 3.24  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |          |          |      |
|                                                                                   | 4    | 100 | Union Complete    | 32.18       | 14.59 | 8.300 | 210.82 | 5.200 | 132.08 | 10.040 | 255.02 | 3<br>MOD | SF       | SF   |
|                                                                                   |      |     | Nut               | 13.30       | 6.03  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Male Sub          | 8.36        | 3.79  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Female Sub w/Ring | 10.52       | 4.77  |       |        |       |        |        |        |          |          |      |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |          |          |      |

Compact design is well-suited for manifold service. Seal ring protects the metal-to-metal seal. Seal design reduces line turbulence.  
Available in threaded and butt weld ends.

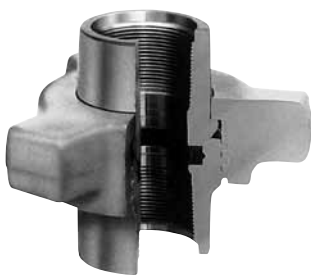
- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
2. Do not make up or break out Unions in pressurized lines.  
3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

6,000 psi cwp – 9,000 psi test

|                                                                                                 | Size |     | Item              | Unit Weight |       | A     |        | B     |        | C      |        | TPI      | Material |      |
|-------------------------------------------------------------------------------------------------|------|-----|-------------------|-------------|-------|-------|--------|-------|--------|--------|--------|----------|----------|------|
|                                                                                                 | NPS  | Dn  |                   | lbs         | kg    | in    | mm     | in    | mm     | in     | mm     |          | Nuts     | Subs |
|                                                                                                 |      |     |                   |             |       |       |        |       |        |        |        |          |          |      |
| <b>FIGURE 602</b><br><b>Buttweld Ends</b><br><b>Schedule 80</b><br><b>Black Nut/Orange Subs</b> | 2    | 50  | Union Complete    | 12.12       | 5.50  | 5.300 | 134.62 | 2.970 | 75.44  | 6.875  | 174.63 | 3<br>MOD | SF       | SF   |
|                                                                                                 |      |     | Nut               | 6.50        | 2.95  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Male Sub          | 2.76        | 1.25  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Female Sub w/Ring | 2.82        | 1.28  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |          |          |      |
|                                                                                                 | 3    | 80  | Union Complete    | 21.25       | 9.64  | 6.310 | 160.27 | 4.250 | 107.95 | 8.875  | 225.43 | 3<br>MOD | SF       | SF   |
|                                                                                                 |      |     | Nut               | 9.95        | 4.51  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Male Sub          | 5.75        | 2.61  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Female Sub w/Ring | 6.00        | 2.72  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |          |          |      |
|                                                                                                 | 4    | 100 | Union Complete    | 28.25       | 12.81 | 8.300 | 210.82 | 5.200 | 132.08 | 10.040 | 255.02 | 3<br>MOD | SF       | SF   |
|                                                                                                 |      |     | Nut               | 13.30       | 6.03  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Male Sub          | 7.50        | 3.40  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Female Sub w/Ring | 9.75        | 4.42  |       |        |       |        |        |        |          |          |      |
|                                                                                                 |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |          |          |      |

| <b>FIGURE 607</b><br><b>Well Service Union</b><br><b>Threaded Ends</b><br><b>Yellow Nut/Silver Subs</b> | Size |    | Item              | Unit Weight |      | A    |        | B    |       | C    |        | TPI      | Material |      |
|---------------------------------------------------------------------------------------------------------|------|----|-------------------|-------------|------|------|--------|------|-------|------|--------|----------|----------|------|
|                                                                                                         | NPS  | Dn |                   | lbs         | kg   | in   | mm     | in   | mm    | in   | mm     |          | Nuts     | Subs |
|                                                                                                         |      |    |                   |             |      |      |        |      |       |      |        |          |          |      |
|                      | 1½   | 40 | Union Complete    | 8.96        | 4.06 | 4.15 | 105.41 | 2.6  | 66.04 | 6.53 | 165.74 | 5<br>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<br>STD | SF       | SF   |
|                                                                                                         |      |    | Nut               | 7.68        | 3.48 |      |        |      |       |      |        |          |          |      |
|                                                                                                         |      |    | Male Sub          | 2.82        | 1.28 |      |        |      |       |      |        |          |          |      |
|                                                                                                         |      |    | Female Sub w/Ring | 4.14        | 1.88 |      |        |      |       |      |        |          |          |      |
|                                                                                                         |      |    | Seat Ring         | —           | —    |      |        |      |       |      |        |          |          |      |

Ideal for hot oil trucks and any application similar to Figure 602. Extended Subs allow for quick breakout on trucks and manifolds. Metal-to-metal connection.

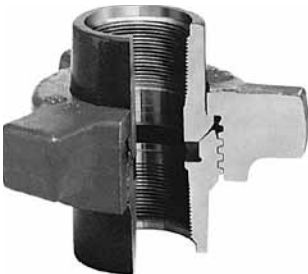
**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

10,000 psi cwp – 15,000 psi test



| FIGURE 1002<br>Threaded Ends<br>Red Nut/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    | 3.62        | 1.64  | 3.620 | 91.95  | 1.750 | 44.45  | 4.500  | 114.30 | 6   | STD      | All Alloy<br>Steel<br>Forging |
|                                                                                   |      |     | Nut               | 2.02        | 0.92  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Male Sub          | 0.70        | 0.32  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Female Sub w/Ring | 0.90        | 0.41  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |          |                               |
|                                                                                   | 1½   | 40  | Union Complete    | 9.54        | 4.33  | 4.600 | 116.84 | 2.570 | 65.28  | 5.520  | 140.21 | 4   | STD      |                               |
|                                                                                   |      |     | 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    | 13.00       | 5.90  | 5.200 | 132.08 | 3.000 | 76.20  | 7.375  | 187.33 | 3   | MOD      |                               |
|                                                                                   |      |     | Nut               | 7.35        | 3.33  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Male Sub          | 2.65        | 1.20  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Female Sub w/Ring | 3.00        | 1.36  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |          |                               |
|                                                                                   | 3    | 80  | Union Complete    | 22.40       | 10.16 | 6.200 | 157.48 | 4.240 | 107.70 | 9.320  | 236.73 | 4   | STD      |                               |
|                                                                                   |      |     | Nut               | 10.70       | 4.85  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Male Sub          | 5.28        | 2.39  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Female Sub w/Ring | 6.42        | 2.91  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |          |                               |
|                                                                                   | 4    | 100 | Union Complete    | 33.82       | 15.34 | 8.280 | 210.31 | 5.250 | 133.35 | 10.700 | 271.78 | 4   | STD      |                               |
|                                                                                   |      |     | Nut               | 14.70       | 6.67  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Male Sub          | 8.60        | 3.90  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Female Sub w/Ring | 10.52       | 4.77  |       |        |       |        |        |        |     |          |                               |
|                                                                                   |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |          |                               |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal.  
Available in threaded and butt weld ends. Unions are used primarily by service companies on applications of cementing, fracturing, and acidizing.

