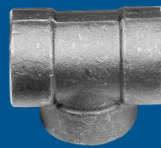
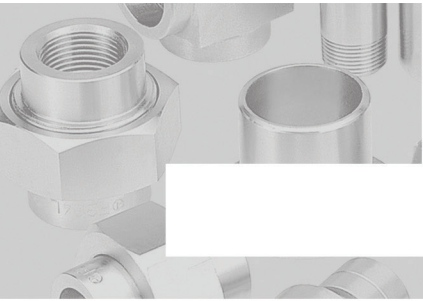


---

# Forged Fittings



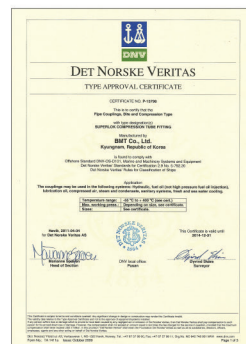
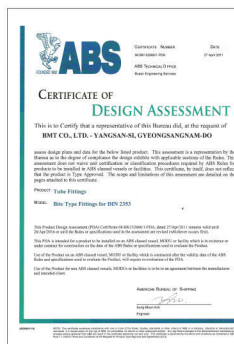
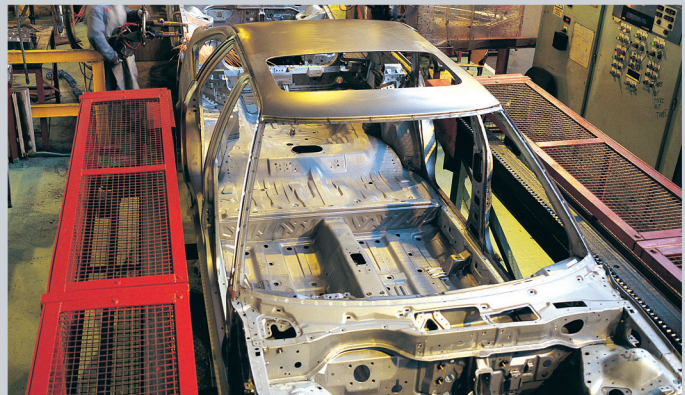


# High Technology Valve & Fitting Series

# FORGED FITTINGS

## Contents

|   |         |
|---|---------|
| Forged steel socket Welding fittings .....                    | 6 ~ 13  |
| Forged steel threaded fittings .....                          | 14 ~ 20 |
| Forged steel outlet fittings .....                            | 21 ~ 23 |
| Standard threads specifications .....                         | 24 ~ 25 |
| Comparison of astm specifications and similar standards ..... | 26      |
| Astm chemical composition .....                               | 27      |
| Wall thickness of welded and Seamless pipe .....              | 28 ~ 29 |
| ANSI Welding End Preparation .....                            | 30      |
| Condensate Pot .....  | 31      |





**SUPERLOK**  
is Best Quality Products



# FORGED STEEL SOCKET WELDING & THREADED FITTINGS

## 1. PRESSURE RATINGS

These fittings shall be designated as pressure class 2000, 3000 and 6000 fittings for threading and pressure class 3000, 6000 and 9000 for socket-welding. This designation identifies the fittings with their ratings as shown as follows, Table 1.

**Table 1 : Correlation of Fittings Class With Schedule Number of Wall Designation of Pipe for Calculation of Ratings**

| Pressure Class<br>Designation of Fitting | Type of Fitting | Pipe Used for Rating Basic |                  |
|--|-----------------|----------------------------|------------------|
|  |                 | Schedule NO.               | Wall Designation |
| 2000 lb                                  | Threaded        | 80                         | X-S              |
| 3000 lb                                  | Threaded        | 160                        | -                |
| 6000 lb                                  | Threaded        | -                          | XX-S             |
| 3000 lb                                  | Socket-Welding  | 80                         | X-S              |
| 6000 lb                                  | Socket-Welding  | 160                        | -                |
| 9000 lb                                  | Socket-Welding  | -                          | XX-S             |

• This table is not intended to restrict the use of pipe of thinner or thicker wall with fittings. Pipe actually used may be thinner or thicker in nominal wall than that shown in Table 1. When thinner is used its strength may govern the rating. When thicker pipe is used (e.g., for mechanical strength) the strength of the fitting governs the rating.

**Table 2 : Nominal wall thickness of Schedule 160 and Double Extra Strong Pipe.**

| NPS. | Schedule 160 |      | XX - S |      |
|------|--------------|------|--------|------|
|      | in           | mm   | in     | mm   |
| 1/8  | 0.124        | 3.15 | 0.190  | 4.83 |
| 1/4  | 0.145        | 3.68 | 0.230  | 6.05 |
| 3/8  | 0.158        | 4.01 | 0.252  | 6.40 |

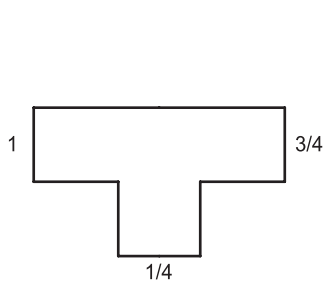
**Table 3 : Pressure/Temperature Ratings**

Non-shock Working Pressure in Pounds per Square Inch

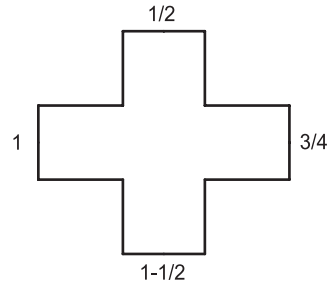
| Servic<br>Temperature<br>Degree °F | 2000lb Threaded Fittings |      |      |      |      | 3000lb Socket Welding<br>and Threaded Fittings |      |      |      |      | 6000lb Socket Welding<br>and Threaded Fittings |      |      |      |      |
|------------------------------------|--------------------------|------|------|------|------|--|------|------|------|------|--|------|------|------|------|
|                                    | Carbon<br>Steel          | F304 | F316 | F22  | F5   | Carbon<br>Steel                                | F304 | F316 | F22  | F5   | Carbon<br>Steel                                | F304 | F316 | F22  | F5   |
| 100                                | 2000                     | 1715 | 2000 | 2000 | 2000 | 3000   | 2570 | 3000 | 3000 | 3000 | 6000   | 5145 | 6000 | 6000 | 6000 |
| 150                                | 1970                     | 1615 | 1970 | 1970 | 1970 | 2950   | 2425 | 2950 | 2950 | 2950 | 5915   | 4855 | 5915 | 5915 | 5915 |
| 200                                | 1940                     | 1520 | 1940 | 1940 | 1940 | 2915   | 2280 | 2915 | 2915 | 2915 | 5830   | 4565 | 5830 | 5830 | 5830 |
| 250                                | 1915                     | 1445 | 1915 | 1915 | 1915 | 2875   | 2170 | 2975 | 2975 | 2975 | 5750   | 4340 | 5750 | 5750 | 5750 |
| 300                                | 1975                     | 1370 | 1896 | 1895 | 1896 | 2845   | 2055 | 2845 | 2845 | 2845 | 5690   | 4115 | 5690 | 5690 | 5690 |
| 350                                | 1875                     | 1310 | 1875 | 1875 | 1875 | 2810   | 1965 | 2810 | 2810 | 2810 | 5625   | 3930 | 5625 | 5625 | 5625 |
| 400                                | 1850                     | 1245 | 1850 | 1850 | 1850 | 2775   | 1870 | 2775 | 2775 | 2775 | 5550   | 3745 | 5550 | 5550 | 5550 |
| 450                                | 1810                     | 1195 | 1810 | 1710 | 1810 | 2715   | 1790 | 2715 | 2715 | 2715 | 5430   | 3585 | 5430 | 5430 | 5430 |
| 500                                | 1735                     | 1140 | 1735 | 1635 | 1735 | 2605   | 1715 | 2605 | 2605 | 2605 | 5210   | 3430 | 5210 | 5210 | 5210 |
| 550                                | 1640                     | 1100 | 1640 | 1540 | 1640 | 2460   | 1650 | 2460 | 2460 | 2460 | 4925   | 3305 | 4925 | 4925 | 4925 |
| 600                                | 1540                     | 1060 | 1540 | 1440 | 1540 | 2310   | 1590 | 2310 | 2310 | 2310 | 4620   | 3180 | 4620 | 4620 | 4620 |
| 650                                | 1430                     | 1020 | 1430 | 1330 | 1430 | 2150   | 1535 | 2150 | 2150 | 2150 | 4300   | 3070 | 4300 | 4300 | 4300 |
| 700                                | 1305                     | 985  | 1370 | 1240 | 1340 | 1960   | 1480 | 2055 | 2010 | 2010 | 3920   | 2960 | 4110 | 4025 | 4025 |
| 750                                | 1180                     | 950  | 1305 | 1145 | 1245 | 1775   | 1425 | 1960 | 1870 | 1870 | 3550   | 2850 | 3920 | 3745 | 3745 |
| 800                                | 1015                     | 915  | 1240 | 1055 | 1155 | 1525   | 1370 | 1865 | 1735 | 1735 | 3050   | 2745 | 3730 | 3470 | 3470 |
| 850                                | 830                      | 880  | 1180 | 1060 | 1060 | 1250   | 1330 | 1770 | 1595 | 1595 | 2500   | 2660 | 3540 | 3190 | 3190 |
| 900                                | 615                      | 860  | 1115 | 970  | 970  | 925  | 1290 | 1675 | 1455 | 1455 | 1885   | 2580 | 3350 | 2915 | 2915 |
| 950                                | 425                      | 845  | 1055 | 880  | 880  | 640  | 1270 | 1580 | 1320 | 1320 | 1295   | 2540 | 3165 | 2640 | 2640 |
| 1000                               | 235                      | 830  | 990  | 740  | 695  | 350  | 1250 | 1485 | 1115 | 1240 | 715  | 2500 | 2975 | 2230 | 2085 |

## 2. SIZE IDENTIFICATION

The size of a fitting is identified by the nominal pipe size. For reducing fittings, the size of the largest run opening is to be given first, followed by the size of the opening opposite of the same run. The branch size of a Tee is given last. Where the case is a Cross, the largest side-outlet is thirdly given, then the opening opposite



Tee  
1 x 3/4 x 1/4



Cross  
1-1/2 x 1/2 x 1 x 3/4

## 3. THREADS

Unless otherwise specified in inquiry, all threaded fittings are supplied with NPT threads (ANSI B2.1 American Standard. Taper Pipe Thread) for reference, other available threads are :

- ISO / R7, Pipe Threads for Gas List Tubes and Screwed Fittings where Pressure-tight Joints are made on the threads. (BS 2.1 & JIS B0203 PT Thread).
- API 5B, Line Pipe Threads.
- KS B0222 Taper Pipe Threads.

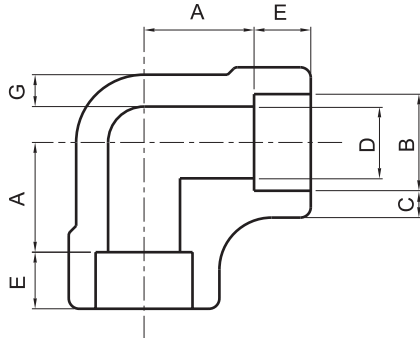
## 4. BORE DIAMETER OF FITTINGS

Bore Diameter of fitting are manufactured for conforming with KS. JIS ANSI or MSS dimension.

# FORGED STEEL SOCKET WELDING FITTINGS

## 90° ELBOW

3000# 6000# 9000#



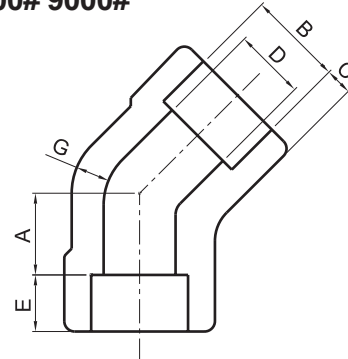
| 3000# (mm) |              | ANSI B16.11      |       |                |      |      |
|------------|--------------|------------------|-------|----------------|------|------|
| Pipe Size  | A            | B                | C     | D              | E    | G    |
| 1/8        | 12.0<br>10.0 | 10.90<br>10.65   | 3.20  | 7.6<br>6.1     | 10.0 | 2.40 |
| 1/4        | 12.0<br>10.0 | 14.35<br>14.10   | 3.80  | 10.0<br>8.5    | 10.0 | 3.00 |
| 3/8        | 15.0<br>12.0 | 17.80<br>17.55   | 4.00  | 13.3<br>11.8   | 10.0 | 3.20 |
| 1/2        | 17.0<br>14.0 | 21.95<br>21.70   | 4.65  | 16.6<br>15.0   | 10.0 | 3.75 |
| 3/4        | 21.0<br>18.0 | 27.30<br>27.05   | 4.90  | 21.7<br>20.2   | 13.0 | 3.90 |
| 1          | 24.0<br>20.0 | 34.05<br>33.80   | 5.70  | 27.4<br>25.9   | 13.0 | 4.55 |
| 1-1/4      | 29.0<br>25.0 | 42.80<br>42.55   | 6.05  | 35.8<br>34.3   | 13.0 | 4.85 |
| 1-1/2      | 34.0<br>30.0 | 48.90<br>48.65   | 6.35  | 41.7<br>40.1   | 13.0 | 5.10 |
| 2          | 40.0<br>36.0 | 61.35<br>61.10   | 6.95  | 53.5<br>51.7   | 16.0 | 5.55 |
| 2-1/2      | 44.0<br>39.0 | 74.20<br>73.80   | 8.75  | 64.2<br>61.2   | 16.0 | 7.00 |
| 3          | 60.0<br>55.0 | 90.15<br>89.80   | 9.50  | 79.5<br>76.4   | 16.0 | 7.60 |
| 4          | 69.0<br>64.0 | 115.80<br>115.45 | 10.70 | 103.8<br>100.7 | 19.0 | 8.55 |

| 6000# (mm) |              | ANSI B16.11    |       |              |      |      |
|------------|--------------|----------------|-------|--------------|------|------|
| Pipe Size  | A            | B              | C     | D            | E    | G    |
| 1/8        | 12.0<br>10.0 | 10.90<br>10.65 | 3.95  | 4.8<br>3.2   | 10.0 | 3.15 |
| 1/4        | 17.0<br>13.0 | 14.35<br>14.10 | 4.60  | 7.1<br>5.6   | 10.0 | 3.70 |
| 3/8        | 17.0<br>14.0 | 17.80<br>17.55 | 5.05  | 9.9<br>8.4   | 10.0 | 4.00 |
| 1/2        | 21.0<br>18.0 | 21.95<br>21.70 | 5.95  | 12.5<br>11.0 | 10.0 | 4.80 |
| 3/4        | 24.0<br>21.0 | 27.30<br>27.05 | 6.95  | 16.3<br>14.8 | 13.0 | 5.55 |
| 1          | 29.0<br>25.0 | 34.05<br>33.80 | 7.90  | 21.5<br>19.9 | 13.0 | 6.35 |
| 1-1/4      | 34.0<br>30.0 | 42.80<br>42.55 | 7.90  | 30.2<br>28.7 | 13.0 | 6.35 |
| 1-1/2      | 40.0<br>36.0 | 48.90<br>48.65 | 8.90  | 34.7<br>33.2 | 13.0 | 7.15 |
| 2          | 43.0<br>39.0 | 61.35<br>61.10 | 10.90 | 43.6<br>42.1 | 16.0 | 8.75 |

| 9000# (mm) |              | ANSI B16.11    |       |              |      |       |
|------------|--------------|----------------|-------|--------------|------|-------|
| Pipe Size  | A            | B              | C     | D            | E    | G     |
| 1/2        | 27.0<br>24.0 | 21.95<br>21.70 | 9.35  | 7.2<br>5.6   | 10.0 | 7.45  |
| 3/4        | 30.0<br>27.0 | 27.30<br>27.05 | 9.80  | 11.8<br>10.3 | 10.0 | 7.80  |
| 1          | 34.0<br>30.0 | 34.05<br>33.80 | 11.40 | 16.0<br>14.5 | 13.0 | 9.10  |
| 1-1/4      | 37.0<br>33.0 | 42.80<br>42.55 | 12.15 | 23.5<br>22.0 | 13.0 | 9.70  |
| 1-1/2      | 40.0<br>36.0 | 48.90<br>48.65 | 12.70 | 28.7<br>27.2 | 13.0 | 10.15 |
| 2          | 56.0<br>52.0 | 61.35<br>61.10 | 13.85 | 38.9<br>37.4 | 16.0 | 11.05 |