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
2. Do not make up or break out Unions in pressurized lines.  
3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.

## Wing Unions

10,000 psi cwp – 15,000 psi test



| <div>FIGURE 1002</div> <div>Buttweld Ends</div> <div>Schedule 160</div> <div>Red Nut/Blue Subs</div> | Size |                   | Item              | Unit Weight |       | A      |        | B      |        | C      |        | TPI | Material |                               |
|------------------------------------------------------------------------------------------------------|------|-------------------|-------------------|-------------|-------|--------|--------|--------|--------|--------|--------|-----|----------|-------------------------------|
|                                                                                                      | NPS  | Dn                |                   | lbs         | kg    | in     | mm     | in     | mm     | in     | mm     |     | Nuts     | Subs                          |
|                                                                                                      | 2    | 50                | Union Complete    | 14.25       | 6.46  | 5.200  | 132.08 | 3.000  | 76.20  | 7.375  | 187.33 | 3   | MOD      | All Alloy<br>Steel<br>Forging |
|                                                                                                      |      |                   | Nut               | 7.35        | 3.34  |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      |                   | Male Sub          | 3.50        | 1.59  |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      |                   | Female Sub w/Ring | 3.75        | 1.70  |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      |                   | Seat Ring         | —           | —     |        |        |        |        |        |        |     |          |                               |
|                                                                                                      | 3    | 80                | Union Complete    | 21.25       | 9.64  | 6.200  | 157.48 | 4.240  | 107.70 | 9.320  | 236.73 | 4   | STD      |                               |
|                                                                                                      |      |                   | Nut               | 10.70       | 4.86  |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      |                   | Male Sub          | 5.75        | 2.61  |        |        |        |        |        |        |     |          |                               |
| Female Sub w/Ring                                                                                    |      |                   | 6.00              | 2.72        |       |        |        |        |        |        |        |     |          |                               |
| Seat Ring                                                                                            |      |                   | —                 | —           |       |        |        |        |        |        |        |     |          |                               |
| 4                                                                                                    | 100  | Union Complete    | 31.5              | 14.29       | 8.280 | 210.31 | 5.250  | 133.35 | 10.700 | 271.78 | 4      | STD |          |                               |
|                                                                                                      |      | Nut               | 14.70             | 6.68        |       |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      | Male Sub          | 9.00              | 4.08        |       |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      | Female Sub w/Ring | 9.50              | 4.31        |       |        |        |        |        |        |        |     |          |                               |
|                                                                                                      |      | Seat Ring         | —                 | —           |       |        |        |        |        |        |        |     |          |                               |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal. Available in threaded and butt weld ends. Unions are used primarily by service companies on applications of cementing, fracturing, and acidizing.

| <div>FIGURE 1002</div> <div>Buttweld Ends</div> <div>Schedule XXH</div> <div>Red Nut/Blue Subs</div> | Size |     | Item              | Unit Weight |       | A     |        | B     |        | C      |        | TPI | Material                      |      |
|------------------------------------------------------------------------------------------------------|------|-----|-------------------|-------------|-------|-------|--------|-------|--------|--------|--------|-----|-------------------------------|------|
|                                                                                                      | NPS  | Dn  |                   | lbs         | kg    | in    | mm     | in    | mm     | in     | mm     |     | Nuts                          | Subs |
|                                                                                                      | 2    | 50  | Union Complete    | 13.16       | 5.97  | 5.200 | 132.08 | 3.000 | 76.20  | 7.375  | 187.33 | 3   | All Alloy<br>Steel<br>Forging |      |
|                                                                                                      |      |     | Nut               | 7.35        | 3.34  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Male Sub          | 3.44        | 1.56  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Female Sub w/Ring | 3.18        | 1.44  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |                               |      |
|                                                                                                      | 3    | 80  | Union Complete    | 25.52       | 11.57 | 6.200 | 157.48 | 4.240 | 107.70 | 9.320  | 236.73 | 4   |                               |      |
|                                                                                                      |      |     | Nut               | 10.70       | 4.86  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Male Sub          | 7.70        | 3.49  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Female Sub w/Ring | 7.42        | 3.37  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |                               |      |
|                                                                                                      | 4    | 100 | Union Complete    | 34.04       | 15.44 | 8.280 | 210.31 | 5.250 | 133.35 | 10.700 | 271.78 | 4   |                               |      |
|                                                                                                      |      |     | Nut               | 14.70       | 6.68  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Male Sub          | 9.36        | 4.24  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Female Sub w/Ring | 10.34       | 4.69  |       |        |       |        |        |        |     |                               |      |
|                                                                                                      |      |     | Seat Ring         | —           | —     |       |        |       |        |        |        |     |                               |      |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal. Available in threaded and butt weld ends. Unions are used primarily by service companies on applications of cementing, fracturing, and acidizing.

**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
2. Do not make up or break out Unions in pressurized lines.  
3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



## Wing Unions

15,000 psi cwp – 22,500 psi test



| <div>FIGURE 1502</div> <div>Threaded Ends</div> <div>Blue Nut/Red Subs</div> <div></div> | Size     | Item              | Unit Weight   |                | A              |                | B           |        | C                       |  | D | TPI | Material |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------|---------------|----------------|----------------|----------------|-------------|--------|-------------------------|--|---|-----|----------|
|                                                                                                                                                                           | NPS   Dn |                   | lbs   kg      | in   mm        | in   mm        | in   mm        | Nuts   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         | —   —         |                |                |                |             |        |                         |  |   |     |          |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal.  
Available in threaded and butt weld ends.

| <div>FIGURE 1502</div> <div>Buttweld Ends</div> <div>Schedule XXH</div> <div>Blue Nut/Red Subs</div> | Size |    | Item              | Unit Weight |       | A     |        | B     |        | C     |        | D | TPI | Material |                         |
|------------------------------------------------------------------------------------------------------|------|----|-------------------|-------------|-------|-------|--------|-------|--------|-------|--------|---|-----|----------|-------------------------|
|                                                                                                      | NPS  | Dn |                   | lbs         | kg    | in    | mm     | in    | mm     | in    | mm     |   |     | Nuts     | 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         | —           | —     |       |        |       |        |       |        |   |     |          |                         |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal.  
Available in threaded and butt weld ends.