## 45° ELBOW

3000# 6000# 9000#



| 3000# (mm) |              | ANSI B16.11      |       |                |      |      |
|------------|--------------|------------------|-------|----------------|------|------|
| Pipe Size  | A            | B                | C     | D              | E    | G    |
| 1/8        | 9.0<br>7.0   | 10.90<br>10.65   | 3.20  | 7.6<br>6.1     | 10.0 | 2.40 |
| 1/4        | 9.0<br>7.0   | 14.35<br>14.10   | 3.80  | 10.0<br>8.5    | 10.0 | 3.00 |
| 3/8        | 9.0<br>6.0   | 17.80<br>17.55   | 4.00  | 13.3<br>11.8   | 10.0 | 3.20 |
| 1/2        | 13.0<br>10.0 | 21.95<br>21.70   | 4.65  | 16.6<br>15.0   | 10.0 | 3.75 |
| 3/4        | 14.0<br>11.0 | 27.30<br>27.05   | 4.90  | 21.7<br>20.2   | 13.0 | 3.90 |
| 1          | 16.0<br>12.0 | 34.05<br>33.80   | 5.70  | 27.4<br>25.9   | 13.0 | 4.55 |
| 1-1/4      | 19.0<br>15.0 | 42.80<br>42.55   | 6.05  | 35.8<br>34.3   | 13.0 | 4.85 |
| 1-1/2      | 23.0<br>19.0 | 48.90<br>48.65   | 6.35  | 41.7<br>40.1   | 13.0 | 5.10 |
| 2          | 27.0<br>23.0 | 61.35<br>61.10   | 6.95  | 53.5<br>51.7   | 16.0 | 5.55 |
| 2-1/2      | 31.0<br>27.0 | 74.20<br>73.80   | 8.75  | 64.2<br>61.2   | 16.0 | 7.00 |
| 3          | 34.0<br>29.0 | 90.15<br>89.80   | 9.50  | 79.5<br>76.4   | 16.0 | 7.60 |
| 4          | 44.0<br>39.0 | 115.80<br>115.45 | 10.70 | 103.8<br>100.7 | 19.0 | 8.55 |

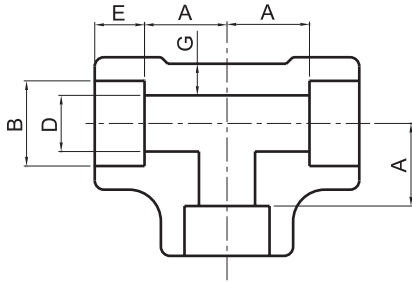
| 6000# (mm) |              | ANSI B16.11    |       |              |      |      |
|------------|--------------|----------------|-------|--------------|------|------|
| Pipe Size  | A            | B              | C     | D            | E    | G    |
| 1/8        | 9.0<br>7.0   | 10.90<br>10.65 | 3.95  | 4.8<br>3.2   | 10.0 | 3.15 |
| 1/4        | 9.0<br>7.0   | 14.35<br>14.10 | 4.60  | 7.1<br>5.6   | 10.0 | 3.70 |
| 3/8        | 13.0<br>10.0 | 17.80<br>17.55 | 5.05  | 9.9<br>8.4   | 10.0 | 4.00 |
| 1/2        | 14.0<br>11.0 | 21.95<br>21.70 | 5.95  | 12.5<br>11.0 | 10.0 | 4.80 |
| 3/4        | 16.0<br>13.0 | 27.30<br>27.05 | 6.95  | 16.3<br>14.8 | 13.0 | 5.55 |
| 1          | 19.0<br>15.0 | 34.05<br>33.80 | 7.90  | 21.5<br>19.9 | 13.0 | 6.35 |
| 1-1/4      | 23.0<br>19.0 | 42.80<br>42.55 | 7.90  | 30.2<br>28.7 | 13.0 | 6.35 |
| 1-1/2      | 27.0<br>23.0 | 48.90<br>48.65 | 8.90  | 34.7<br>33.2 | 13.0 | 7.15 |
| 2          | 31.0<br>27.0 | 61.35<br>61.10 | 10.90 | 43.6<br>42.1 | 16.0 | 8.75 |

| 9000# (mm) |              | ANSI B16.11    |       |              |      |       |
|------------|--------------|----------------|-------|--------------|------|-------|
| Pipe Size  | A            | B              | C     | D            | E    | G     |
| 1/2        | 17.0<br>14.0 | 21.95<br>21.70 | 9.35  | 7.2<br>5.6   | 10.0 | 7.45  |
| 3/4        | 21.0<br>17.0 | 27.30<br>27.05 | 9.80  | 11.8<br>10.3 | 10.0 | 7.80  |
| 1          | 23.0<br>19.0 | 34.05<br>33.80 | 11.40 | 16.0<br>14.5 | 13.0 | 9.10  |
| 1-1/4      | 24.0<br>20.0 | 42.80<br>42.55 | 12.15 | 23.5<br>22.0 | 13.0 | 9.70  |
| 1-1/2      | 28.0<br>23.0 | 48.90<br>48.65 | 12.70 | 28.7<br>27.2 | 13.0 | 10.15 |
| 2          | 31.0<br>26.0 | 61.35<br>61.10 | 13.85 | 38.9<br>37.4 | 16.0 | 11.05 |

# FORGED STEEL SOCKET WELDING FITTINGS

## TEE

3000# 6000# 9000#



3000# (mm) ANSI B16.11

| Pipe Size | A            | B                | C     | D              | E    | G    |
|-----------|--------------|------------------|-------|----------------|------|------|
| 1/8       | 12.0<br>10.0 | 10.90<br>10.65   | 3.20  | 7.6<br>6.1     | 10.0 | 2.40 |
| 1/4       | 12.0<br>10.0 | 14.35<br>14.10   | 3.80  | 10.0<br>8.5    | 10.0 | 3.00 |
| 3/8       | 15.0<br>12.0 | 17.80<br>17.55   | 4.00  | 13.3<br>11.8   | 10.0 | 3.20 |
| 1/2       | 17.0<br>14.0 | 21.95<br>21.70   | 4.65  | 16.6<br>15.0   | 10.0 | 3.75 |
| 3/4       | 21.0<br>18.0 | 27.30<br>27.05   | 4.90  | 21.7<br>20.2   | 13.0 | 3.90 |
| 1         | 24.0<br>20.0 | 34.05<br>33.80   | 5.70  | 27.4<br>25.9   | 13.0 | 4.55 |
| 1-1/4     | 29.0<br>25.0 | 42.80<br>42.55   | 6.05  | 35.8<br>34.3   | 13.0 | 4.85 |
| 1-1/2     | 34.0<br>30.0 | 48.90<br>48.65   | 6.35  | 41.7<br>40.1   | 13.0 | 5.10 |
| 2         | 40.0<br>36.0 | 61.35<br>61.10   | 6.95  | 53.5<br>51.7   | 16.0 | 5.55 |
| 2-1/2     | 44.0<br>39.0 | 74.20<br>73.80   | 8.75  | 64.2<br>61.2   | 16.0 | 7.00 |
| 3         | 60.0<br>55.0 | 90.15<br>89.80   | 9.50  | 79.5<br>76.4   | 16.0 | 7.60 |
| 4         | 69.0<br>64.0 | 115.80<br>115.45 | 10.70 | 103.8<br>100.7 | 19.0 | 8.55 |

6000# (mm) ANSI B16.11

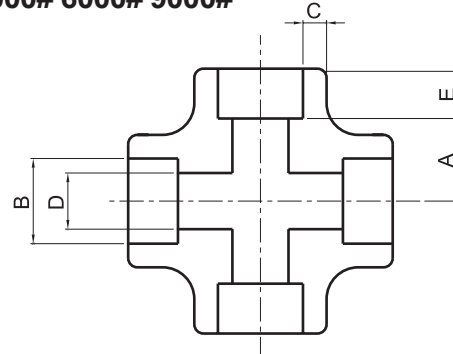
| Pipe Size | A            | B              | C     | D            | E    | G    |
|-----------|--------------|----------------|-------|--------------|------|------|
| 1/8       | 12.0<br>10.0 | 10.90<br>10.65 | 3.95  | 4.8<br>3.2   | 10.0 | 3.15 |
| 1/4       | 17.0<br>13.0 | 14.35<br>14.10 | 4.60  | 7.1<br>5.6   | 10.0 | 3.70 |
| 3/8       | 17.0<br>14.0 | 17.80<br>17.55 | 5.05  | 9.9<br>8.4   | 10.0 | 4.00 |
| 1/2       | 21.0<br>18.0 | 21.95<br>21.70 | 5.95  | 12.5<br>11.0 | 10.0 | 4.80 |
| 3/4       | 24.0<br>21.0 | 27.30<br>27.05 | 6.95  | 16.3<br>14.8 | 13.0 | 5.55 |
| 1         | 29.0<br>25.0 | 34.05<br>33.80 | 7.90  | 21.5<br>19.9 | 13.0 | 6.35 |
| 1-1/4     | 34.0<br>30.0 | 42.80<br>42.55 | 7.90  | 30.2<br>28.7 | 13.0 | 6.35 |
| 1-1/2     | 40.0<br>36.0 | 48.90<br>48.65 | 8.90  | 34.7<br>33.2 | 13.0 | 7.15 |
| 2         | 43.0<br>39.0 | 61.35<br>61.10 | 10.90 | 43.6<br>42.1 | 16.0 | 8.75 |

9000# (mm) ANSI B16.11

| Pipe Size | A            | B              | C     | D            | E    | G     |
|-----------|--------------|----------------|-------|--------------|------|-------|
| 1/2       | 27.0<br>24.0 | 21.95<br>21.70 | 9.35  | 7.2<br>5.6   | 10.0 | 7.45  |
| 3/4       | 30.0<br>27.0 | 27.30<br>27.05 | 9.80  | 11.8<br>10.3 | 13.0 | 7.80  |
| 1         | 34.0<br>30.0 | 34.05<br>33.80 | 11.40 | 16.0<br>14.5 | 13.0 | 9.10  |
| 1-1/4     | 37.0<br>33.0 | 42.80<br>42.55 | 12.15 | 23.5<br>22.0 | 13.0 | 9.70  |
| 1-1/2     | 40.0<br>36.0 | 48.90<br>48.65 | 12.70 | 28.7<br>27.2 | 13.0 | 10.15 |
| 2         | 56.0<br>52.0 | 61.35<br>61.10 | 13.85 | 38.9<br>37.4 | 16.0 | 11.05 |

## CROSS

3000# 6000# 9000#



3000# (mm) ANSI B16.11

| Pipe Size | A            | B                | C     | D              | E    |
|-----------|--------------|------------------|-------|----------------|------|
| 1/8       | 12.0<br>10.0 | 10.90<br>10.65   | 3.20  | 7.6<br>6.1     | 10.0 |
| 1/4       | 12.0<br>10.0 | 14.35<br>14.10   | 3.80  | 10.0<br>8.5    | 10.0 |
| 3/8       | 15.0<br>12.0 | 17.80<br>17.55   | 4.00  | 13.3<br>11.8   | 10.0 |
| 1/2       | 17.0<br>14.0 | 21.95<br>21.70   | 4.65  | 16.6<br>15.0   | 10.0 |
| 3/4       | 21.0<br>18.0 | 27.30<br>27.05   | 4.90  | 21.7<br>20.2   | 13.0 |
| 1         | 24.0<br>20.0 | 34.05<br>33.80   | 5.70  | 27.4<br>25.9   | 13.0 |
| 1-1/4     | 29.0<br>25.0 | 42.80<br>42.55   | 6.05  | 35.8<br>34.3   | 13.0 |
| 1-1/2     | 34.0<br>30.0 | 48.90<br>48.65   | 6.35  | 41.7<br>40.1   | 13.0 |
| 2         | 40.0<br>36.0 | 61.35<br>61.10   | 6.95  | 53.5<br>51.7   | 16.0 |
| 2-1/2     | 44.0<br>39.0 | 74.20<br>73.80   | 8.75  | 64.2<br>61.2   | 16.0 |
| 3         | 60.0<br>55.0 | 90.15<br>89.80   | 9.50  | 79.5<br>76.4   | 16.0 |
| 4         | 69.0<br>64.0 | 115.80<br>115.45 | 10.70 | 103.8<br>100.7 | 19.0 |

6000# (mm) ANSI B16.11

| Pipe Size | A            | B              | C     | D            | E    |
|-----------|--------------|----------------|-------|--------------|------|
| 1/8       | 12.0<br>10.0 | 10.90<br>10.65 | 3.95  | 4.8<br>3.2   | 10.0 |
| 1/4       | 17.0<br>13.0 | 14.35<br>14.10 | 4.60  | 7.1<br>5.6   | 10.0 |
| 3/8       | 17.0<br>14.0 | 17.80<br>17.55 | 5.05  | 9.9<br>8.4   | 10.0 |
| 1/2       | 21.0<br>18.0 | 21.95<br>21.70 | 5.95  | 12.5<br>11.0 | 10.0 |
| 3/4       | 24.0<br>21.0 | 27.30<br>27.05 | 6.95  | 16.3<br>14.8 | 13.0 |
| 1         | 29.0<br>25.0 | 34.05<br>33.80 | 7.90  | 21.5<br>19.9 | 13.0 |
| 1-1/4     | 34.0<br>30.0 | 42.80<br>42.55 | 7.90  | 30.2<br>28.7 | 13.0 |
| 1-1/2     | 40.0<br>36.0 | 48.90<br>48.65 | 8.90  | 34.7<br>33.2 | 13.0 |
| 2         | 43.0<br>39.0 | 61.35<br>61.10 | 10.90 | 43.6<br>42.1 | 16.0 |

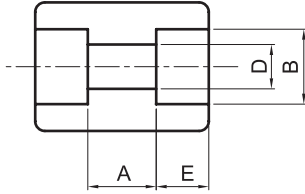
9000# (mm) ANSI B16.11

| Pipe Size | A            | B              | C     | D            | E    |
|-----------|--------------|----------------|-------|--------------|------|
| 1/2       | 27.0<br>24.0 | 21.95<br>21.70 | 9.35  | 7.2<br>5.6   | 10.0 |
| 3/4       | 30.0<br>27.0 | 27.30<br>27.05 | 9.80  | 11.8<br>10.3 | 10.0 |
| 1         | 34.0<br>30.0 | 34.05<br>33.80 | 11.40 | 16.0<br>14.5 | 13.0 |
| 1-1/4     | 37.0<br>33.0 | 42.80<br>42.55 | 12.15 | 23.5<br>22.0 | 13.0 |
| 1-1/2     | 40.0<br>36.0 | 48.90<br>48.65 | 12.70 | 28.7<br>27.2 | 13.0 |
| 2         | 56.0<br>52.0 | 61.35<br>61.10 | 13.85 | 38.9<br>37.4 | 16.0 |

# FORGED STEEL SOCKET WELDING FITTINGS

## FULL COUPLING

3000# 6000# 9000#



3000# (MM) ANSI B16.11

| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/8       | 8.0  | 10.90  | 7.6   | 10.0 |
|           | 5.0  | 10.65  | 6.1   |      |
| 1/4       | 8.0  | 14.35  | 10.0  | 10.0 |
|           | 5.0  | 14.10  | 8.5   |      |
| 3/8       | 9.0  | 17.80  | 13.3  | 10.0 |
|           | 3.0  | 17.55  | 11.8  |      |
| 1/2       | 13.0 | 21.95  | 16.6  | 10.0 |
|           | 6.0  | 21.70  | 15.0  |      |
| 3/4       | 13.0 | 27.30  | 21.7  | 13.0 |
|           | 6.0  | 27.05  | 20.2  |      |
| 1         | 17.0 | 34.05  | 27.4  | 13.0 |
|           | 9.0  | 33.80  | 25.9  |      |
| 1-1/4     | 17.0 | 42.80  | 35.8  | 13.0 |
|           | 9.0  | 42.55  | 34.3  |      |
| 1-1/2     | 17.0 | 48.90  | 41.7  | 13.0 |
|           | 9.0  | 48.65  | 40.1  |      |
| 2         | 23.0 | 61.35  | 53.5  | 16.0 |
|           | 15.0 | 61.10  | 51.7  |      |
| 2-1/2     | 24.0 | 74.20  | 64.2  | 16.0 |
|           | 14.0 | 73.80  | 61.2  |      |
| 3         | 24.0 | 90.15  | 79.5  | 16.0 |
|           | 14.0 | 89.80  | 76.4  |      |
| 4         | 24.0 | 115.80 | 103.8 | 19.0 |
|           | 14.0 | 115.45 | 100.7 |      |

6000# (MM) ANSI B16.11

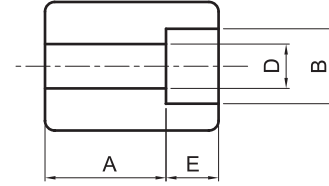
| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/2       | 13.0 | 21.95  | 12.5  | 10.0 |
|           | 6.0  | 21.70  | 11.0  |      |
| 3/4       | 13.0 | 27.30  | 16.3  | 13.0 |
|           | 6.0  | 27.05  | 14.8  |      |
| 1         | 17.0 | 34.05  | 21.5  | 13.0 |
|           | 9.0  | 33.80  | 19.9  |      |
| 1-1/4     | 17.0 | 42.80  | 30.2  | 13.0 |
|           | 9.0  | 42.55  | 28.7  |      |
| 1-1/2     | 17.0 | 48.90  | 34.7  | 13.0 |
|           | 9.0  | 48.65  | 33.2  |      |
| 2         | 23.0 | 61.35  | 43.6  | 16.0 |
|           | 15.0 | 61.10  | 42.1  |      |
| 2-1/2     | 24.0 | 74.20  | 64.2  | 16.0 |
|           | 14.0 | 73.80  | 61.2  |      |
| 3         | 24.0 | 90.15  | 79.5  | 16.0 |
|           | 14.0 | 89.80  | 76.4  |      |
| 4         | 24.0 | 115.80 | 103.8 | 19.0 |
|           | 14.0 | 115.45 | 100.7 |      |

9000# (MM) ANSI B16.11

| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/2       | 13.0 | 21.95  | 7.2   | 10.0 |
|           | 6.0  | 21.70  | 5.6   |      |
| 3/4       | 13.0 | 27.30  | 11.8  | 13.0 |
|           | 6.0  | 27.05  | 10.3  |      |
| 1         | 17.0 | 34.05  | 16.0  | 13.0 |
|           | 9.0  | 33.80  | 14.5  |      |
| 1-1/4     | 17.0 | 42.80  | 23.5  | 13.0 |
|           | 9.0  | 42.55  | 22.0  |      |
| 1-1/2     | 17.0 | 48.90  | 28.7  | 13.0 |
|           | 9.0  | 48.65  | 27.2  |      |
| 2         | 23.0 | 61.35  | 38.9  | 16.0 |
|           | 15.0 | 61.10  | 37.4  |      |
| 2-1/2     | 24.0 | 74.20  | 64.2  | 16.0 |
|           | 14.0 | 73.80  | 61.2  |      |
| 3         | 24.0 | 90.15  | 79.5  | 16.0 |
|           | 14.0 | 89.80  | 76.4  |      |
| 4         | 24.0 | 115.80 | 103.8 | 19.0 |
|           | 14.0 | 115.45 | 100.7 |      |

## HALF COUPLING

3000# 6000# 9000#



3000# (MM) ANSI B16.11

| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/8       | 17.0 | 10.90  | 7.6   | 10.0 |
|           | 15.0 | 10.65  | 6.1   |      |
| 1/4       | 17.0 | 14.35  | 10.0  | 10.0 |
|           | 15.0 | 14.10  | 8.5   |      |
| 3/8       | 19.0 | 17.80  | 13.3  | 10.0 |
|           | 16.0 | 17.55  | 11.8  |      |
| 1/2       | 24.0 | 21.95  | 16.6  | 10.0 |
|           | 21.0 | 21.70  | 15.0  |      |
| 3/4       | 25.0 | 27.30  | 21.7  | 13.0 |
|           | 22.0 | 27.05  | 20.2  |      |
| 1         | 31.0 | 34.05  | 27.4  | 13.0 |
|           | 27.0 | 33.80  | 25.9  |      |
| 1-1/4     | 32.0 | 42.80  | 35.8  | 13.0 |
|           | 28.0 | 42.55  | 34.3  |      |
| 1-1/2     | 34.0 | 48.90  | 41.7  | 13.0 |
|           | 30.0 | 48.65  | 40.1  |      |
| 2         | 43.0 | 61.35  | 53.5  | 16.0 |
|           | 39.0 | 61.10  | 51.7  |      |
| 2-1/2     | 45.0 | 74.20  | 64.2  | 16.0 |
|           | 40.0 | 73.80  | 61.2  |      |
| 3         | 47.0 | 90.15  | 79.5  | 16.0 |
|           | 42.0 | 89.80  | 76.4  |      |
| 4         | 50.0 | 115.80 | 103.8 | 19.0 |
|           | 45.0 | 115.45 | 100.7 |      |

6000# (MM) ANSI B16.11

| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/2       | 24.0 | 21.95  | 12.5  | 10.0 |
|           | 21.0 | 21.70  | 11.0  |      |
| 3/4       | 25.0 | 27.30  | 16.3  | 13.0 |
|           | 22.0 | 27.05  | 14.8  |      |
| 1         | 31.0 | 34.05  | 21.5  | 13.0 |
|           | 27.0 | 33.80  | 19.9  |      |
| 1-1/4     | 32.0 | 42.80  | 30.2  | 13.0 |
|           | 28.0 | 42.55  | 28.7  |      |
| 1-1/2     | 34.0 | 48.90  | 34.7  | 13.0 |
|           | 30.0 | 48.65  | 33.2  |      |
| 2         | 43.0 | 61.35  | 43.6  | 16.0 |
|           | 39.0 | 61.10  | 42.1  |      |
| 2-1/2     | 45.0 | 74.20  | 64.2  | 16.0 |
|           | 40.0 | 73.80  | 61.2  |      |
| 3         | 47.0 | 90.15  | 79.5  | 16.0 |
|           | 42.0 | 89.80  | 76.4  |      |
| 4         | 50.0 | 115.80 | 103.8 | 19.0 |
|           | 45.0 | 115.45 | 100.7 |      |

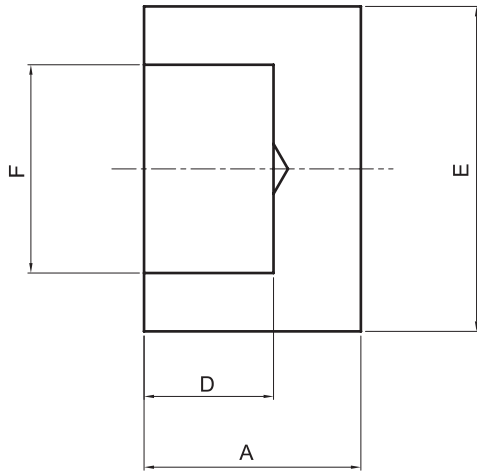
9000# (MM) ANSI B16.11

| Pipe Size | A    | B      | D     | E    |
|-----------|------|--------|-------|------|
| 1/2       | 24.0 | 21.95  | 7.2   | 10.0 |
|           | 21.0 | 21.70  | 5.6   |      |
| 3/4       | 25.0 | 27.30  | 11.8  | 13.0 |
|           | 22.0 | 27.05  | 10.3  |      |
| 1         | 31.0 | 34.05  | 16.0  | 13.0 |
|           | 27.0 | 33.80  | 14.5  |      |
| 1-1/4     | 32.0 | 42.80  | 23.5  | 13.0 |
|           | 28.0 | 42.55  | 22.0  |      |
| 1-1/2     | 34.0 | 48.90  | 28.7  | 13.0 |
|           | 30.0 | 48.65  | 27.2  |      |
| 2         | 43.0 | 61.35  | 38.9  | 16.0 |
|           | 39.0 | 61.10  | 37.4  |      |
| 2-1/2     | 45.0 | 74.20  | 64.2  | 16.0 |
|           | 40.0 | 73.80  | 61.2  |      |
| 3         | 47.0 | 90.15  | 79.5  | 16.0 |
|           | 42.0 | 89.80  | 76.4  |      |
| 4         | 50.0 | 115.80 | 103.8 | 19.0 |
|           | 45.0 | 115.45 | 100.7 |      |

# FORGED STEEL SOCKET WELDING FITTINGS

## CAP

3000# 6000#



3000# (mm)

ANSI B16.11

| Nom Size | A    | B     | F     | D    | Unit Weight(kg) |
|----------|------|-------|-------|------|-----------------|
| 1/4      | 16.0 | 22.0  | 14.3  | 9.5  | 0.04            |
| 3/8      | 16.0 | 25.5  | 17.8  | 9.5  | 0.05            |
| 1/2      | 17.5 | 31.5  | 22.2  | 9.5  | 0.07            |
| 3/4      | 22.5 | 37.0  | 27.7  | 13.0 | 0.13            |
| 1        | 29.0 | 45.5  | 34.5  | 13.0 | 0.21            |
| 1-1/4    | 29.0 | 55.0  | 43.2  | 13.0 | 0.37            |
| 1-1/2    | 32.0 | 61.5  | 49.1  | 13.0 | 0.60            |
| 2        | 42.0 | 75.0  | 61.1  | 16.0 | 0.99            |
| 2-1/2    | 42.0 | 91.5  | 77.1  | 16.0 | 1.50            |
| 3        | 42.0 | 109.0 | 90.1  | 16.0 | 2.30            |
| 4        | 50.0 | 138.0 | 115.3 | 20.0 | 4.00            |

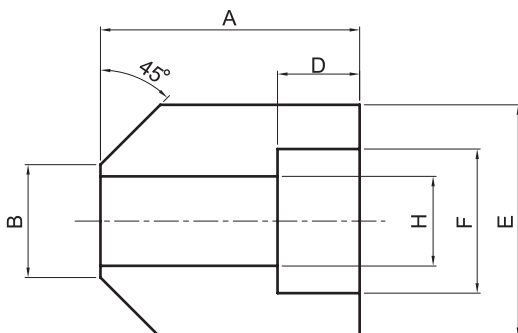
6000# (mm)

ANSI B16.11

| Nom Size | A    | B     | F     | D    | Unit Weight(kg) |
|----------|------|-------|-------|------|-----------------|
| 1/4      | 18.0 | 23.0  | 14.3  | 9.5  | 0.04            |
| 3/8      | 18.0 | 26.5  | 17.8  | 9.5  | 0.06            |
| 1/2      | 25.5 | 34.0  | 22.2  | 9.5  | 0.15            |
| 3/4      | 32.0 | 41.0  | 27.7  | 13.0 | 0.27            |
| 1        | 35.5 | 50.0  | 34.5  | 13.0 | 0.45            |
| 1-1/4    | 39.0 | 58.5  | 43.2  | 13.0 | 0.67            |
| 1-1/2    | 40.0 | 66.5  | 49.1  | 13.0 | 0.89            |
| 2        | 50.0 | 83.0  | 61.1  | 16.0 | 1.75            |
| 2-1/2    | 55.0 | 98.0  | 77.1  | 16.0 | 2.66            |
| 3        | 60.0 | 118.0 | 90.1  | 16.0 | 4.33            |
| 4        | 70.0 | 149.0 | 115.3 | 20.0 | 7.91            |

## BOSS

3000# 6000#



3000# / 6000# (mm)

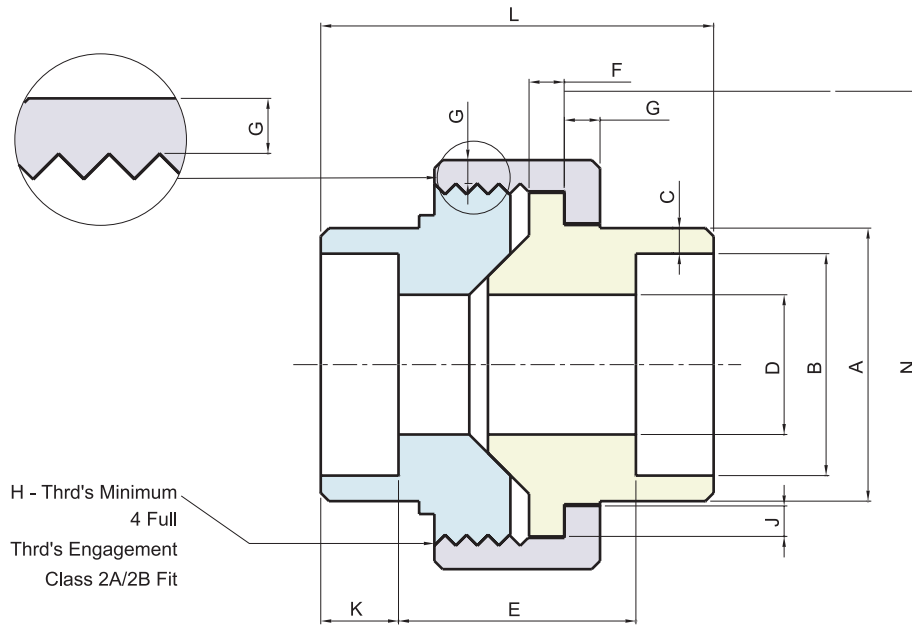
ANSI B16.11

| Nom Size | A  | B  | E  | D  | F    | H  | Unit Weight(kg) |
|----------|----|----|----|----|------|----|-----------------|
| 1/4      | 30 | 18 | 32 | 10 | 14.3 | 8  | 0.09            |
| 3/8      | 30 | 21 | 35 | 10 | 17.8 | 11 | 0.11            |
| 1/2      | 33 | 24 | 38 | 10 | 22.2 | 15 | 0.14            |
| 3/4      | 35 | 27 | 45 | 13 | 27.7 | 19 | 0.20            |
| 1        | 43 | 34 | 57 | 13 | 34.5 | 25 | 0.43            |
| 1-1/4    | 46 | 42 | 67 | 13 | 43.2 | 33 | 0.72            |
| 1-1/2    | 50 | 49 | 76 | 13 | 49.1 | 39 | 0.85            |
| 2        | 57 | 61 | 89 | 16 | 61.1 | 50 | 1.36            |

# FORGED STEEL SOCKET WELDING FITTINGS

## UNION

3000#



MSS SP-83

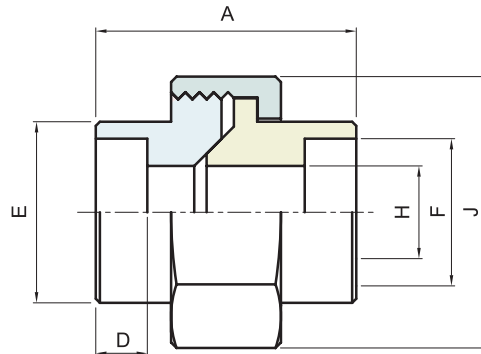
(mm)

| Pipe Size | Pipe End Min. A | Socket Bore Dia. B | Socket Wall Min. C | Water Way Bore D | Laying Length E | Male Flange Min. F | Nut Min. G | Thrd's Per 25.4 Max. H | Bearing Min. J | Depth Of Socket Min. K | Length Assem. Nominal L | Clear Assem. Nut N |
|-----------|-----------------|--------------------|--------------------|------------------|-----------------|--------------------|------------|------------------------|----------------|------------------------|-------------------------|--------------------|
| 1/8       | 21.8            | 10.92<br>10.67     | 3.17               | 6.83<br>6.43     | 22.4<br>19.0    | 3.17               | 3.17       | 16                     | 1.24           | 9.6                    | 41.1                    | 49.0               |
| 1/4       | 21.8            | 14.22<br>13.97     | 3.30               | 9.85<br>9.45     | 22.4<br>19.0    | 3.17               | 3.17       | 16                     | 1.24           | 9.6                    | 41.4                    | 49.0               |
| 3/8       | 25.9            | 17.78<br>17.53     | 3.48               | 13.92<br>13.51   | 26.9<br>20.6    | 3.43               | 3.43       | 14                     | 1.37           | 9.6                    | 46.0                    | 55.0               |
| 1/2       | 31.2            | 21.84<br>21.59     | 4.06               | 17.47<br>17.07   | 26.9<br>20.6    | 3.68               | 3.68       | 14                     | 1.50           | 9.6                    | 49.0                    | 57.0               |
| 3/4       | 37.1            | 27.18<br>26.92     | 4.27               | 21.79<br>21.39   | 31.8<br>25.4    | 4.06               | 4.06       | 11                     | 1.68           | 12.7                   | 56.9                    | 67.0               |
| 1         | 45.5            | 34.04<br>33.78     | 4.95               | 28.14<br>27.74   | 34.3<br>26.2    | 4.57               | 4.44       | 11                     | 1.85           | 12.7                   | 62.0                    | 79.0               |
| 1-1/4     | 54.9            | 42.67<br>42.42     | 5.28               | 35.76<br>35.39   | 40.6<br>32.5    | 5.33               | 5.21       | 11                     | 2.13           | 12.7                   | 71.1                    | 94.0               |
| 1-1/2     | 61.5            | 48.77<br>48.51     | 5.54               | 41.61<br>41.20   | 42.2<br>34.0    | 5.84               | 5.59       | 10                     | 2.31           | 12.7                   | 76.5                    | 111.0              |
| 2         | 75.2            | 61.47<br>61.21     | 6.05               | 52.53<br>52.12   | 45.5<br>37.3    | 6.60               | 6.35       | 10                     | 2.69           | 15.8                   | 86.1                    | 132.0              |
| 2-1/2     | 91.7            | 74.17<br>73.66     | 7.65               | 64.72<br>64.31   | 61.7<br>52.1    | 7.49               | 7.11       | 8                      | 3.07           | 15.8                   | 102.4                   | 148.0              |
| 3         | 109.2           | 90.17<br>89.66     | 8.31               | 77.67<br>77.27   | 63.8<br>53.6    | 8.25               | 8.00       | 8                      | 3.53           | 15.8                   | 109.0                   | 175.0              |