| <div>FIGURE 1502</div> <div>Buttweld Ends</div> <div>Schedule 160</div> <div>Blue Nut/Red Subs</div> | Size |    | Item              | Unit Weight |       | A     |        | B     |        | C     |        | D | TPI | Material |                         |
|------------------------------------------------------------------------------------------------------|------|----|-------------------|-------------|-------|-------|--------|-------|--------|-------|--------|---|-----|----------|-------------------------|
|                                                                                                      | NPS  | Dn |                   | lbs         | kg    | in    | mm     | in    | mm     | in    | mm     |   |     | Nuts     | Subs                    |
|                                                                                                      | 2    | 50 | Union Complete    | 20.06       | 9.10  | 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          | 5.06        | 2.30  |       |        |       |        |       |        |   |     |          |                         |
|                                                                                                      |      |    | Female Sub w/Ring | 5.22        | 2.37  |       |        |       |        |       |        |   |     |          |                         |
|                                                                                                      |      |    | Seat Ring         | —           | —     |       |        |       |        |       |        |   |     |          |                         |
|                                                                                                      | 3    | 80 | Union Complete    | 27.81       | 12.61 | 7.630 | 193.8  | 4.400 | 111.76 | 9.900 | 251.46 | ▲ | 3½  | STD      |                         |
|                                                                                                      |      |    | Nut               | 14.18       | 6.43  |       |        |       |        |       |        |   |     |          |                         |
|                                                                                                      |      |    | Male Sub          | 6.51        | 2.95  |       |        |       |        |       |        |   |     |          |                         |
|                                                                                                      |      |    | Female Sub w/Ring | 7.12        | 3.23  |       |        |       |        |       |        |   |     |          |                         |
| Seat Ring                                                                                            |      |    | —                 | —           |       |       |        |       |        |       |        |   |     |          |                         |

Alloy steel forgings in high-pressure manifold and treating iron connections. Field-replaceable seal ring protects the metal-to-metal seal.  
Available in threaded and butt weld ends.

- Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
2. Do not make up or break out Unions in pressurized lines.  
3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



## High Speed Unions

3,000 psi cwp — 4,500 psi test

| <b>FIGURE S1A</b><br><b>High Speed Union</b><br><b>3000# Forged Steel</b>         | Size |    | Unit Weight |      |
|-----------------------------------------------------------------------------------|------|----|-------------|------|
|                                                                                   | NPS  | Dn | lbs         | kg   |
|  | 1    | 25 | 1.50        | 0.68 |
|                                                                                   | 2    | 50 | 4.50        | 2.04 |
|                                                                                   | 3    | 80 | 12.19       | 5.53 |

Female Threaded Ends

| <b>FIGURE 3L S1A</b><br><b>Tri-Lug High Speed Union</b><br><b>3000# Forged Steel</b> | Size |    | Unit Weight |      |
|--------------------------------------------------------------------------------------|------|----|-------------|------|
|                                                                                      | NPS  | Dn | lbs         | kg   |
|   | 1    | 25 | 2.15        | 0.98 |
|                                                                                      | 1½   | 50 | 3.64        | 1.65 |
|                                                                                      | 2    | 80 | 5.85        | 2.66 |

Tri-Lug with female threaded ends.

**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



## Catawissa Quick Reference Chart



| 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  |                 |     |     |    |     |    |    |    |
| 600              | 6,000  | 9,000  | Silver         | Black  |                 |     |     |    |     |    |    |    |
| 602              | 6,000  | 9,000  | Orange         | Black  |                 |     |     |    |     |    |    |    |
| 607              | 6,000  | 9,000  | Silver         | Yellow |                 |     |     |    |     |    |    |    |
| 1002             | 10,000 | 15,000 | Blue           | Red    |                 |     |     |    |     |    |    |    |
| 1502             | 15,000 | 22,500 | Red            | Blue   |                 |     |     |    |     |    |    |    |

**Warnings:** 1. Do not mix Standard Service and Sour Gas Service Unions or parts.  
 2. Do not make up or break out Unions in pressurized lines.  
 3. Always use good safety practices, including use of safety glasses, when making up or breaking out Unions.

▲ Weld ends – Consult Factory. † Steel Forging Subs available – Consult Factory. TPI = Threads per inch. DI = Ductile Iron. SF = Steel Forging. BS = Bar Stock. ST = Steel Tubing.



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 been 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** - 
- **Material Specification or Grade**  
WPB (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  $\frac{1}{8}$  – 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
- $1\frac{1}{4}$ " (32mm) and larger are made from pipe

| Concentric<br>Swage Nipples                                                        | Size |    |             |    |                 |           | Length | Standard<br>Weight | XS/XH<br>Weight | XXS/XXH<br>& Sch. 160<br>Weight |      |      |      |      |
|------------------------------------------------------------------------------------|------|----|-------------|----|-----------------|-----------|--------|--------------------|-----------------|---------------------------------|------|------|------|------|
|                                                                                    | Pipe |    | API or O.D. |    | Reduced to Size |           |        |                    |                 |                                 |      |      |      |      |
|                                                                                    | NPS  | DN | in          | mm | NPS             | DN        |        |                    |                 |                                 | in   | mm   | 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 142 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  $1\frac{1}{4}$  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

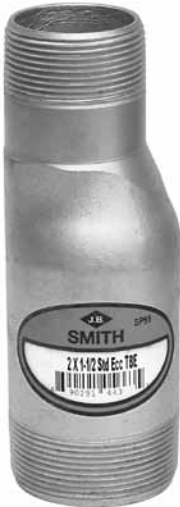


| Concentric<br>Swage Nipples                                                        | Size |             |                 |           | Length      |            | Standard<br>Weight |     | XS/XH<br>Weight |      | XXS/XXH<br>& Sch. 160<br>Weight |      |     |      |
|------------------------------------------------------------------------------------|------|-------------|-----------------|-----------|-------------|------------|--------------------|-----|-----------------|------|---------------------------------|------|-----|------|
|                                                                                    | 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 ¾     | 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 ¾     | 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 |
|                                                                                    |      |             |                 |           | 1¼          | 32         | 4½                 | 114 | —               | —    | 1.2                             | 0.53 | 2.0 | 0.91 |
|                                                                                    | 2    | 50          | 2¾              | 60        | ¼ and ¾     | 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          | 2¾              | 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         | 5⅞              | 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 142 for certification of raw material and marking.

## Carbon Steel Swage Nipples



| Eccentric<br>Swage Nipples                                                         | Size |     |             |     |                 |                | Length | Standard<br>Weight | XS/XH<br>Weight | XXS/XXH<br>& Sch. 160<br>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 142 for certification of raw material and marking. Sizes not shown - P.O.A.