# FORGED STEEL SOCKET WELDING FITTINGS

## UNION

3000# 6000#



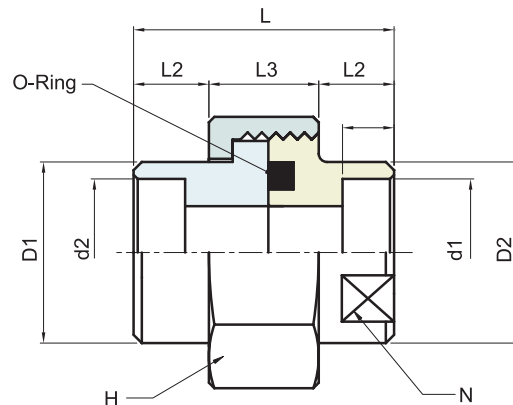
STANDARD

(mm)

| Nom Size | A    |      | B    |      | E    |      | F    |      | H    |      | J (Flat) |      | unit weight (kg) |      |
|----------|------|------|------|------|------|------|------|------|------|------|----------|------|------------------|------|
|          | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | 3000     | 6000 | 3000             | 6000 |
| 1/4      | 45   | 51   | 9.5  | 9.5  | 21   | 24.5 | 14.3 | 14.3 | 7.8  | 6.5  | 32       | 38   | 0.23             | 0.25 |
| 3/8      | 51   | 54   | 9.5  | 9.5  | 24.5 | 31.5 | 17.8 | 17.8 | 10.9 | 9    | 38       | 46   | 0.35             | 0.42 |
| 1/2      | 54   | 57   | 9.5  | 9.5  | 31.5 | 41.5 | 22.2 | 22.2 | 14.9 | 12.3 | 46       | 51   | 0.40             | 0.85 |
| 3/4      | 57   | 64   | 13   | 13   | 37.5 | 41.5 | 27.7 | 27.7 | 19.4 | 16.2 | 51       | 60   | 0.50             | 1.00 |
| 1        | 64   | 72   | 13   | 13   | 44.5 | 48.8 | 34.5 | 34.5 | 25.0 | 21.2 | 60       | 72   | 0.70             | 1.30 |
| 1-1/4    | 72   | 80   | 13   | 13   | 54   | 56   | 43.2 | 43.2 | 32.9 | 29.9 | 72       | 77   | 1.20             | 2.00 |
| 1-1/2    | 80   | 89   | 13   | 13   | 61.5 | 69   | 49.1 | 49.1 | 38.4 | 34.4 | 80       | 94   | 1.50             | 3.80 |
| 2        | 89   | 110  | 16   | 16   | 74.5 | 90   | 61.1 | 61.1 | 49.5 | 43.1 | 94       | 120  | 2.58             | 6.40 |

## UNION (O-RING TYPE)

3000#



Rating Pressure : 210kg/cm<sup>2</sup>  
Temperature : 120°C MAX

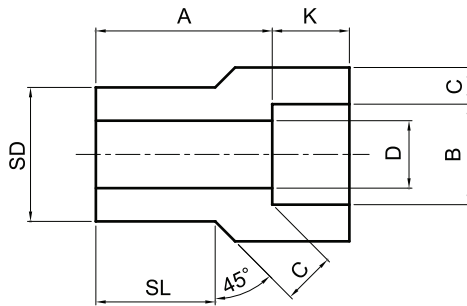
(mm)

| Nom Size | d1 | d2   | D1 | D2 | L1 | L2 | L3 | L  | N  | H     | O-RING |
|----------|----|------|----|----|----|----|----|----|----|-------|--------|
| 1/4      | 10 | 14.3 | 22 | 24 | 10 | 10 | 18 | 38 | 21 | 35HEX | P18    |
| 3/8      | 12 | 17.8 | 27 | 30 | 10 | 10 | 18 | 38 | 26 | 41HEX | P20    |
| 1/2      | 16 | 22.2 | 32 | 35 | 12 | 12 | 20 | 44 | 32 | 46HEX | G25    |
| 3/4      | 20 | 27.7 | 37 | 41 | 12 | 12 | 26 | 50 | 38 | 54HEX | G30    |
| 1        | 25 | 34.5 | 44 | 48 | 15 | 15 | 26 | 56 | 44 | 63HEX | G35    |
| 1-1/4    | 32 | 43.2 | 54 | 58 | 15 | 15 | 30 | 60 | 54 | 75HEX | G45    |
| 1-1/2    | 38 | 49.1 | 63 | 65 | 18 | 18 | 36 | 72 | 60 | 80HEX | G50    |
| 2        | 48 | 61.1 | 76 | 80 | 18 | 18 | 36 | 72 | 75 | 95HEX | G65    |

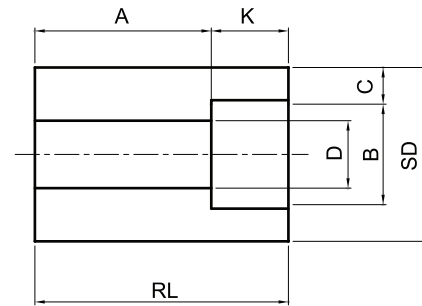
# FORGED STEEL SOCKET WELDING FITTINGS

## REDUCER INSERT

**3000# 6000#**



Type 1



Type 2

MSS SP-79

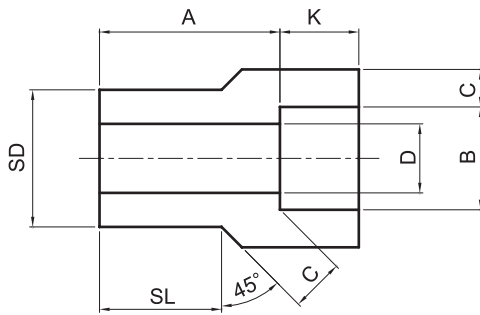
(mm)

| Pipe Size                                       | Type |      | Socket |              | Shank Dia. SD | Laying Length A |      | Bore D |       | Wall Min. C |      | Length Min. |       |       |       |       |
|---|------|------|--------|--------------|---------------|-----------------|------|--------|-------|-------------|------|-------------|-------|-------|-------|-------|
|   |      |      | Dia. B | Depth Min. K |               | 3000            | 6000 | 3000   | 6000  | 3000        | 6000 | SL          |       | RL    |       |       |
|   | 3000 | 6000 | 3000   | 6000         | 3000          |                 |      |        |       |             |      | 6000        | 3000  | 6000  | 3000  | 6000  |
| 3/8 x 1/4                                       | 1    | 1    | 14.22  | 9.52         | 17.14         | 19.0            | 20.6 | 9.14   | 6.35  | 3.78        | 4.60 | 14.22       | 15.75 |       |       |       |
| 1/2 x 3/8<br>x 1/4                              | 1    | 1    | 17.65  | 9.52         | 21.34         | 20.6            | 22.2 | 12.45  | 9.14  | 4.01        | 5.03 | 15.75       | 17.27 |       |       |       |
|   | 1    | 1    | 14.22  | 9.52         | 21.34         | 15.8            | 20.6 | 9.14   | 6.35  | 3.78        | 4.60 | 17.27       | 17.27 |       |       |       |
| 3/4 x 1/2<br>x 3/8<br>x 1/4                     | 1    | 1    | 21.84  | 9.52         | 26.67         | 22.2            | 25.4 | 15.75  | 11.68 | 4.67        | 5.97 | 17.53       | 19.05 |       |       |       |
|   | 2    | 1    | 17.65  | 9.52         | 26.67         | 15.8            | 22.2 | 12.45  | 9.14  | 4.01        | 5.03 |             | 19.05 | 26.92 |       |       |
|   | 2    | 2    | 14.22  | 9.52         | 26.67         | 17.5            | 22.2 | 9.14   | 6.35  | 3.78        | 4.60 |             | 26.92 | 29.97 |       |       |
| 1 x 3/4<br>x 1/2<br>x 3/8<br>x 1/4              | 1    | 1    | 27.18  | 12.70        | 33.35         | 23.8            | 28.5 | 20.83  | 15.49 | 4.90        | 6.96 | 19.05       | 20.57 |       |       |       |
|   | 2    | 1    | 21.84  | 9.52         | 33.35         | 15.8            | 20.6 | 15.75  | 11.68 | 4.67        | 5.97 |             | 20.57 | 28.45 |       |       |
|   | 2    | 2    | 17.65  | 9.52         | 33.35         | 17.5            | 22.2 | 12.45  | 9.14  | 4.01        | 5.03 |             | 28.45 | 33.27 |       |       |
|   | 2    | 2    | 14.22  | 9.52         | 33.35         | 19.0            | 23.8 | 9.14   | 6.35  | 3.78        | 4.60 |             | 28.45 | 33.27 |       |       |
| 1-1/4 x 1<br>x 3/4<br>x 1/2<br>x 3/8<br>x 1/4   | 1    | 1    | 33.86  | 12.70        | 42.16         | 25.4            | 30.2 | 26.67  | 20.57 | 5.69        | 7.92 | 20.57       | 22.35 |       |       |       |
|   | 2    | 2    | 27.18  | 12.70        | 42.16         | 17.5            | 20.6 | 20.88  | 15.49 | 4.90        | 6.69 |             |       |       |       | 31.75 |
|   | 2    | 2    | 21.84  | 9.52         | 42.16         | 19.0            | 22.2 | 15.75  | 11.68 | 4.67        | 5.97 |             |       | 31.75 | 34.80 |       |
|   | 2    | 2    | 17.65  | 9.52         | 42.16         | 20.6            | 23.8 | 12.45  | 9.14  | 4.01        | 5.03 |             |       | 31.75 | 34.80 |       |
|   | 2    | 2    | 14.22  | 9.52         | 42.16         | 22.2            | 25.4 | 9.14   | 6.35  | 3.78        | 4.60 |             |       | 31.75 | 34.80 |       |
| 1-1/2 x 1-1/4<br>x 1<br>x 3/4<br>x 1/2<br>x 3/8 | 1    | 1    | 42.67  | 12.70        | 48.26         | 28.5            | 35.1 | 25.05  | 29.46 | 6.07        | 7.92 | 22.22       | 25.40 |       |       |       |
|   | 2    | 1    | 33.86  | 12.70        | 48.26         | 17.5            | 28.5 | 26.67  | 20.57 | 5.69        | 7.92 |             |       | 25.40 | 33.27 |       |
|   | 2    | 2    | 27.18  | 12.70        | 48.26         | 19.0            | 25.4 | 20.83  | 15.49 | 4.90        | 6.96 |             | 33.27 | 39.62 |       |       |
|   | 2    | 2    | 21.84  | 9.52         | 48.26         | 20.6            | 26.9 | 15.75  | 11.68 | 4.67        | 5.97 |             | 33.27 | 39.62 |       |       |
|   | 2    | 2    | 17.65  | 9.52         | 48.26         | 22.2            | 28.5 | 12.45  | 9.14  | 4.01        | 5.03 |             | 33.27 | 39.62 |       |       |
| 2 x 1-1/2<br>x 1-1/4<br>x 1<br>x 3/4<br>x 1/2   | 1    | 1    | 48.77  | 12.70        | 60.32         | 31.7            | 46.0 | 40.89  | 34.04 | 6.35        | 8.91 | 25.40       | 39.62 |       |       |       |
|   | 2    | 2    | 42.67  | 12.70        | 60.32         | 20.6            | 23.8 | 34.92  | 29.46 | 6.07        | 7.92 |             |       |       |       | 38.10 |
|   | 2    | 2    | 33.91  | 12.70        | 60.32         | 22.2            | 25.4 | 26.67  | 20.83 | 5.69        | 7.92 |             |       | 38.10 | 45.97 |       |
|   | 2    | 2    | 27.18  | 12.70        | 60.32         | 23.8            | 26.9 | 20.83  | 15.49 | 4.90        | 6.96 |             |       | 38.10 | 45.97 |       |
|   | 2    | 2    | 21.84  | 9.52         | 60.32         | 25.4            | 28.5 | 15.87  | 11.68 | 4.67        | 5.97 |             |       | 38.10 | 45.97 |       |

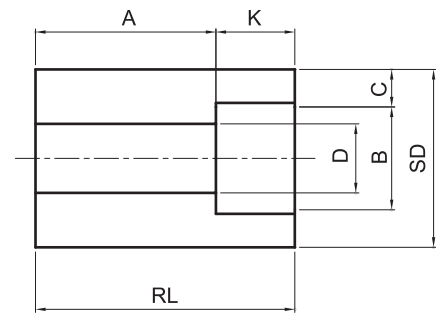
# FORGED STEEL SOCKET WELDING FITTINGS

## REDUCER INSERT

3000# 6000#



Type 1



Type 2

MSS SP-79

(mm)

| Pipe Size | Type |   | Socket |            | Shank Dia. SD | Laying Length |      | Bore  |       | Wall Min. |       | Length Min. |       |       |  |
|-----------|------|---|--------|------------|---------------|---------------|------|-------|-------|-----------|-------|-------------|-------|-------|--|
|           |      |   | Dia.   | Depth Min. |               | A             | D    | C     | SL    |           | RL    |             |       |       |  |
|           | B    | K | 3000   | 6000       |               |               |      |       | 3000  | 6000      | 3000  | 6000        | 3000  | 6000  |  |
| 1-1/2 x 2 | 1    | 1 | 61.24  | 15.87      | 73.02         | 46.0          | 42.8 | 52.58 | 20.57 | 6.93      | 10.92 | 38.10       | 31.75 |       |  |
| x 1-1/2   | 2    | 2 | 48.77  | 12.70      | 73.02         | 34.9          |      | 40.89 |       | 6.35      |       |             |       | 53.85 |  |
| x 1-1/4   | 2    | 2 | 42.67  | 12.70      | 73.02         | 36.5          |      | 34.92 |       | 6.07      |       |             |       | 53.85 |  |
| x 1       | 2    | 2 | 33.91  | 12.70      | 73.02         | 38.1          |      | 26.67 |       | 5.69      |       |             |       | 53.85 |  |
| x 3/4     | 2    | 2 | 27.18  | 12.70      | 73.02         | 39.6          |      | 20.83 |       | 4.90      |       |             |       | 53.85 |  |
| 3 x 2-1/2 | 1    |   | 74.01  | 15.87      | 88.90         | 38.1          |      | 62.74 |       | 8.76      |       | 31.75       |       |       |  |
| x 2       | 2    |   | 61.24  | 15.87      | 88.90         | 25.4          |      | 52.58 |       | 6.93      |       |             |       | 47.50 |  |
| x 1-1/2   | 2    |   | 48.77  | 12.70      | 88.90         | 28.5          |      | 40.89 |       | 6.35      |       |             |       | 47.50 |  |
| x 1-1/4   | 2    |   | 42.67  | 12.70      | 88.90         | 30.1          |      | 34.92 |       | 6.07      |       |             |       | 47.50 |  |
| x 1       | 2    |   | 33.91  | 12.70      | 88.90         | 31.7          |      | 26.67 |       | 5.69      |       |             |       | 47.50 |  |
| 4 x 3     | 2    |   | 89.99  | 15.87      | 114.30        | 33.2          |      | 77.99 |       | 9.52      |       |             |       | 60.32 |  |
| x 2-1/2   | 2    |   | 74.01  | 15.87      | 114.30        | 38.1          |      | 62.74 |       | 8.76      |       |             |       | 60.32 |  |
| x 2       | 2    |   | 61.24  | 15.87      | 114.30        | 38.1          |      | 52.58 |       | 6.93      |       |             |       | 60.32 |  |
| x 1-1/2   | 2    |   | 48.77  | 12.70      | 114.30        | 41.2          |      | 40.89 |       | 6.35      |       |             |       | 60.32 |  |
| x 1-1/4   | 2    |   | 42.67  | 12.70      | 114.30        | 42.8          |      | 34.92 |       | 6.07      |       |             |       | 60.32 |  |

(1) At the option of the manufacturer Type2 reducers may be furnished in Type1 configuration.