## Stainless Steel

### Stainless Swages



| Stainless & Alloy Steel<br>Swage Nipples | 304 Stainless Steel |          |        |     | 316 Stainless Steel |          |        |     |
|------------------------------------------|---------------------|----------|--------|-----|---------------------|----------|--------|-----|
|                                          | Size                |          | Length |     | Size                |          | Length |     |
|                                          | NPS                 | DN       | in     | mm  | NPS                 | DN       | in     | mm  |
|                                          | 1/4 x 1/8           | 8 x 6    | 2 1/4  | 57  | 1/4 x 1/8           | 8 x 6    | 2 1/4  | 57  |
|                                          | 3/8 x 1/4           | 10 x 8   | 2 1/2  | 64  | 3/8 x 1/4           | 10 x 8   | 2 1/2  | 64  |
|                                          | 1/2 x 1/4           | 15 x 8   | 2 3/4  | 70  | 1/2 x 1/4           | 15 x 8   | 2 3/4  | 70  |
|                                          | 1/2 x 3/8           | 15 x 10  | 2 3/4  | 70  | 1/2 x 3/8           | 15 x 10  | 2 3/4  | 70  |
|                                          | 3/4 x 1/4           | 20 x 8   | 3      | 76  | 3/4 x 1/4           | 20 x 8   | 3      | 76  |
|                                          | 3/4 x 3/8           | 20 x 10  | 3      | 76  | 3/4 x 3/8           | 20 x 10  | 3      | 76  |
|                                          | 3/4 x 1/2           | 20 x 15  | 3      | 76  | 3/4 x 1/2           | 20 x 15  | 3      | 76  |
|                                          | 1 x 1/4             | 25 x 8   | 3 1/2  | 89  | 1 x 1/4             | 25 x 8   | 3 1/2  | 89  |
|                                          | 1 x 1/2             | 25 x 15  | 3 1/2  | 89  | 1 x 1/2             | 25 x 15  | 3 1/2  | 89  |
|                                          | 1 x 3/4             | 25 x 20  | 3 1/2  | 89  | 1 x 3/4             | 25 x 20  | 3 1/2  | 89  |
|                                          | 1 1/4 x 1/2         | 32 x 15  | 4      | 102 | 1 1/4 x 1/2         | 32 x 15  | 4      | 102 |
|                                          | 1 1/4 x 3/4         | 32 x 20  | 4      | 102 | 1 1/4 x 3/4         | 32 x 20  | 4      | 102 |
|                                          | 1 1/4 x 1           | 32 x 25  | 4      | 102 | 1 1/4 x 1           | 32 x 25  | 4      | 102 |
|                                          | 1 1/2 x 1/2         | 40 x 15  | 4 1/2  | 114 | 1 1/2 x 1/2         | 40 x 15  | 4 1/2  | 114 |
|                                          | 1 1/2 x 3/4         | 40 x 20  | 4 1/2  | 114 | 1 1/2 x 3/4         | 40 x 20  | 4 1/2  | 114 |
|                                          | 1 1/2 x 1           | 40 x 25  | 4 1/2  | 114 | 1 1/2 x 1           | 40 x 25  | 4 1/2  | 114 |
|                                          | 1 1/2 x 1 1/4       | 40 x 32  | 4 1/2  | 114 | 1 1/2 x 1 1/4       | 40 x 32  | 4 1/2  | 114 |
|                                          | 2 x 1/2             | 50 x 15  | 6 1/2  | 165 | 2 x 1/2             | 50 x 15  | 6 1/2  | 165 |
|                                          | 2 x 3/4             | 50 x 20  | 6 1/2  | 165 | 2 x 3/4             | 50 x 20  | 6 1/2  | 165 |
|                                          | 2 x 1               | 50 x 25  | 6 1/2  | 165 | 2 x 1               | 50 x 25  | 6 1/2  | 165 |
|                                          | 2 x 1 1/4           | 50 x 32  | 6 1/2  | 165 | 2 x 1 1/4           | 50 x 32  | 6 1/2  | 165 |
|                                          | 2 x 1 1/2           | 50 x 40  | 6 1/2  | 165 | 2 x 1 1/2           | 50 x 40  | 6 1/2  | 165 |
|                                          | 2 1/2 x 1           | 65 x 25  | 7      | 178 | 2 1/2 x 1           | 65 x 25  | 7      | 178 |
|                                          | 2 1/2 x 1 1/4       | 65 x 32  | 7      | 178 | 2 1/2 x 1 1/4       | 65 x 32  | 7      | 178 |
|                                          | 2 1/2 x 1 1/2       | 65 x 40  | 7      | 178 | 2 1/2 x 1 1/2       | 65 x 40  | 7      | 178 |
|                                          | 2 1/2 x 2           | 65 x 50  | 7      | 178 | 2 1/2 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 1 1/4           | 80 x 32  | 8      | 203 | 3 x 1 1/4           | 80 x 32  | 8      | 203 |
|                                          | 3 x 1 1/2           | 80 x 40  | 8      | 203 | 3 x 1 1/2           | 80 x 40  | 8      | 203 |
|                                          | 3 x 2               | 80 x 50  | 8      | 203 | 3 x 2               | 80 x 50  | 8      | 203 |
|                                          | 3 x 2 1/2           | 80 x 65  | 8      | 203 | 3 x 2 1/2           | 80 x 65  | 8      | 203 |
|                                          | 4 x 1               | 100 x 25 | 9      | 229 | 4 x 1               | 100 x 25 | 9      | 229 |
|                                          | 4 x 1 1/4           | 100 x 32 | 9      | 229 | 4 x 1 1/4           | 100 x 32 | 9      | 229 |
|                                          | 4 x 1 1/2           | 100 x 40 | 9      | 229 | 4 x 1 1/2           | 100 x 40 | 9      | 229 |
|                                          | 4 x 2               | 100 x 50 | 9      | 229 | 4 x 2               | 100 x 50 | 9      | 229 |
|                                          | 4 x 2 1/2           | 100 x 65 | 9      | 229 | 4 x 2 1/2           | 100 x 65 | 9      | 229 |
|                                          | 4 x 3               | 100 x 80 | 9      | 229 | 4 x 3               | 100 x 80 | 9      | 229 |
|                                          | 4 x 3 1/2           | 100 x 90 | 9      | 229 | 4 x 3 1/2           | 100 x 90 | 9      | 229 |