## TOLERANCES

**Laying Length A** Sizes 3/8" thru 3/4" ± 1.52mm  
 Sizes 1" thru 2" ± 2.03mm  
 Sizes 2-1/2" thru 3/4" ± 0.13mm

**Bore D** Sizes 3/8" thru 2" ± 0.76mm  
 Sizes 2-1/2" thru 4" ± 1.52mm

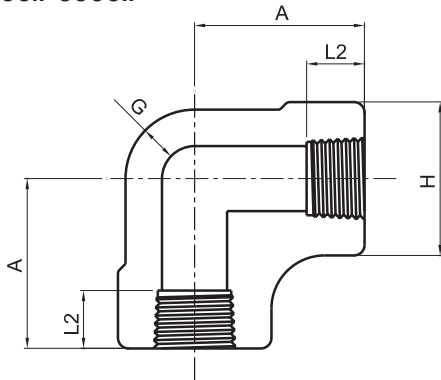
**Socket Dia. B** Sizes 2" thru 3/4" ± 0.13mm  
 Sizes 2-1/2" thru 4" ± 0.20mm

**Shank Dia. SD** Sizes 1/4" thru 1-1/2" ± 0.25mm  
 Sizes 2" thru 3" ± 0.51mm  
 Sizes 4" ± 0.76mm

# FORGED STEEL THREADED FITTINGS

## 90° ELBOW

2000# 3000# 6000#



2000# (mm) ANSI B16.11

| Pipe Size | A   | H   | G   | L2   |
|-----------|-----|-----|-----|------|
| 1/8       | 21  | 22  | 3.0 | 6.5  |
| 1/4       | 21  | 22  | 3.0 | 10.0 |
| 3/8       | 25  | 25  | 3.0 | 10.5 |
| 1/2       | 29  | 33  | 3.0 | 13.5 |
| 3/4       | 33  | 38  | 3.0 | 14.0 |
| 1         | 38  | 46  | 3.5 | 17.5 |
| 1-1/4     | 44  | 56  | 4.0 | 18.0 |
| 1-1/2     | 51  | 62  | 4.0 | 18.5 |
| 2         | 60  | 75  | 4.5 | 19.0 |
| 2-1/2     | 76  | 92  | 5.5 | 29.0 |
| 3         | 86  | 110 | 6.0 | 30.5 |
| 4         | 106 | 146 | 6.5 | 33.0 |

3000# (mm) ANSI B16.11

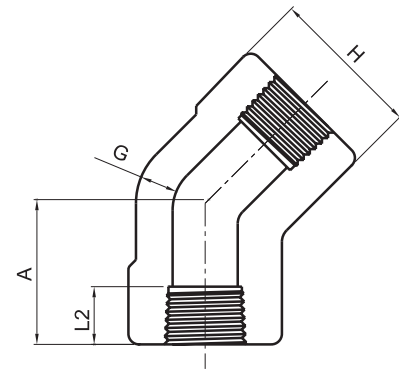
| Pipe Size | A   | H   | G    | L2   |
|-----------|-----|-----|------|------|
| 1/8       | 21  | 22  | 3.0  | 6.5  |
| 1/4       | 25  | 25  | 3.5  | 10.0 |
| 3/8       | 29  | 33  | 3.5  | 10.5 |
| 1/2       | 33  | 38  | 4.0  | 13.5 |
| 3/4       | 38  | 46  | 4.5  | 14.0 |
| 1         | 44  | 56  | 5.0  | 17.5 |
| 1-1/4     | 51  | 62  | 5.5  | 18.0 |
| 1-1/2     | 60  | 75  | 5.5  | 18.5 |
| 2         | 64  | 84  | 7.0  | 19.0 |
| 2-1/2     | 83  | 102 | 7.5  | 29.0 |
| 3         | 95  | 121 | 9.0  | 30.5 |
| 4         | 114 | 152 | 11.0 | 33.0 |

6000# (mm) ANSI B16.11

| Pipe Size | A   | H   | G    | L2   |
|-----------|-----|-----|------|------|
| 1/8       | 25  | 25  | 6.5  | 6.5  |
| 1/4       | 29  | 33  | 6.5  | 10.0 |
| 3/8       | 33  | 38  | 7.0  | 10.5 |
| 1/2       | 38  | 46  | 8.0  | 13.5 |
| 3/4       | 44  | 56  | 8.5  | 14.0 |
| 1         | 51  | 62  | 10.0 | 17.5 |
| 1-1/4     | 60  | 75  | 10.5 | 18.0 |
| 1-1/2     | 64  | 84  | 11.0 | 18.5 |
| 2         | 83  | 102 | 12.0 | 19.0 |
| 2-1/2     | 95  | 121 | 15.5 | 29.0 |
| 3         | 106 | 146 | 16.5 | 30.5 |
| 4         | 114 | 152 | 18.5 | 33.0 |

## 45° ELBOW

2000# 3000# 6000#



2000# (mm) ANSI B16.11

| Pipe Size | A  | H   | G   | L2   |
|-----------|----|-----|-----|------|
| 1/8       | 17 | 22  | 3.0 | 6.5  |
| 1/4       | 17 | 22  | 3.0 | 10.0 |
| 3/8       | 19 | 25  | 3.0 | 10.5 |
| 1/2       | 22 | 33  | 3.0 | 13.5 |
| 3/4       | 25 | 38  | 3.0 | 14.0 |
| 1         | 29 | 46  | 3.5 | 17.5 |
| 1-1/4     | 33 | 56  | 4.0 | 18.0 |
| 1-1/2     | 35 | 62  | 4.0 | 18.5 |
| 2         | 43 | 75  | 4.5 | 19.0 |
| 2-1/2     | 52 | 92  | 5.5 | 29.0 |
| 3         | 64 | 110 | 6.0 | 30.5 |
| 4         | 79 | 146 | 6.5 | 33.0 |

3000# (mm) ANSI B16.11

| Pipe Size | A  | H   | G    | L2   |
|-----------|----|-----|------|------|
| 1/8       | 17 | 22  | 3.0  | 6.5  |
| 1/4       | 19 | 25  | 3.5  | 10.0 |
| 3/8       | 22 | 33  | 3.5  | 10.5 |
| 1/2       | 25 | 38  | 4.0  | 13.5 |
| 3/4       | 29 | 46  | 4.5  | 14.0 |
| 1         | 33 | 56  | 5.0  | 17.5 |
| 1-1/4     | 35 | 62  | 5.5  | 18.0 |
| 1-1/2     | 43 | 75  | 5.5  | 18.5 |
| 2         | 45 | 84  | 7.0  | 19.0 |
| 2-1/2     | 52 | 102 | 7.5  | 29.0 |
| 3         | 64 | 121 | 9.0  | 30.5 |
| 4         | 79 | 152 | 11.0 | 33.0 |

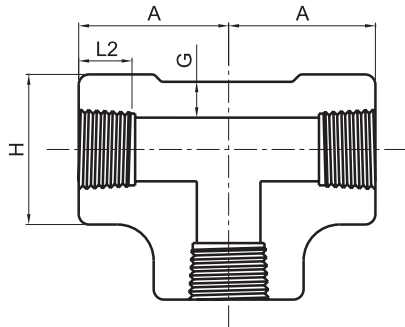
6000# (mm) ANSI B16.11

| Pipe Size | A  | H   | G    | L2   |
|-----------|----|-----|------|------|
| 1/8       | 19 | 25  | 6.5  | 6.5  |
| 1/4       | 22 | 33  | 6.5  | 10.0 |
| 3/8       | 25 | 38  | 7.0  | 10.5 |
| 1/2       | 29 | 46  | 8.0  | 13.5 |
| 3/4       | 33 | 56  | 8.5  | 14.0 |
| 1         | 35 | 62  | 10.0 | 17.5 |
| 1-1/4     | 43 | 75  | 10.5 | 18.0 |
| 1-1/2     | 44 | 84  | 11.0 | 18.5 |
| 2         | 52 | 102 | 12.0 | 19.0 |
| 2-1/2     | 64 | 121 | 15.5 | 29.0 |
| 3         | 79 | 146 | 16.5 | 30.5 |
| 4         | 79 | 152 | 18.5 | 33.0 |

# FORGED STEEL THREADED FITTINGS

## TEE

2000# 3000# 6000#



2000# (mm) **ANSI B16.11**

| Pipe Size | A   | H   | G   | L2   |
|-----------|-----|-----|-----|------|
| 1/8       | 21  | 22  | 3.0 | 6.5  |
| 1/4       | 21  | 22  | 3.0 | 10.0 |
| 3/8       | 25  | 25  | 3.0 | 10.5 |
| 1/2       | 29  | 33  | 3.0 | 13.5 |
| 3/4       | 33  | 38  | 3.0 | 14.0 |
| 1         | 38  | 46  | 3.5 | 17.5 |
| 1-1/4     | 44  | 56  | 4.0 | 18.0 |
| 1-1/2     | 51  | 62  | 4.0 | 18.5 |
| 2         | 60  | 75  | 4.5 | 19.0 |
| 2-1/2     | 76  | 92  | 5.5 | 29.0 |
| 3         | 86  | 110 | 6.0 | 30.5 |
| 4         | 106 | 146 | 6.5 | 33.0 |

3000# (mm) **ANSI B16.11**

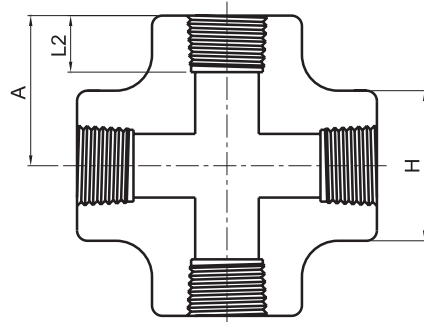
| Pipe Size | A   | H   | G    | L2   |
|-----------|-----|-----|------|------|
| 1/8       | 21  | 22  | 3.0  | 6.5  |
| 1/4       | 25  | 25  | 3.5  | 10.0 |
| 3/8       | 29  | 33  | 3.5  | 10.5 |
| 1/2       | 33  | 38  | 4.0  | 13.5 |
| 3/4       | 38  | 46  | 4.5  | 14.0 |
| 1         | 44  | 56  | 5.0  | 17.5 |
| 1-1/4     | 51  | 62  | 5.5  | 18.0 |
| 1-1/2     | 60  | 75  | 5.5  | 18.5 |
| 2         | 64  | 84  | 7.0  | 19.0 |
| 2-1/2     | 83  | 102 | 7.5  | 29.0 |
| 3         | 95  | 121 | 9.0  | 30.5 |
| 4         | 114 | 152 | 11.0 | 33.0 |

6000# (mm) **ANSI B16.11**

| Pipe Size | A   | H   | G    | L2   |
|-----------|-----|-----|------|------|
| 1/8       | 25  | 25  | 6.5  | 6.5  |
| 1/4       | 29  | 33  | 6.5  | 10.0 |
| 3/8       | 33  | 38  | 7.0  | 10.5 |
| 1/2       | 38  | 46  | 8.0  | 13.5 |
| 3/4       | 44  | 56  | 8.5  | 14.0 |
| 1         | 51  | 62  | 10.0 | 17.5 |
| 1-1/4     | 60  | 75  | 10.5 | 18.0 |
| 1-1/2     | 64  | 84  | 11.0 | 18.5 |
| 2         | 83  | 102 | 12.0 | 19.0 |
| 2-1/2     | 95  | 121 | 15.5 | 29.0 |
| 3         | 106 | 146 | 16.5 | 30.5 |
| 4         | 114 | 152 | 18.5 | 33.0 |

## CROSS

2000# 3000# 6000#



2000# (mm) **ANSI B16.11**

| Pipe Size | A   | H   | L2   |
|-----------|-----|-----|------|
| 1/8       | 21  | 22  | 6.5  |
| 1/4       | 21  | 22  | 10.0 |
| 3/8       | 25  | 25  | 10.5 |
| 1/2       | 29  | 33  | 13.5 |
| 3/4       | 33  | 38  | 14.0 |
| 1         | 38  | 46  | 17.5 |
| 1-1/4     | 44  | 56  | 18.0 |
| 1-1/2     | 51  | 62  | 18.5 |
| 2         | 60  | 75  | 19.0 |
| 2-1/2     | 76  | 92  | 29.0 |
| 3         | 86  | 110 | 30.5 |
| 4         | 106 | 146 | 33.0 |

3000# (mm) **ANSI B16.11**

| Pipe Size | A   | H   | L2   |
|-----------|-----|-----|------|
| 1/8       | 21  | 22  | 6.5  |
| 1/4       | 25  | 25  | 10.0 |
| 3/8       | 29  | 33  | 10.5 |
| 1/2       | 33  | 38  | 13.5 |
| 3/4       | 38  | 46  | 14.0 |
| 1         | 44  | 56  | 17.5 |
| 1-1/4     | 51  | 62  | 18.0 |
| 1-1/2     | 60  | 75  | 18.5 |
| 2         | 64  | 84  | 19.0 |
| 2-1/2     | 83  | 102 | 29.0 |
| 3         | 95  | 121 | 30.5 |
| 4         | 114 | 152 | 33.0 |

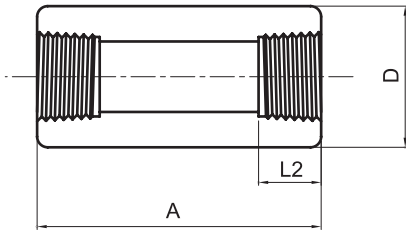
6000# (mm) **ANSI B16.11**

| Pipe Size | A   | H   | L2   |
|-----------|-----|-----|------|
| 1/8       | 25  | 25  | 6.5  |
| 1/4       | 29  | 33  | 10.0 |
| 3/8       | 33  | 38  | 10.5 |
| 1/2       | 38  | 46  | 13.5 |
| 3/4       | 44  | 56  | 14.0 |
| 1         | 51  | 62  | 17.5 |
| 1-1/4     | 60  | 75  | 18.0 |
| 1-1/2     | 64  | 84  | 18.5 |
| 2         | 83  | 102 | 19.0 |
| 2-1/2     | 95  | 121 | 29.0 |
| 3         | 106 | 146 | 30.5 |
| 4         | 114 | 152 | 33.0 |

# FORGED STEEL THREADED FITTINGS

## FULL COUPLING

3000# 6000#

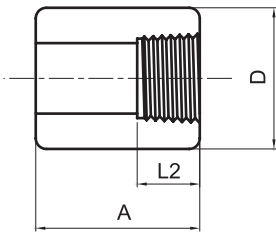


| 3000# (mm) |     | ANSI B16.11 |      |  |
|------------|-----|-------------|------|--|
| Pipe Size  | A   | D           | L2   |  |
| 1/8        | 32  | 16          | 6.5  |  |
| 1/4        | 35  | 19          | 10.0 |  |
| 3/8        | 38  | 22          | 10.5 |  |
| 1/2        | 48  | 29          | 13.5 |  |
| 3/4        | 51  | 35          | 14.0 |  |
| 1          | 60  | 44          | 17.5 |  |
| 1-1/4      | 67  | 57          | 18.0 |  |
| 1-1/2      | 79  | 64          | 18.5 |  |
| 2          | 86  | 76          | 19.0 |  |
| 2-1/2      | 92  | 92          | 29.0 |  |
| 3          | 108 | 108         | 30.5 |  |
| 4          | 121 | 140         | 33.0 |  |

| 3000# (mm) |     | ANSI B16.11 |      |  |
|------------|-----|-------------|------|--|
| Pipe Size  | A   | D           | L2   |  |
| 1/8        | 32  | 22          | 6.5  |  |
| 1/4        | 35  | 25          | 10.0 |  |
| 3/8        | 38  | 32          | 10.5 |  |
| 1/2        | 48  | 38          | 13.5 |  |
| 3/4        | 51  | 44          | 14.0 |  |
| 1          | 60  | 57          | 17.5 |  |
| 1-1/4      | 67  | 64          | 18.0 |  |
| 1-1/2      | 79  | 76          | 18.5 |  |
| 2          | 86  | 92          | 19.0 |  |
| 2-1/2      | 92  | 108         | 29.0 |  |
| 3          | 108 | 127         | 30.5 |  |
| 4          | 121 | 159         | 33.0 |  |

## HALF COUPLING

3000# 6000#

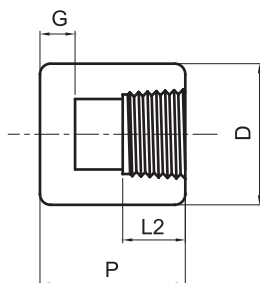


| 3000# (mm) |      | ANSI B16.11 |      |  |
|------------|------|-------------|------|--|
| Pipe Size  | A    | D           | L2   |  |
| 1/8        | 16.0 | 16          | 6.5  |  |
| 1/4        | 17.5 | 19          | 10.0 |  |
| 3/8        | 19.0 | 22          | 10.5 |  |
| 1/2        | 24.0 | 29          | 13.5 |  |
| 3/4        | 25.5 | 35          | 14.0 |  |
| 1          | 30.0 | 44          | 17.5 |  |
| 1-1/4      | 33.5 | 57          | 18.0 |  |
| 1-1/2      | 39.5 | 64          | 18.5 |  |
| 2          | 43.0 | 76          | 19.0 |  |
| 2-1/2      | 46.0 | 92          | 29.0 |  |
| 3          | 54.0 | 108         | 30.5 |  |
| 4          | 60.5 | 140         | 33.0 |  |

| 3000# (mm) |      | ANSI B16.11 |      |  |
|------------|------|-------------|------|--|
| Pipe Size  | A    | D           | L2   |  |
| 1/8        | 16.0 | 22          | 6.5  |  |
| 1/4        | 17.5 | 25          | 10.0 |  |
| 3/8        | 19.0 | 32          | 10.5 |  |
| 1/2        | 24.0 | 38          | 13.5 |  |
| 3/4        | 25.5 | 44          | 14.0 |  |
| 1          | 30.0 | 57          | 17.5 |  |
| 1-1/4      | 33.5 | 64          | 18.0 |  |
| 1-1/2      | 39.5 | 76          | 18.5 |  |
| 2          | 43.0 | 92          | 19.0 |  |
| 2-1/2      | 46.0 | 108         | 29.0 |  |
| 3          | 54.0 | 127         | 30.5 |  |
| 4          | 60.5 | 159         | 33.0 |  |

## CAP

3000# 6000#

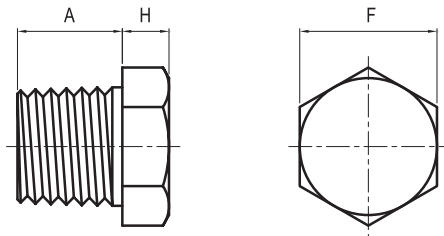


| 3000# (mm) |    | ANSI B16.11 |      |      |  |
|------------|----|-------------|------|------|--|
| Pipe Size  | P  | D           | L2   | G    |  |
| 1/8        | 19 | 16          | 6.5  | 5.0  |  |
| 1/4        | 25 | 19          | 10.0 | 5.0  |  |
| 3/8        | 25 | 22          | 10.5 | 5.0  |  |
| 1/2        | 32 | 29          | 13.5 | 6.5  |  |
| 3/4        | 37 | 35          | 14.0 | 6.5  |  |
| 1          | 41 | 44          | 17.5 | 9.5  |  |
| 1-1/4      | 44 | 57          | 18.0 | 9.5  |  |
| 1-1/2      | 44 | 64          | 18.5 | 11.0 |  |
| 2          | 48 | 76          | 19.0 | 12.5 |  |
| 2-1/2      | 60 | 92          | 29.0 | 16.0 |  |
| 3          | 65 | 108         | 30.5 | 19.0 |  |
| 4          | 68 | 140         | 33.0 | 22.0 |  |

| 3000# (mm) |    | ANSI B16.11 |      |      |  |
|------------|----|-------------|------|------|--|
| Pipe Size  | P  | D           | L2   | G    |  |
| 1/4        | 27 | 25          | 10.0 | 6.5  |  |
| 3/8        | 27 | 32          | 10.5 | 6.5  |  |
| 1/2        | 33 | 38          | 13.5 | 8.0  |  |
| 3/4        | 38 | 44          | 14.0 | 8.0  |  |
| 1          | 43 | 57          | 17.5 | 11.0 |  |
| 1-1/4      | 46 | 64          | 18.0 | 11.0 |  |
| 1-1/2      | 48 | 76          | 18.5 | 12.5 |  |
| 2          | 51 | 92          | 19.0 | 16.0 |  |
| 2-1/2      | 64 | 108         | 29.0 | 19.0 |  |
| 3          | 68 | 127         | 30.5 | 22.0 |  |
| 4          | 75 | 159         | 33.0 | 28.5 |  |

# FORGED STEEL THREADED FITTINGS

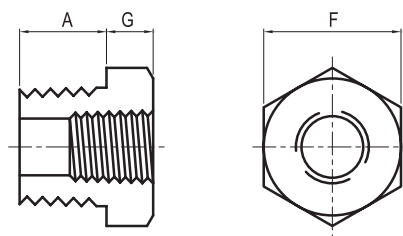
## HEX HEAD PLUG



ANSI B16.11

| Nominal Pipe Size | Length (Minimum) A | Hex Height Min. H | Width Flats (Nominal) F | Unit Weight (kg) |
|-------------------|--------------------|-------------------|-------------------------|------------------|
| 1/8               | 9.5                | 6                 | 11.0                    | 0.03             |
| 1/4               | 11.0               | 6                 | 16.0                    | 0.03             |
| 3/8               | 12.5               | 8                 | 17.5                    | 0.06             |
| 1/2               | 14.5               | 8                 | 22.0                    | 0.09             |
| 3/4               | 16.0               | 10                | 27.0                    | 0.14             |
| 1                 | 19.0               | 10                | 35.0                    | 0.23             |
| 1-1/4             | 20.5               | 14                | 44.5                    | 0.51             |
| 1-1/2             | 20.5               | 16                | 51.0                    | 0.63             |
| 2                 | 22.0               | 17                | 63.5                    | 1.02             |
| 2-1/2             | 27.0               | 19                | 76.0                    | 1.76             |
| 3                 | 28.5               | 21                | 89.0                    | 2.67             |
| 4                 | 32.0               | 25                | 117.5                   | 5.90             |

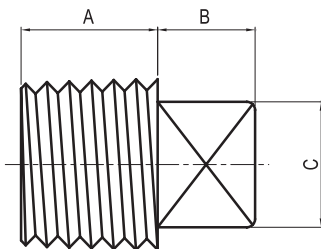
## HEX HEAD BUSHING



ANSI B16.11

| Nominal Pipe Size | Length (Minimum) A | Hex Height Min. G | Width Flats (Nominal) F | Unit Weight (kg) |
|-------------------|--------------------|-------------------|-------------------------|------------------|
| 1/4               | 11.0               | 3                 | 16.0                    | 0.03             |
| 3/8               | 12.5               | 4                 | 17.5                    | 0.03             |
| 1/2               | 14.5               | 5                 | 22.0                    | 0.03             |
| 3/4               | 16.0               | 6                 | 27.0                    | 0.09             |
| 1                 | 19.0               | 6                 | 35.0                    | 0.09             |
| 1-1/4             | 20.5               | 7                 | 44.5                    | 0.17             |
| 1-1/2             | 20.5               | 8                 | 51.0                    | 0.31             |
| 2                 | 22.0               | 9                 | 63.5                    | 0.74             |
| 2-1/2             | 27.0               | 10                | 76.0                    | 1.08             |
| 3                 | 28.5               | 10                | 89.0                    | 1.59             |
| 4                 | 32.0               | 13                | 117.5                   | 3.77             |

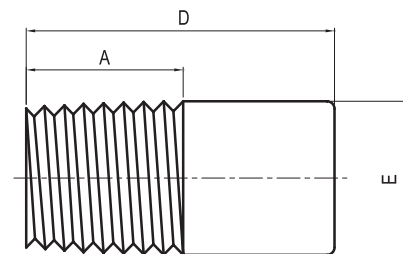
## SQUARE HEAD PLUG



ANSI B16.11

| Nominal Pipe Size | Length (Minimum) A | Height of Square (Minimum) B | Width Flats (Nominal) C | Unit Weight (kg) |
|-------------------|--------------------|------------------------------|-------------------------|------------------|
| 1/8               | 9.5                | 6                            | 7.0                     | 0.01             |
| 1/4               | 11.0               | 6                            | 9.5                     | 0.01             |
| 3/8               | 12.5               | 8                            | 11.0                    | 0.03             |
| 1/2               | 14.5               | 10                           | 14.5                    | 0.06             |
| 3/4               | 16.0               | 11                           | 16.0                    | 0.09             |
| 1                 | 19.0               | 13                           | 20.5                    | 0.14             |
| 1-1/4             | 20.5               | 14                           | 24.0                    | 0.25             |
| 1-1/2             | 20.5               | 16                           | 28.5                    | 0.40             |
| 2                 | 22.0               | 17                           | 33.5                    | 0.68             |
| 2-1/2             | 27.0               | 19                           | 38.0                    | 1.02             |
| 3                 | 28.5               | 21                           | 43.0                    | 1.31             |
| 4                 | 32.0               | 25                           | 63.5                    | 3.26             |

## ROUND HEAD PLUG



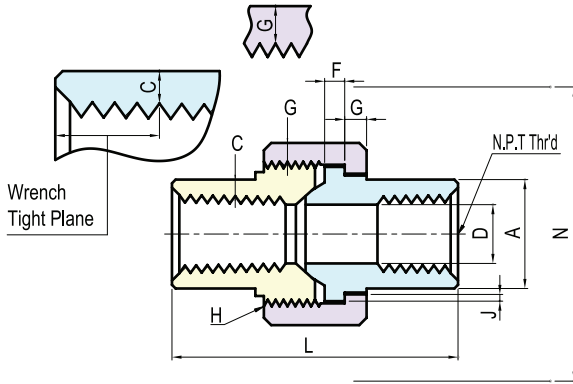
ANSI B16.11

| Nominal Pipe Size | Length (Minimum) A | Nominal Diameter of Head E | Length (Minimum) D | Unit Weight (kg) |
|-------------------|--------------------|----------------------------|--------------------|------------------|
| 1/8               | 9.5                | 10                         | 35                 | 0.057            |
| 1/4               | 11.0               | 13                         | 41                 | 0.057            |
| 3/8               | 12.5               | 17                         | 41                 | 0.085            |
| 1/2               | 14.5               | 21                         | 44                 | 0.170            |
| 3/4               | 16.0               | 27                         | 44                 | 0.170            |
| 1                 | 19.0               | 33                         | 51                 | 0.340            |
| 1-1/4             | 20.5               | 43                         | 51                 | 0.340            |
| 1-1/2             | 20.5               | 48                         | 51                 | 0.710            |
| 2                 | 22.0               | 60                         | 64                 | 1.361            |
| 2-1/2             | 27.0               | 73                         | 70                 | 2.155            |
| 3                 | 28.5               | 89                         | 70                 | 3.456            |
| 4                 | 32.0               | 114                        | 76                 | 5.838            |

# FORGED STEEL THREADED FITTINGS

## UNION

3000#



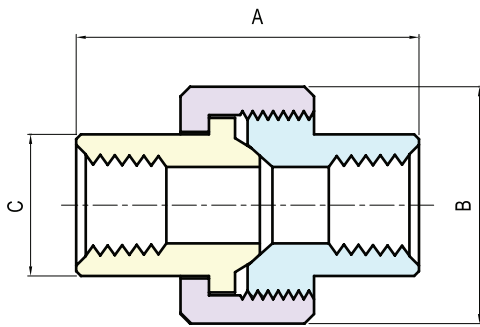
MSS SP-83

(mm)

| Nom. Pipe Size | Pipe End Min A | Wall Min. C | Water Way Bore D | Male Flange Min. F | Nut Min. G | Thrds. Per 25.4 Max. H | Bearing Min. J | Length Assem. Nominal L | Clear Assem. Nut N |
|----------------|----------------|-------------|------------------|--------------------|------------|------------------------|----------------|-------------------------|--------------------|
| 1/8            | 14.7           | 2.41        | 6.83<br>6.43     | 3.17               | 3.2        | 16                     | 1.24           | 41.4                    | 49.0               |
| 1/4            | 19.0           | 3.02        | 9.85<br>9.45     | 3.17               | 3.2        | 16                     | 1.24           | 41.4                    | 49.0               |
| 3/8            | 22.9           | 3.20        | 13.92<br>13.51   | 3.43               | 3.4        | 14                     | 1.37           | 46.0                    | 55.0               |
| 1/2            | 27.7           | 3.73        | 17.47<br>17.07   | 3.68               | 3.7        | 14                     | 1.50           | 49.0                    | 57.0               |
| 3/4            | 33.5           | 3.91        | 21.79<br>21.39   | 4.06               | 4.1        | 11                     | 1.68           | 56.9                    | 67.0               |
| 1              | 41.4           | 4.55        | 28.14<br>27.74   | 4.57               | 4.4        | 11                     | 1.85           | 62.0                    | 79.0               |
| 1-1/4          | 50.5           | 4.85        | 35.76<br>35.36   | 5.33               | 5.2        | 11                     | 2.13           | 71.1                    | 94.0               |
| 1-1/2          | 57.2           | 5.08        | 41.61<br>41.20   | 5.84               | 5.6        | 10                     | 2.31           | 76.4                    | 111.0              |
| 2              | 70.1           | 5.54        | 52.53<br>52.12   | 6.60               | 6.4        | 10                     | 2.69           | 86.1                    | 132.0              |
| 2-1/2          | 85.3           | 7.01        | 64.72<br>64.31   | 7.49               | 7.1        | 8                      | 3.07           | 102.4                   | 148.0              |
| 3              | 102.4          | 7.62        | 77.67<br>77.27   | 8.25               | 8.0        | 8                      | 3.53           | 109.0                   | 175.0              |

## UNION

3000# 6000#



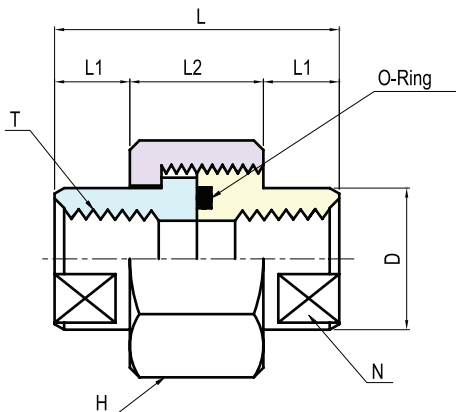
STANDARD

(mm)

| Nom. Size | A    |      | B    |      | C    |      | Unit Weight (kg) |      |
|-----------|------|------|------|------|------|------|------------------|------|
|           | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | 3000             | 6000 |
| 1/4       | 45   | 54   | 32   | 46   | 19.0 | 30.0 | 0.14             | 0.45 |
| 3/8       | 51   | 57   | 38   | 51   | 23.0 | 36.0 | 0.20             | 0.60 |
| 1/2       | 54   | 64   | 46   | 60   | 29.0 | 43.0 | 0.35             | 0.85 |
| 3/4       | 57   | 72   | 51   | 72   | 34.0 | 52.0 | 0.43             | 1.40 |
| 1         | 69   | 80   | 60   | 80   | 41.5 | 59.0 | 0.65             | 1.75 |
| 1-1/4     | 72   | 89   | 72   | 94   | 48.8 | 74.5 | 0.98             | 3.00 |
| 1-1/2     | 80   | 108  | 80   | 100  | 56.0 | 77.0 | 1.26             | 4.00 |
| 2         | 89   | 114  | 94   | 120  | 70.0 | 90.0 | 2.01             | 5.50 |

## UNION (O-RING TYPE)

3000#



(mm)

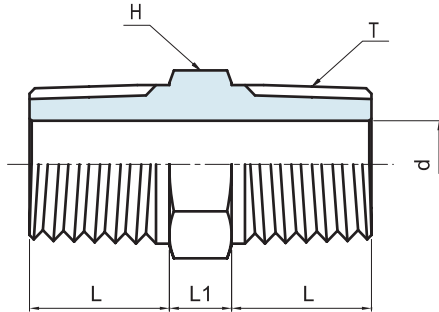
| Nom. Size (PT) | D  | L1 | L2 | L  | N  | H      | O-Ring |
|----------------|----|----|----|----|----|--------|--------|
| 1/4            | 22 | 10 | 18 | 38 | 19 | 35 HEX | P18    |
| 3/8            | 27 | 10 | 18 | 38 | 23 | 41 HEX | P20    |
| 1/2            | 32 | 12 | 20 | 44 | 29 | 46 HEX | G25    |
| 3/4            | 38 | 12 | 26 | 50 | 34 | 54 HEX | G30    |
| 1              | 47 | 15 | 26 | 56 | 41 | 63 HEX | G35    |
| 1-1/4          | 56 | 15 | 30 | 60 | 51 | 75 HEX | G45    |
| 1-1/2          | 63 | 18 | 36 | 72 | 60 | 80 HEX | G50    |
| 2              | 76 | 18 | 36 | 72 | 71 | 95 HEX | G65    |

Rating Pressure: 210k/cm<sup>2</sup>  
Temperature: 120°C Max.