Note: See page 142 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  $\frac{1}{8}$  – 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  $2\frac{1}{2}$  – 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<br>Bull Plugs                                                         | Size  |       |             |     | Length |     | Standard<br>Weight |     | XS/XH<br>Weight |      | Solid<br>Weight |      | XXS/XXH &<br>Sch. 160<br>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 1/6       | 141 | 8 1/2  | 216 | 13                 | 5.7 | 17              | 7.7  | —               | —    | 33                              | 15   |
|                                                                                    | 6     | 150   | 6 3/8       | 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<br>Black (non-plated) Carbon Steel                             |                                                                                     | Size           |    | Length |    |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|----|--------|----|
|  |  | NPS            | DN | in     | mm |
|                                                                                     |                                                                                     | $\frac{1}{8}$  | 6  | 3      | 76 |
|                                                                                     |                                                                                     | $\frac{1}{4}$  | 8  | 3      | 76 |
|                                                                                     |                                                                                     | $\frac{3}{8}$  | 10 | 3      | 76 |
|                                                                                     |                                                                                     | $\frac{1}{2}$  | 15 | 3      | 76 |
|                                                                                     |                                                                                     | $\frac{3}{4}$  | 20 | 3      | 76 |
|                                                                                     |                                                                                     | 1              | 25 | 3      | 76 |
|                                                                                     |                                                                                     | $1\frac{1}{4}$ | 32 | 3      | 76 |
|                                                                                     |                                                                                     | $1\frac{1}{2}$ | 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  $1\frac{1}{4}$ " 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  |        |                 |
| 3/4                          | 20  | 1.050  | 27  | 14     | —               |
| 3/4 EUE                      | 20  | 1.050  | 27  | —      | 10 Rd.          |
| 1                            | 25  | 1.315  | 33  | 11 1/2 | 10 Rd.          |
| 1 EUE                        | 25  | 1.315  | 33  | —      | 10 Rd.          |
| 1 1/4                        | 32  | 1.660  | 42  | 11 1/2 | 10 Rd.          |
| 1 1/4 EUE                    | 32  | 1.660  | 42  | —      | 10 Rd.          |
| 1 1/2                        | 40  | 1.900  | 48  | 11 1/2 | 10 Rd.          |
| 1 1/2 EUE                    | 40  | 1.900  | 48  | —      | 10 Rd.          |
| 2                            | 50  | 2 3/8  | 60  | 11 1/2 | 10 Rd.          |
| 2 EUE                        | 50  | 2 3/8  | 60  | —      | 8 Rd.           |
| 2 1/2                        | 65  | 2 7/8  | 73  | 8V     | 10 Rd.          |
| 2 1/2 EUE                    | 65  | 2 7/8  | 73  | —      | 8 Rd.           |
| 3                            | 80  | 3 1/2  | 89  | 8V     | 10 Rd.          |
| 3 EUE                        | 80  | 3 1/2  | 89  | —      | 8 Rd.           |
| 3 1/2                        | 90  | 4      | 102 | 8V     | 8 Rd.           |
| 3 1/2 EUE                    | 90  | 4      | 102 | 8V     | 8 Rd.           |
| 4                            | 100 | 4 1/2  | 114 | 8V     | 8 Rd.           |
| 4 EUE                        | 100 | 4 1/2  | 114 | —      | 8 Rd.           |
| —                            | —   | 5      | 127 | —      | 8 Rd.           |
| —                            | —   | 5 1/2  | 140 | —      | 8 Rd.           |
| 5                            | 125 | 5 5/16 | 141 | 8V     | —               |
| —                            | —   | 6      | 152 | —      | 8 Rd.           |
| 6                            | 150 | 6 5/8  | 168 | 8V     | 8 Rd.           |
| —                            | —   | 7      | 178 | —      | 8 Rd.           |
| —                            | —   | 7 5/8  | 194 | —      | 8 Rd.           |
| 8                            | 200 | 8 5/8  | 219 | 8V     | 8 Rd.           |
| —                            | —   | 9 5/8  | 244 | —      | 8 Rd.           |
| 10                           | 250 | 10 3/4 | 273 | 8V     | 8 Rd.           |
| —                            | —   | 11 3/4 | 298 | —      | 8 Rd.           |
| 12                           | 300 | 12 3/4 | 324 | 8V     | —               |
| —                            | —   | 13 3/8 | 340 | —      | 8 Rd.           |
| —                            | —   | 14     | 356 | 8V     | —               |
| —                            | —   | 16     | 406 | 8V     | 8 Rd.           |
| —                            | —   | 18     | 457 | 8V     | —               |
| —                            | —   | 20     | 508 | 8V     | 8 Rd.           |

Malleable Iron

Cast Iron

Small Steel Fittings

Pipe Nipples & Pipe Couplings

Forged Steel Fittings & Unions

Anvils

Catawissa

J.B. Smith Products

## 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, 10Rd, 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 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 142.

#### 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  | 3/4             | 20       | 3 1/2  | 89  | 0.66            | 0.30 | 0.66         | 0.30 | –              | –   |
|                                                                                    | 1 1/4 | 32  | 1.660     | 42  | 3/4-1           | 20-25    | 4      | 102 | 1.00            | 0.45 | 1.00         | 0.45 | –              | –   |
|                                                                                    | 1 1/2 | 40  | 1.900     | 48  | 3/4-1 1/4       | 20-32    | 4 1/2  | 114 | 1.3             | 0.57 | 1.3          | 0.57 | –              | –   |
|                                                                                    | 2     | 50  | 2 3/8     | 60  | 1/4-1/2-3/4     | 8-15-20  | 8      | 203 | 2.5             | 1.1  | 4.0          | 1.8  | 6.0            | 2.7 |
|                                                                                    |       |     |           |     | 1-1 1/4-1 1/2   | 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 |
|                                                                                    | 2 1/2 | 65  | 2 7/8     | 73  | 1-1 1/4-1 1/2   | 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  | 3 1/2     | 89  | 1-1/4-1 1/2     | 25-8-40  | 8      | 203 | 7.5             | 3.4  | 9.0          | 4.1  | 14             | 6.4 |
|                                                                                    |       |     |           |     | 2-2 1/2         | 50-65    | 8      | 203 | 7.5             | 3.4  | 9.0          | 4.1  | 14             | 6.4 |
|                                                                                    |       |     |           |     | 1-1/4-1 1/2     | 25-8-40  | 9      | 229 | 11              | 5.0  | 14           | 6.4  | 23             | 10  |
|                                                                                    | 4     | 100 | 4 1/2     | 114 | 2-2 1/2         | 50-65    | 9      | 229 | 11              | 5.0  | 14           | 6.4  | 23             | 10  |
|                                                                                    |       |     |           |     | 3-3 1/2         | 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  | 3/4             | 20       | 3 1/2  | 89  | 0.66            | 0.30 | 0.66         | 0.30 | –              | –   |
|                                                                                     | 1 1/4 | 32  | 1.660     | 42  | 3/4-1           | 20-25    | 4      | 102 | 1.00            | 0.45 | 1.00         | 0.45 | –              | –   |
|                                                                                     | 1 1/2 | 40  | 1.900     | 48  | 3/4-1 1/4       | 20-32    | 4 1/2  | 114 | 1.3             | 0.57 | 1.3          | 0.57 | –              | –   |
|                                                                                     | 2     | 50  | 2 3/8     | 60  | 3/4             | 20       | 6 1/2  | 165 | 2.5             | 1.1  | 3.5          | 1.6  | 5.0            | 2.3 |
|                                                                                     |       |     |           |     | 1-1 1/4-1 1/2   | 25-32-40 | 6 1/2  | 165 | 2.5             | 1.1  | 3.5          | 1.6  | 5.0            | 2.3 |
|                                                                                     | 2 1/2 | 65  | 2 7/8     | 73  | 1-1 1/4-1 1/2   | 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  | 3 1/2     | 89  | 1-1 1/4-1 1/2   | 25-32-40 | 8      | 203 | 6.0             | 2.7  | 9.0          | 4.1  | 12             | 5.4 |
|                                                                                     |       |     |           |     | 2-2 1/2         | 50-65    | 8      | 203 | 6.0             | 2.7  | 9.0          | 4.1  | 12             | 5.4 |
|                                                                                     | 4     | 100 | 4 1/2     | 114 | 1-1 1/4-1 1/2   | 25-32-40 | 9      | 229 | 8.0             | 3.6  | 12           | 5.4  | 20             | 9.1 |
|                                                                                     |       |     |           |     | 2-2 1/2         | 50-65    | 9      | 229 | 8.0             | 3.6  | 12           | 5.4  | 20             | 9.1 |
|                                                                                     |       |     |           |     | 3-3 1/2         | 80-90    | 9      | 229 | 8.0             | 3.6  | 12           | 5.4  | 20             | 9.1 |
|                                                                                     |       |     |           |     | 5 1/2           | 140      | 2-3    | 50  | 11              | 5.7  | 17           | 7.7  | 33             | 15  |
|                                                                                     |       |     |           |     | 7               | 178      | 2-3    | 50  | 12              | 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



| Swage Nipples<br>Oil Country Tubing &<br>Casing non EUE ends                      | Size          |       |     |                   |                     |    | Length | Standard<br>Weight | XS/XH<br>Weight | XXS/XXH<br>Weight |      |      |      |
|-----------------------------------------------------------------------------------|---------------|-------|-----|-------------------|---------------------|----|--------|--------------------|-----------------|-------------------|------|------|------|
|                                                                                   | Pipe          | O.D.  |     | Reduced to        |                     |    |        |                    |                 |                   |      |      |      |
|  | NPS <i>DN</i> | in    | mm  | NPS               | <i>DN</i>           | 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          | 2¾    | 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 & 2⅛            | 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   |
|                                                                                   |               | 7     | 178 | 4 - 6 O.D.        | 100 - 150 O.D.      | 12 | 305    | 17                 | 7.7             | 25                | 11   | 46   | 21   |
|                                                                                   |               |       |     | 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   | —    | —    |
|                                                                                   |               | 7½    | 194 | 5½ O.D. & 6 O.D.  | 140 O.D. & 150 O.D. | 12 | 305    | 17                 | 7.7             | 25                | 11   | —    | —    |
|                                                                                   |               |       |     | 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   | —    | —    |
|                                                                                   |               | 8⅝    | 219 | 6⅝ O.D. - 7 O.D.  | 168 O.D. - 175 O.D. | 13 | 330    | 24                 | 11              | 32                | 15   | —    | —    |
|                                                                                   |               |       |     | 2 - 3             | 50 - 75             | 13 | 330    | 29                 | 13              | 44                | 20   | —    | —    |
|                                                                                   |               |       |     | 4 - 6 O.D.        | 100 - 150 O.D.      | 13 | 330    | 29                 | 13              | 44                | 20   | —    | —    |
|                                                                                   |               | 9⅝    | 244 | 6⅝ O.D. & 7⅝ O.D. | 168 O.D. - 194 O.D. | 13 | 330    | 29                 | 13              | 44                | 20   | —    | —    |
|                                                                                   |               |       |     | 2 - 3             | 50 - 75             | 14 | 356    | 38                 | 17              | 48                | 22   | —    | —    |
|                                                                                   |               |       |     | 4 - 6 O.D.        | 100 - 150 O.D.      | 14 | 356    | 38                 | 17              | 48                | 22   | —    | —    |
|                                                                                   |               | 10¾   | 273 | 6⅝ O.D. & 8⅝ O.D. | 168 O.D. - 219 O.D. | 14 | 356    | 38                 | 17              | 48                | 22   | —    | —    |
|                                                                                   |               |       |     | 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<br>Bull Plugs                                                              | Size   |    |             |    | Length |      | Standard<br>Weight |      | XS/XH<br>Weight |      | XXS/XXH<br>& Sch. 160<br>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  |
|  | 4 1/2       | 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  |
|                                                                                     | 5 1/2       | 140 | 8 1/2  | 216 | 13              | 5.7 | 17           | 7.7 | 33                        | 15  |
|                                                                                     | 6 3/8       | 168 | 10     | 254 | 17              | 7.7 | 25           | 11  | 46                        | 21  |
|                                                                                     | 7           | 178 | 10     | 254 | 17              | 7.7 | 25           | 11  | 50                        | 23  |
|                                                                                     | 7 7/8       | 194 | 11     | 279 | 24              | 11  | 32           | 15  | 53                        | 24  |
|                                                                                     | 8 3/8       | 219 | 11     | 279 | 29              | 13  | 44           | 20  | 78                        | 35  |
|                                                                                     | 9 3/8       | 244 | 12     | 305 | 36              | 16  | 47           | 21  | 76                        | 34  |
|                                                                                     | 10 3/4      | 273 | 13     | 330 | 41              | 18  | 56           | 25  | 85                        | 39  |

| API Bull Plugs<br>Female                                                            | Size        |    |       |    | Length | Size        |        |      |       | Length |    |     |
|-------------------------------------------------------------------------------------|-------------|----|-------|----|--------|-------------|--------|------|-------|--------|----|-----|
|                                                                                     | Tubing Size |    | O.D.  |    |        | Tubing Size |        | O.D. |       |        |    |     |
|  | in          | mm | in    | mm | in     | mm          | in     | mm   | in    | mm     |    |     |
|                                                                                     | ¾           | 20 | 1.313 | 33 | 3⅜     | 81          | 2      | 50   | 2.875 | 73     | 4¼ | 108 |
|                                                                                     | ¾ EUE       | 20 | 1.660 | 42 | 3¼     | 83          | 2 EUE  | 50   | 3.063 | 78     | 4⅞ | 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    | 6⅞ | 156 |
|                                                                                     | 1½ EUE      | 40 | 2.500 | 64 | 3⅞     | 98          | 4 EUE  | 100  | 5.563 | 141    | 6¾ | 159 |



## Oil Country Fittings

### Bell Nipples and Tubing Nipples

#### Bell Nipples

- J.B. Smith manufactures a full line of Bell Nipples in sizes 4½" - 8⅝" 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, 10Rd, 11½ 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<br>Standard Weight      |       | Size<br>NPS DN                      | End Connection      |
|-------------------------------------------------------------------------------------|----------------------------------------|-------|-------------------------------------|---------------------|
|                                                                                     | 18" and shorter<br>upset and non-upset |       |                                     |                     |
|                                                                                     |                                        | 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<br>Extra Heavy Weight   |       | Size<br>NPS DN                      | End Connection      |
|--------------------------------------------------------------------------------------|----------------------------------------|-------|-------------------------------------|---------------------|
|                                                                                      | 18" and shorter<br>upset and non-upset |       |                                     |                     |
|                                                                                      |                                        | 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                |
|                            | 6¾        | 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                |
|                            | 7¾        | 194 | 26.4            | 12  | K-N                |
|                            |           |     | 29.7            | 13  | N-P                |
|                            | 8¾        | 219 | 24.0            | 11  | K                  |
|                            |           |     | 32.0            | 15  | K                  |
|                            |           |     | 36.0            | 16  | K-N                |
|                            |           |     | 44.0            | 20  | N-P                |
|                            |           |     | 49.0            | 22  | N-P                |
|                            | 9¾        | 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                  |
|                            | 13¾       | 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<br>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          | 244 | 3951       | 1792 | 7¾                              | 197 |
|                                                                                   | 10¾         | 273 | 4553       | 2065 | 8                               | 203 |
|                                                                                   | 11¾         | 298 | —          | —    | 8                               | 203 |
|                                                                                   | 13⅝         | 340 | 5623       | 2551 | 8                               | 203 |
|                                                                                   | 16          | 400 | 7898       | 3582 | 9                               | 229 |
|                                                                                   | 20          | 500 | 9500       | 4309 | 9                               | 229 |

| API Casing Couplings<br>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 |
|                                                                                     | 13⅝         | 340 | 7663       | 3476 | 10½                | 267 |

| Combination Couplings<br>J-55                                                       | Size |  | O.D. |  |
|-------------------------------------------------------------------------------------|------|--|------|--|
|                                                                                     | in   |  | in   |  |
|  | 2    |  | 2⅝   |  |
|                                                                                     | 2½   |  | 2⅝   |  |
|                                                                                     | 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 2½ 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"                  | 2⅝"         | 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"                  | 2⅝"         | 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](mailto:webmgr@jbsmith.com)

Malleable Iron

Cast Iron

Small Steel  
Fittings

Pipe Nipples &  
Pipe Couplings

Forged Steel  
Fittings & Unions

Anvilets

Catawissa

J.B. Smith Products

## 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<sub>2</sub>S, CO<sub>2</sub>, 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 pipe dope
  - Use a pipe dope 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.