# FORGED STEEL THREADED FITTINGS

## NIPPLE

3000# 6000#



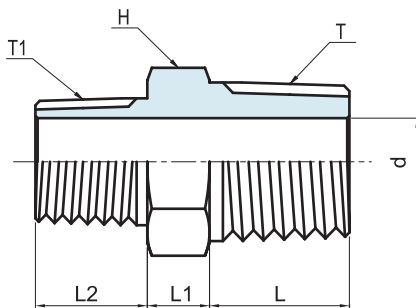
ANSI B16.11

(mm)

| Nom. Size T | d    | *H | L  | L1 | Unit Weight (kg) |
|-------------|------|----|----|----|------------------|
| 1/8         | 4.1  | 12 | 10 | 6  | 0.03             |
| 1/4         | 7.1  | 17 | 14 | 8  | 0.04             |
| 3/8         | 8.9  | 19 | 14 | 8  | 0.05             |
| 1/2         | 11.9 | 24 | 19 | 9  | 0.09             |
| 3/4         | 16.0 | 30 | 19 | 10 | 0.15             |
| 1           | 20.1 | 36 | 24 | 11 | 0.27             |
| 1-1/4       | 27.9 | 46 | 24 | 12 | 0.45             |
| 1-1/2       | 32.0 | 50 | 25 | 14 | 0.62             |
| 2           | 39.9 | 65 | 26 | 16 | 1.03             |
| 2-1/2       | 55.1 | 80 | 38 | 18 | 1.51             |
| 3           | 65.0 | 95 | 40 | 20 | 2.22             |

## REDUCING NIPPLE

3000# 6000#



ANSI B16.11

(mm)

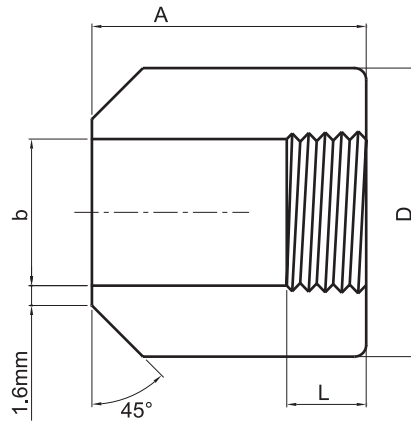
| Nom. Size T x T1 | d    | *H | L  | L1 | L2 | Unit Weight (kg) |
|------------------|------|----|----|----|----|------------------|
| 3/8x1/4          | 7.1  | 19 | 14 | 8  | 14 | 0.05             |
| 1/2x1/4          | 7.1  | 24 | 19 | 9  | 14 | 0.09             |
| 1/2x3/8          | 8.9  | 24 | 19 | 9  | 14 | 0.09             |
| 3/4x1/4          | 7.1  | 30 | 19 | 10 | 14 | 0.15             |
| 3/4x3/8          | 8.9  | 30 | 19 | 10 | 14 | 0.15             |
| 3/4x1/2          | 11.9 | 30 | 19 | 10 | 19 | 0.15             |
| 1x3/8            | 8.9  | 36 | 24 | 11 | 14 | 0.27             |
| 1x1/2            | 11.9 | 36 | 24 | 11 | 19 | 0.27             |
| 1x3/4            | 16.0 | 36 | 24 | 11 | 19 | 0.27             |
| 1-1/4x1/2        | 11.9 | 46 | 24 | 12 | 19 | 0.45             |
| 1-1/4x3/4        | 16.0 | 46 | 24 | 12 | 19 | 0.45             |
| 1-1/4x1          | 20.1 | 46 | 24 | 12 | 24 | 0.45             |
| 1-1/2x3/4        | 16.0 | 50 | 25 | 14 | 19 | 0.62             |
| 1-1/2x1          | 20.1 | 50 | 25 | 14 | 24 | 0.62             |
| 1-1/2x1 1/4      | 27.9 | 50 | 25 | 14 | 24 | 0.62             |
| 2x1              | 20.1 | 65 | 26 | 16 | 24 | 1.03             |
| 2x1-1/4          | 27.9 | 65 | 26 | 16 | 24 | 1.03             |
| 2x1-1/2          | 32.0 | 65 | 26 | 16 | 25 | 1.03             |
| 2-1/2x1 1/4      | 27.9 | 80 | 38 | 18 | 24 | 1.51             |
| 2-1/2x1 1/2      | 32.0 | 80 | 38 | 18 | 25 | 1.51             |
| 2-1/2x2          | 39.9 | 80 | 38 | 18 | 26 | 1.51             |
| 3x1-1/2          | 32.0 | 95 | 40 | 20 | 25 | 2.22             |
| 3x2              | 39.9 | 95 | 40 | 20 | 26 | 2.22             |
| 3x2-1/2          | 55.1 | 95 | 40 | 20 | 38 | 2.22             |

\* H: Size 2" and smaller are Hexagonal bodies, 3" is octagonal body

# FORGED STEEL THREADED FITTINGS

## BOSS

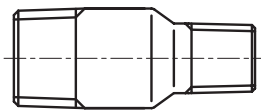
3000# 6000#



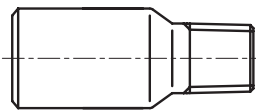
BS 3799

| Nominal Size |     | Length of thread<br>L MIN(mm) | Length<br>A(mm) | Bore dia.<br>b(mm) | Outside dia. D(mm) |      |
|--------------|-----|-------------------------------|-----------------|--------------------|--------------------|------|
| in           | mm  |                               |                 |                    | 3000               | 6000 |
| 1/8          | 6   | 6.70                          | 38              | 8.4                | 16                 | 22   |
| 1/4          | 8   | 10.21                         | 41              | 11.1               | 19                 | 26   |
| 3/8          | 10  | 10.63                         | 45              | 14.2               | 22                 | 32   |
| 1/2          | 15  | 13.56                         | 51              | 18.0               | 29                 | 38   |
| 3/4          | 20  | 13.86                         | 51              | 23.0               | 35                 | 45   |
| 1            | 25  | 17.34                         | 51              | 29.0               | 45                 | 60   |
| 1-1/2        | 40  | 18.38                         | 51              | 44.0               | 64                 | 76   |
| 2            | 50  | 19.22                         | 51              | 56.0               | 76                 | 95   |
| 2-1/2        | 65  | 28.89                         | 51              | 67.0               | 95                 | -    |
| 3            | 80  | 30.48                         | 57              | 82.0               | 110                | -    |
| 4            | 100 | 33.02                         | 61              | 95.0               | 140                | -    |

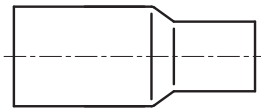
## SWAGED NIPPLE



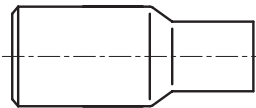
TBE



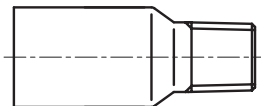
BLE/TSE



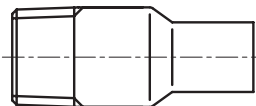
PBE



BLE/PSE



PLE/TSE



TLE/PSE

| Large end Size | Small end Size | Length (mm) |
|----------------|----------------|-------------|
| 1/2            | 3/8 - 1/8      | 70          |
| 3/4            | 1/2 - 1/8      | 76          |
| 1              | 3/4 - 1/8      | 89          |
| 1-1/4          | 1 - 1/8        | 102         |
| 1-1/2          | 1-1/4 - 1/8    | 114         |
| 2              | 1-1/2 - 1/8    | 165         |
| 2-1/2          | 2 - 1/8        | 178         |
| 3              | 2 1/2 - 1/8    | 203         |
| 3-1/2          | 3 - 1/8        | 203         |
| 4              | 3 1/2 - 1/8    | 229         |

**TBE:** Threaded both end

**PBE:** Plane both end

**PLE/TSE:** Plane large end-Thread small end

**BLE/TSE:** Beveled large end-Threaded small end

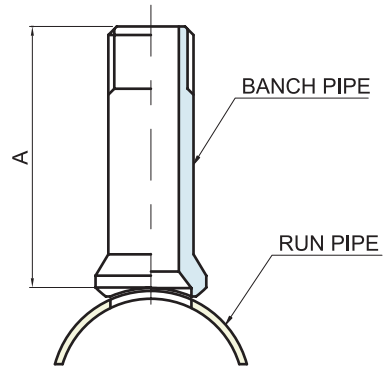
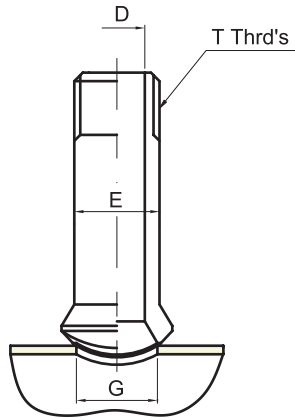
**BLE/PSE:** Beveled large end-Plane small end

**TLE/PSE:** Threaded large end-Plane small end

# FORGED STEEL OUTLET FITTINGS

## NIPPLE OUTLET

3000#

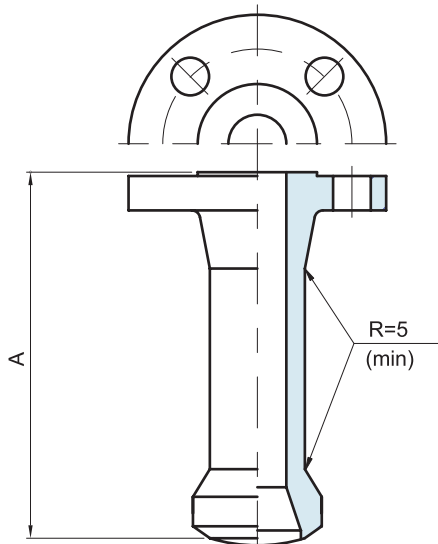


(mm)

| Run Pipe Size | Outlet Size T1/2 | A    | G    | D    | E    | Unit Weight (kg) |
|---------------|------------------|------|------|------|------|------------------|
| 36 - 3/4      | 1/2              | 88.9 | 23.9 | 14.0 | 21.3 | 0.36             |
| 36 - 1        | 3/4              | 88.9 | 30.2 | 18.8 | 26.7 | 0.56             |
| 36 - 1 1/4    | 1                | 88.9 | 36.6 | 24.4 | 33.3 | 0.84             |
| 36 - 1 1/2    | 1 1/4            | 88.9 | 44.5 | 32.5 | 42.2 | 1.22             |
| 36-2          | 1 1/2            | 88.9 | 50.8 | 38.1 | 48.3 | 2.00             |
| 36-2 1/2      | 2                | 88.9 | 65.0 | 49.3 | 60.5 | 3.12             |

## FLANGED-END OUTLET

3000#



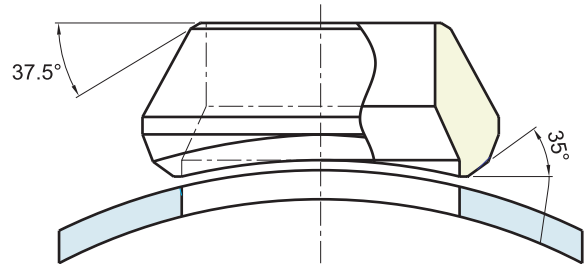
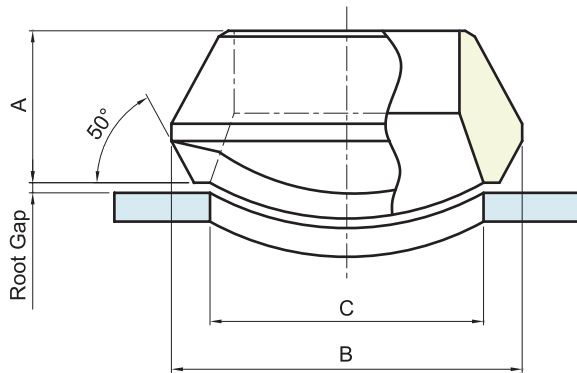
(mm)

| Nominal Size DN | A (Face of flange to crotch) Class |     |     |      |      |
|-----------------|------------------------------------|-----|-----|------|------|
|                 | 150                                | 300 | 600 | 1500 | 2500 |
| 15              |                                    |     |     |      |      |
| 20              |                                    |     |     |      |      |
| 25              | 150                                | 150 | 150 | 150  | 150  |
| 40              |                                    |     |     |      |      |
| 50              |                                    |     |     |      | 165  |

# FORGED STEEL OUTLET FITTINGS

## WELDOLETS

### STD (SCH 40), XS(SCH 80)



| Out let Size | A     |       | B     |       | C     |       | APP' Weight(kg) |        |
|--------------|-------|-------|-------|-------|-------|-------|-----------------|--------|
|              | STD   | XS    | STD   | XS    | STD   | XS    | STD             | XS     |
| 1/2          | 19.1  | 19.1  | 34.9  | 34.9  | 23.8  | 23.8  | 0.08            | 0.09   |
| 3/4          | 22.2  | 22.2  | 44.5  | 44.5  | 30.2  | 30.2  | 0.11            | 0.14   |
| 1            | 27.0  | 27.0  | 54.0  | 54.0  | 36.5  | 36.5  | 0.23            | 0.21   |
| 1-1/4        | 31.8  | 31.8  | 65.1  | 65.1  | 44.5  | 44.5  | 0.36            | 0.41   |
| 1-1/2        | 33.3  | 33.3  | 73.0  | 73.0  | 50.8  | 50.8  | 0.45            | 0.50   |
| 2            | 38.1  | 38.1  | 88.9  | 88.9  | 65.1  | 65.1  | 0.80            | 0.80   |
| 2-1/2        | 41.3  | 41.3  | 103.2 | 103.2 | 76.2  | 76.2  | 1.14            | 1.20   |
| 3            | 44.5  | 44.5  | 122.2 | 122.2 | 93.7  | 93.7  | 1.82            | 1.90   |
| 4            | 50.8  | 50.8  | 152.4 | 152.4 | 120.7 | 120.7 | 2.86            | 2.90   |
| 5            | 57.2  | 57.2  | 179.4 | 179.4 | 141.3 | 141.3 | 4.66            | 4.70   |
| 6            | 60.3  | 77.8  | 215.9 | 225.4 | 169.9 | 169.9 | 6.45            | 10.50  |
| 8            | 69.9  | 98.5  | 263.5 | 292.1 | 220.7 | 220.7 | 10.68           | 16.80  |
| 10           | 77.8  | 93.7  | 322.3 | 323.9 | 274.7 | 265.1 | 17.73           | 20.90  |
| 12           | 85.7  | 103.2 | 377.8 | 379.4 | 325.4 | 317.5 | 26.82           | 27.70  |
| 14           | 88.9  | 100.0 | 409.6 | 431.8 | 357.2 | 350.8 | 30.00           | 31.80  |
| 16           | 93.7  | 106.4 | 463.6 | 466.7 | 408.0 | 403.2 | 34.10           | 46.40  |
| 18           | 96.8  | 111.1 | 520.7 | 523.9 | 458.8 | 455.6 | 44.10           | 59.10  |
| 20           | 101.6 | 119.1 | 571.5 | 582.6 | 508.0 | 509.6 | 53.60           | 71.80  |
| 24           | 115.9 | 139.7 | 689.0 | 708.0 | 614.4 | 638.2 | 100.00          | 131.80 |
| 26           | 119.1 | 146.1 | 738.2 | 765.2 | 666.8 | 692.2 | 120.50          | 159.10 |

\* Applicable Run Pipe Sizes are from Out-let size to 36"

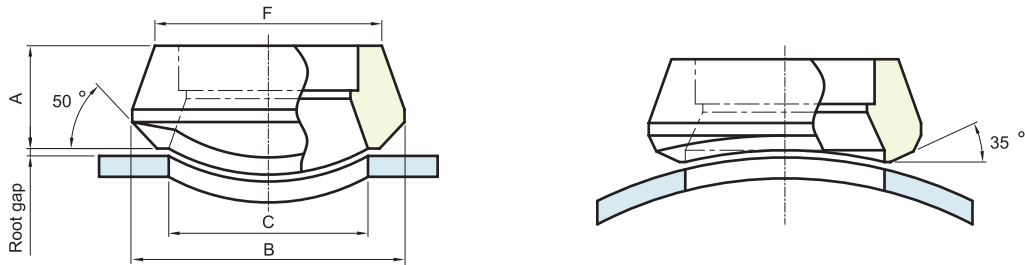
\* Standard Weight Fittings are the same as Schedule 40 Fittings Until 10" and Extra Strong Fittings are the Same as Schedule 80 Until 8".