## Standards and Specifications

|                                               | Dimensions   | Material                        | Galvanizing**** | Thread        | Pressure Rating | Federal/Other  |
|-----------------------------------------------|--------------|---------------------------------|-----------------|---------------|-----------------|----------------|
| <b>MALLEABLE IRON FITTINGS</b>                |              |                                 |                 |               |                 |                |
| Class 150/PN 20                               | ASME B16.3•  | ASTM A-197                      | ASTM A-153      | ASME B1 20.1+ | ASME B16.3•     | ASME B16.3**   |
| Class 300/PN 50                               | ASME B16.3•  | ASTM A-197                      | ASTM A-153      | ASME B1 20.1+ | ASME B16.3•     |                |
| <b>MALLEABLE IRON UNIONS</b>                  |              |                                 |                 |               |                 |                |
| Class 150/PN 20                               | ASME B16.39• | ASTM A-197                      | ASTM A-153      | ASME B1 20.1+ | ASME B16.39•    | 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•    |                |
| <b>CAST IRON THREADED FITTINGS</b>            |              |                                 |                 |               |                 |                |
| Class 125                                     | ASME B16.4•  | ASTM A-126 (A)                  | ASTM A-153      | ASME B1.20.1+ | ASME B16.4•     | ASME B16.4■    |
| Class 250                                     | ASME B16.4•  | ASTM A-126 (A)                  | ASTM A-153      | ASME B1.20.1+ | ASME B16.4•     | ASME B16.4■    |
| <b>CAST IRON PLUGS AND BUSHINGS</b>           |              |                                 |                 |               |                 |                |
|                                               | ASME B16.14• | ASTM A- 126 (A)                 | ASTM A-153      | ASME B1.20.1+ | ASME B16.14•    | WW-P-471       |
| <b>CAST IRON DRAINAGE THREADED FITTINGS</b>   |              |                                 |                 |               |                 |                |
|                                               | ASME B16.12• | ASTM A-126 (A)                  | ASTM A-153      | ASME B1.20.1+ | ASME B16.12•    |                |
| <b>CAST IRON FLANGES AND FLANGED FITTINGS</b> |              |                                 |                 |               |                 |                |
| Class 125 (1"-12")                            | ASME B16.1•  | ASTM A- 126 (A) or (B)          | ASTM A-153      | ASME B1.20.1+ | ASME B16.1      | ASME B16.1•    |
| Class 125 (14"-up)                            | ASME B16.1•  | ASTM A-126 (B)                  | ASTM A-153      | ASME B1.20.1+ | ASME B16.1      | 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      | ASME B16.1•    |
| Class 250 (14"-up)                            | ASME B16.1•  | ASTM A-126 (B)                  | ASTM A-153      | ASME B1.20.1+ | ASME B16.1      | ASME B16.1•    |
| <b>FORGED STEEL THREADED FITTINGS</b>         |              |                                 |                 |               |                 |                |
| Class 2000, 3000, 6000                        | ASME B16.11• | ASTM A105, ASTM A182, ASTM A350 |                 | ASME B1.20.1+ | ASME B16.11•    |                |
| <b>PIPE NIPPLES</b>                           |              |                                 |                 |               |                 |                |
| 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 B43                        |                 | ASME B1.20.1+ |                 | WWN 351        |

\*The standard

•an American National standard (ANSI)

+ASME B1.20.1 was ANSI B2.1

■Formerly WW-P-501

\*\*Formerly WW-P-521

\*\*\*Formerly WW-U-531

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



# 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 may 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

15.3

| 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 |
| "                       | 0.00000505         | 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                |

# Figure Number Index

| FIGURE NO.    | PAGE      |
|---------------|-----------|
| 3L S1A        | 139       |
| 100/100C      | 126       |
| 200/200C      | 127-128   |
| 206           | 129-130   |
| 202           | 130       |
| 211           | 131       |
| 300           | 131       |
| 301           | 132       |
| 336           | 85        |
| 337           | 86        |
| 346           | 87        |
| 347           | 87        |
| 348           | 88        |
| 349           | 89        |
| 350           | 89        |
| 351           | 37        |
| 352           | 39        |
| 356/356A/356R | 38        |
| 358           | 40        |
| 359           | 40-44     |
| 360           | 45        |
| 361           | 45        |
| 366           | 46        |
| 367           | 47        |
| 368           | 48        |
| 370           | 52        |
| 371           | 37        |
| 379           | 89        |
| 380           | 51        |
| 381           | 51        |
| 383           | 35, 49-50 |
| 385           | 35, 50    |
| 387           | 51        |
| 388           | 51        |
| 389           | 51        |
| 390           | 32, 51    |
| 400           | 132-133   |
| 421           | 52        |
| 424           | 52        |
| 425           | 53        |
| 426           | 53        |
| 459           | 33        |
| 463           | 33        |
| 551           | 33        |
| 552           | 34        |

| FIGURE NO. | PAGE    |
|------------|---------|
| 554        | 33      |
| 600        | 133     |
| 602        | 134-135 |
| 607        | 135     |
| 701/701R   | 55      |
| 702/702A   | 55      |
| 703        | 55      |
| 705        | 56      |
| 706        | 56      |
| 707        | 56      |
| 708        | 56      |
| 718        | 58      |
| 719        | 58      |
| 722        | 58      |
| 723        | 58      |
| 726        | 59      |
| 727        | 59      |
| 729        | 59      |
| 730        | 59      |
| 731        | 60      |
| 734        | 60      |
| 735        | 60      |
| 736        | 60      |
| 744        | 61      |
| 752        | 61      |
| 753        | 61      |
| 754        | 61      |
| 801        | 63      |
| 802        | 63      |
| 803        | 64      |
| 804/804R   | 64      |
| 805        | 65      |
| 808        | 65      |
| 811        | 66      |
| 812        | 67      |
| 821        | 68      |
| 823        | 68      |
| 825        | 69      |
| 826        | 69      |
| 832        | 34      |
| 1002       | 136-137 |
| 1011       | 70      |
| 1016       | 71      |
| 1018       | 70      |
| 1021       | 73      |

| FIGURE NO. | PAGE  |
|------------|-------|
| 1025       | 72    |
| 1030       | 72    |
| 1101/1101R | 18    |
| 1102       | 19    |
| 1103       | 19    |
| 1104       | 20    |
| 1105       | 20    |
| 1105R      | 21-23 |
| 1106       | 24    |
| 1107       | 24    |
| 1108       | 24    |
| 1119       | 25    |
| 1121       | 25    |
| 1124       | 25    |
| 1125       | 26    |
| 1133       | 27    |
| 1134       | 27    |
| 1138       | 27    |
| 1160       | 28    |
| 1161/1161R | 28    |
| 1162       | 29    |
| 1163       | 32    |
| 1164/1164R | 29-30 |
| 1165       | 30    |
| 1166       | 31    |
| 1167       | 31    |
| 1170       | 29    |
| 1190       | 27    |
| 1502       | 138   |
| 1538       | 74    |
| 2101       | 91    |
| 2102       | 91    |
| 2103       | 92    |
| 2104       | 92    |
| 2111       | 93    |
| 2112       | 93    |
| 2113       | 94    |
| 2114       | 93    |
| 2115       | 94    |
| 2116       | 94    |
| 2117       | 95    |
| 2118       | 96    |
| 2119       | 95    |
| 2120       | 96    |
| 2121       | 110   |

| FIGURE NO. | PAGE    |
|------------|---------|
| 2122       | 110     |
| 2125       | 114     |
| 2126       | 114     |
| 2127       | 115     |
| 2128       | 115     |
| 2131       | 97      |
| 2132       | 97      |
| 2133       | 98      |
| 2134       | 97      |
| 2135       | 98      |
| 2136       | 98      |
| 2137       | 99      |
| 2138       | 100     |
| 2139       | 111     |
| 2140       | 111     |
| 2141       | 99      |
| 2142       | 110     |
| 2143       | 100     |
| 2150       | 101     |
| 2151       | 101     |
| 2152       | 102     |
| 2153       | 102     |
| 2158       | 103     |
| 2154       | 103     |
| 2155       | 104     |
| 2156       | 104     |
| 2157       | 105     |
| 2159       | 112-113 |
| 2170       | 106     |
| 2171       | 106     |
| 2172       | 107     |
| 2173       | 107     |
| 2174       | 108     |
| 2175       | 108     |
| 2176       | 109     |
| 2177       | 109     |
| 2178       | 107     |
| 2179       | 112-113 |
| J-3300     | 32      |
| S1A        | 139     |

# BRANDS OF ANVIL INTERNATIONAL



Anvil® product lines include malleable and cast iron fittings, unions and flanges; seamless and welded steel pipe nipples; steel pipe couplings; universal anvilets; forged steel fittings and unions; pipe hangers and supports; threaded rod; and engineered hangers.



The Gruvlok® product line consists of couplings for grooved and plain-end fittings, butterfly valves and check valves; flanges; pump protection components; pipe grooving tools; as well as copper and stainless steel system components.



Anvil-Strut™ products include a complete line of channel in stock lengths of 10 and 20 feet, with custom lengths available upon request. A variety of fittings and accessories are also offered. All products can be ordered in an assortment of finishes and material choices including SupR-Green™, Zinc Trivalent Chromium, pre-galvanized, hot-dipped galvanized, electro-galvanized, aluminum, plain, and stainless steel.



The Merit® product line includes a variety of tee-lets and drop nipples for fire protection applications. Most Merit products are UL/ULC Listed, FM Approved, and rated from 175 to 300 psi.



Catawissa™ NACE and API approved wing unions for Standard Service are offered in non-pressure seal ends as well as threaded and butt weld, and are interchangeable with most leading union manufacturers. Fully traceable and available with complete mill certifications, Catawissa's oilfield wing union product line includes the standard ball-and-cone design plus our unique Figure 300 Flat Face design, where space and pipe line separation are a consideration.



Founded in 1983, NAP is a manufacturer of fabrication equipment, including automatic welders, plasma cut-off equipment, hole cutting equipment, make-on machines and pipe threaders. NAP, innovators of pipe fabrication equipment.



The SPF/Anvil™ product line includes a variety of internationally sourced products such as grooved couplings, fittings, cast iron, malleable iron and ductile iron threaded fittings, steel pipe nipples, as well as tee-lets.



JB Smith™ is the leading manufacturer of oil country tubular fittings, swages and bull plugs – all meeting API specifications. Offering tubing nipples, casing nipples as well as a full line of traditional line pipe and oil country threads in every schedule, JB Smith is the resource for all your oilfield needs.



Steel pipe nipples and steel pipe couplings are manufactured in accordance with the ASTM A733 Standard Specification for Welded and Seamless Carbon Steel and Stainless Steel Pipe Nipples. Steel pipe couplings are manufactured in accordance with the ASTM A865 Standard Specification for Threaded Couplings, Steel, Black or Zinc-Coated (Galvanized) Welded or Seamless, for Use in Steel Pipe Joints. API couplings are manufactured in accordance with the API Specification for line pipe.



Canvil® manufactures low pressure hexagon reducer bushings, as well as plugs and hex caps up to 1" in diameter in various finishes including Oil Treat, Phosphate and Electro Galvanized. In addition, Canvil manufactures A105 hex or round material in class 3000 and 6000 pound, forged steel couplings and bar stock products offered as either as normalized (A105N) or non-normalized (A105) that are fully traceable for mechanicals and chemistry through our MTR program.



Anvil EPS-Engineered Pipe Supports are products used to support piping systems under thermal, seismic, and other dynamic loading conditions. The product line encompasses variable spring hangers, constant supports, sway struts and snubbers as well as standard and special design clamps. Anvil EPS brings the highest quality products and innovative engineering solutions to common and uncommon piping system problems.

## CORPORATE OFFICES

2 Holland Way  
Exeter, NH 03833  
Tel: 603-418-2800  
Fax: 603-418-2833  
E-mail: sales@anvilintl.com



## U.S. REGIONAL SERVICE CENTERS

### Northern Region

Regional Distribution & Customer Service Center  
750 Central Avenue, University Park, IL 60484  
Tel: 708-885-3000  
Fax: 708-534-5441  
Toll Free: 1-800-301-2701

### Southern Region

Regional Distribution & Customer Service Center  
1401 Valley View Lane, Suite 150, Irving, TX 75061  
Tel: 972-871-1206  
Fax: 972-641-8946  
Toll Free: 1-800-451-4414

## CANADA SERVICE CENTER

### Anvil International Canada

Customer Service Center  
390 Second Avenue, P.O. Box 40, Simcoe, Ontario N3Y 4K9  
Tel: 519-426-4551  
Fax: 519-426-5509

## INTERNATIONAL SALES

### Europe and Middle East Region

Rick van Meesen  
rvanmeesen@anvilintl.com  
Tel: +31-53-5725570  
Fax: +31-53-5725579

### Mexico, Puerto Rico and Latin America

International Customer Service  
Tel: +1-708-885-3000  
Fax: +1-708-534-5441

BUILDING CONNECTIONS THAT LAST