\* Pipe Schedule Numbers and Weight Designations are in Accordance With ANSI B36.10

# FORGED STEEL OUTLET FITTINGS

## SOCKOLETS

**3000# 6000#**



| Out let Size | A     |       | B     |       | C     |       | F     |       | APP' Weight(kg) |       |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------|
|              | 3000# | 6000# | 3000# | 6000# | 3000# | 6000# | 3000# | 6000# | 3000#           | 6000# |
| 1/2          | 25.4  | 31.8  | 34.9  | 44.5  | 23.8  | 19.1  | 31.8  | 39.7  | 0.14            | 0.23  |
| 3/4          | 27.0  | 36.5  | 44.5  | 50.8  | 30.2  | 25.4  | 36.5  | 45.2  | 0.15            | 0.36  |
| 1            | 33.3  | 39.7  | 54.0  | 61.9  | 36.5  | 33.3  | 46.0  | 57.2  | 0.27            | 0.59  |
| 1-1/4        | 33.3  | 43.3  | 65.1  | 69.9  | 44.5  | 38.1  | 55.6  | 65.1  | 0.39            | 0.73  |
| 1-1/2        | 34.9  | 42.9  | 73.0  | 82.6  | 50.8  | 49.2  | 61.9  | 76.2  | 0.47            | 0.91  |
| 2            | 38.1  | 58.7  | 88.9  | 103.2 | 65.1  | 58.7  | 74.6  | 92.1  | 0.73            | 2.33  |
| 2-1/2        | 46.0  | -     | 103.2 | -     | 76.2  | -     | 87.3  | -     | 1.25            | -     |
| 3            | 50.8  | -     | 122.2 | -     | 93.7  | -     | 104.8 | -     | 1.73            | -     |
| 4            | 57.2  | -     | 152.4 | -     | 120.7 | -     | 130.2 | -     | 3.30            | -     |

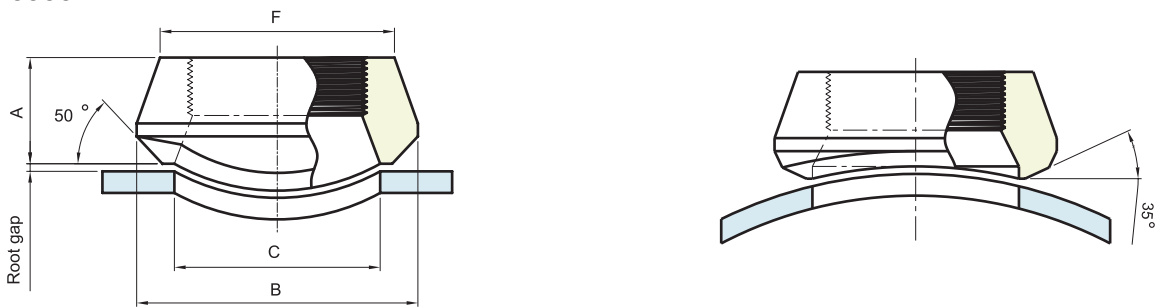
\* Applicable Run Pipe Sizes are from Out-let size to 36"

\* For the 3000# and 6000# Socketlets and Thredolets, Inside Bore, Thread, Socket Bore and socket Depth Dimensions are According to ANSI B16.11

\* Pipe Schedule Numbers and Weight Designations are in Accordance With ANSI B36.10

## THREDOLETS

**3000# 6000#**



| Out let Size | A     |       | B     |       | C     |       | F     |       | APP' Weight(kg) |       |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------|
|              | 3000# | 6000# | 3000# | 6000# | 3000# | 6000# | 3000# | 6000# | 3000#           | 6000# |
| 1/2          | 25.4  | 31.8  | 34.9  | 44.5  | 23.8  | 19.1  | 31.8  | 39.7  | 0.11            | 0.20  |
| 3/4          | 27.0  | 36.5  | 44.5  | 50.8  | 30.2  | 25.4  | 36.5  | 46.0  | 0.16            | 0.34  |
| 1            | 33.3  | 39.7  | 54.0  | 61.9  | 36.5  | 33.3  | 46.0  | 57.2  | 0.28            | 0.56  |
| 1-1/4        | 33.3  | 41.3  | 65.1  | 69.9  | 44.5  | 38.1  | 55.6  | 65.1  | 0.41            | 0.71  |
| 1-1/2        | 34.9  | 42.9  | 73.0  | 82.6  | 50.8  | 49.2  | 61.9  | 76.2  | 0.45            | 0.89  |
| 2            | 38.1  | 52.4  | 88.9  | 103.2 | 65.1  | 69.9  | 74.6  | 92.1  | 0.80            | 2.30  |
| 2-1/2        | 46.0  | -     | 103.2 | -     | 76.2  | -     | 87.3  | -     | 1.36            | -     |
| 3            | 50.8  | -     | 122.2 | -     | 93.7  | -     | 104.8 | -     | 1.98            | -     |
| 4            | 57.2  | -     | 152.4 | -     | 120.7 | -     | 130.2 | -     | 3.22            | -     |

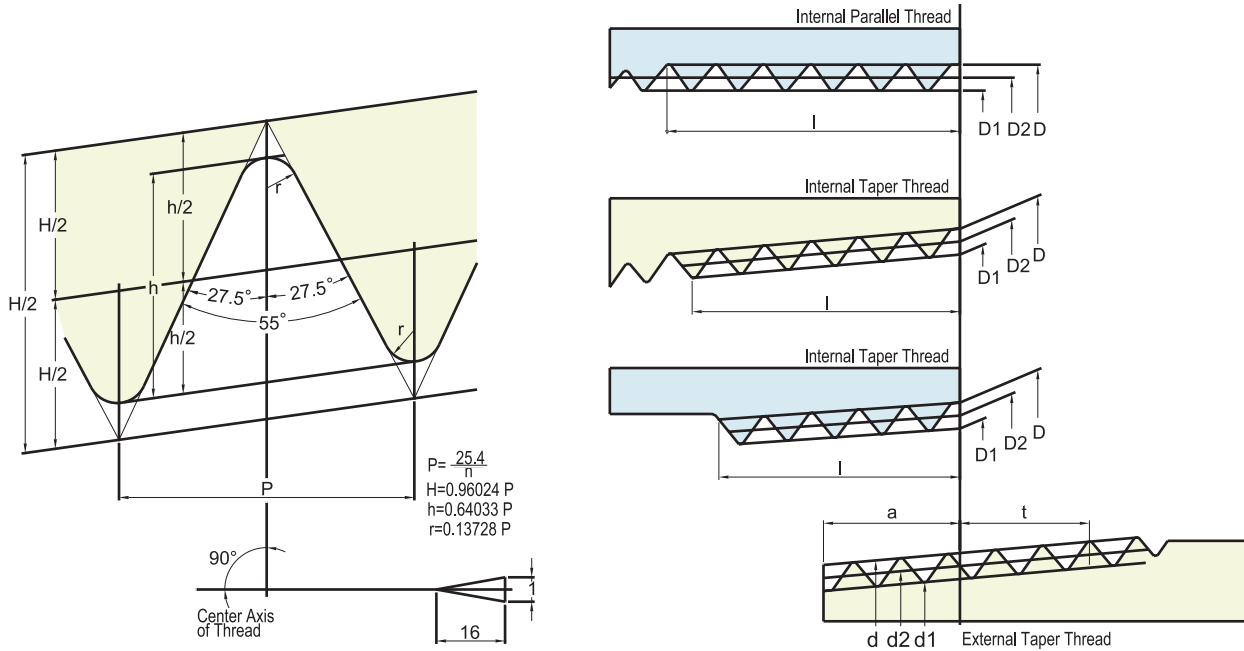
\* Applicable Run Pipe Sizes are from Out-let size to 36"

\* For the 3000# and 6000# Socketlets and Thredolets, Inside Bore, Thread, Socket Bore and socket Depth Dimensions are According to ANSI B16.11

\* Pipe Schedule Numbers and Weight Designations are in Accordance With ANSI B36.10

# STANDARD THREADS SPECIFICATIONS

## KS BO222 & JIS BO203 PIPE THREADS



### BASIC THREAD DATA

(mm)

| Nominal Size | Number of Threads Per Inch | Screw Thread |                  |          | Basic Diameter   |                   |                   | Position of Basic Diameter |                 |  | Tolerances on Basic Diameters of Internal Parallel Thread | Effective Thread Length (Min.) |                                    |                          |                                    | Nominal Pipe Size (For Reference) |                |
|--------------|----------------------------|--------------|------------------|----------|------------------|-------------------|-------------------|----------------------------|-----------------|--|---|--------------------------------|------------------------------------|--------------------------|------------------------------------|-----------------------------------|----------------|
|              |                            | Pitch        | Height of Thread | Rounding | External Thread  |                   |                   | External Thread            |                 | Internal Thread                            |   | Fitting Allowance              | Internal Thread                    |                          | When There is no Incomplete Thread |                                   |                |
|              |                            |              |                  |          | Major Diameter d | Pitch Diameter d2 | Minor Diameter d1 | From the End of Pipe       | The End of Pipe | When There is an Incomplete Thread or More |   |                                | When There is no Incomplete Thread |                          |                                    |                                   |                |
|              |                            | n            | p                | h        | r                | Major Diameter    | Pitch Diameter    | Minor Diameter             | Basic Length    | Tolerance Axially                          |   | Tolerance Axially              | Internal Taper Thread              | Internal Parallel Thread | Internal Taper and Parallel Thread | Outside Diameter                  | Wall Thickness |
| PT 1/2       | 14                         | 1.8143       | 1.162            | 0.25     | 20.955           | 19.793            | 18.631            | 8.16                       | 1.81            | 2.27                                       | 0.142   | 5.00                           | 12.7                               | 15.0                     | 9.1                                | 21.7                              | 2.8            |
| PT 3/4       | 14                         | 1.8143       | 1.162            | 0.25     | 26.441           | 25.279            | 24.117            | 9.53                       | 1.81            | 2.27                                       | 0.142   | 5.60                           | 14.1                               | 16.3                     | 10.2                               | 27.2                              | 2.8            |
| PT 1         | 11                         | 2.3091       | 1.479            | 0.32     | 33.249           | 31.770            | 30.291            | 10.39                      | 2.31            | 2.89                                       | 0.180   | 6.40                           | 16.2                               | 19.0                     | 11.5                               | 34.0                              | 3.2            |
| PT 1 1/4     | 11                         | 2.3091       | 1.479            | 0.32     | 41.910           | 40.431            | 38.952            | 12.70                      | 2.31            | 2.89                                       | 0.180   | 6.40                           | 18.5                               | 21.4                     | 13.4                               | 42.7                              | 3.5            |
| PT 1 1/2     | 11                         | 2.3091       | 1.479            | 0.32     | 47.803           | 46.324            | 44.845            | 12.70                      | 2.31            | 2.89                                       | 0.180   | 6.40                           | 18.5                               | 21.4                     | 13.4                               | 48.6                              | 3.5            |
| PT 2         | 11                         | 2.3091       | 1.479            | 0.32     | 59.614           | 58.135            | 56.656            | 15.88                      | 2.31            | 2.89                                       | 0.180   | 7.50                           | 22.8                               | 25.7                     | 16.9                               | 60.5                              | 3.8            |
| PT 2 1/2     | 11                         | 2.3091       | 1.479            | 0.32     | 75.184           | 73.705            | 72.226            | 17.46                      | 3.56            | 3.46                                       | 0.217   | 9.22                           | 26.7                               | 30.2                     | 18.6                               | 76.3                              | 4.2            |
| PT 3         | 11                         | 2.3091       | 1.479            | 0.32     | 87.884           | 86.405            | 84.926            | 20.64                      | 3.46            | 3.46                                       | 0.217   | 9.22                           | 29.9                               | 33.3                     | 21.1                               | 89.1                              | 4.2            |
| PT 3 1/2     | 11                         | 2.3091       | 1.479            | 0.32     | 100.330          | 98.851            | 97.372            | 22.23                      | 3.46            | 3.46                                       | 0.217   | 9.30                           | 31.5                               | 34.9                     | 22.4                               | 101.6                             | 4.2            |
| PT 4         | 11                         | 2.3091       | 1.479            | 0.32     | 113.030          | 111.551           | 110.072           | 25.40                      | 3.46            | 3.46                                       | 0.217   | 10.40                          | 35.9                               | 39.3                     | 25.9                               | 114.3                             | 4.5            |
| PT 5         | 11                         | 2.3091       | 1.479            | 0.32     | 138.430          | 136.952           | 135.472           | 25.58                      | 3.46            | 3.46                                       | 0.217   | 11.40                          | 40.1                               | 43.6                     | 29.3                               | 139.8                             | 4.5            |
| PT 6         | 11                         | 2.3091       | 1.479            | 0.32     | 163.830          | 162.351           | 160.872           | 28.58                      | 3.46            | 3.46                                       | 0.217   | 11.50                          | 40.1                               | 43.6                     | 29.3                               | 165.2                             | 5.0            |



# COMPARISON OF ASTM SPECIFICATIONS AND SIMILAR STANDARDS

| Steel Composition     | ASTM Specification and Grade |             |                                |            | KS Specification and Grade   |           |         |
|-----------------------|------------------------------|-------------|--------------------------------|------------|------------------------------|-----------|---------|
|                       | Marking Symbol               | Pipe        | Plate                          | Forging    | Marking Symbol               | Pipe      | Plate   |
| Carbon Steel          | -                            | A120        | A283-A                         | -          | SPP                          | SPP       | SB41    |
|                       | -                            | A53-B       | A284                           | -          | PS38(W), PS38, PT38(W), PT38 | SPPS38    | SWS41B  |
|                       | -                            | A53-B       | A284                           | -          | PS42(W), PS42, PT42(W), PT42 | SPPS48    | SWS41B  |
|                       |                              |             |                                |            | HT38, HT38(W)                | SPHT38    | SBB42   |
|                       | WPB                          | A106-B      | A515-60 or 70<br>A515-60 or 70 | A105       | HT42, HT42(W)                | SPHT42    | SBB42   |
|                       | WPC                          | A106-C      | A515-70<br>A515-70             | A105       | HT49, HT49(W)                | SPHT49    | SBB49   |
| Low Temperature Steel | WPL6                         | A333/A334-6 | A515-60                        | A350-LF2   | PL39                         | STPL39    | SLAL39  |
|                       | WPL3                         | A333/A334-3 | A203-D                         | A350-LF3   | -                            | -         | -       |
|                       | WPL9                         | A333/A334-9 | A203-A                         | A350-LF9   | -                            | -         | -       |
| Alloy Steel           | WP1                          | A355-P1     | A203-B                         | A182-F1    | PA12, FA12                   | SPA12     | SBB46M  |
|                       | WP12                         | A355-P12    | A387-12                        | A182-F12   | PA22, FA22                   | SPA22     | SVMV2   |
|                       | WP11                         | A355-P11    | A387-11                        | A182-F11   | PA23, FA23                   | SPA23     | SVMV3   |
|                       | WP22                         | A355-P22    | A387-22                        | A182-F22   | PA24, FA24                   | SPA24     | SVMV4   |
|                       | WP5                          | A355-P5     | A387-5                         | A182-F5    | PA25, FA25                   | SPA25     | SVMV5   |
|                       | WP7                          | A355-P7     | A387-7                         | A182-F7    | -                            | -         | -       |
|                       | WP9                          | A355-P9     | A387-9                         | A182-F9    | -                            | -         | -       |
|                       | WP91                         | A355-P91    | A387-91                        | A182-F91   | -                            | -         | -       |
| Stainless Steel       | WP304                        | A312-TP304  | A240-Type 304                  | A182-F304  | STS304, STS304W, STS304F     | STS304TP  | STS304  |
|                       | WP304H                       | A312-TP304H | A240-Type 304H                 | A182-F304H | -                            | -         | -       |
|                       | WP304L                       | A312-TP304L | A240-Type 304L                 | A182-F304L | STS304L, STS304LW, STS304LF  | STS304LTP | STS304L |
|                       | WP309                        | A312-TP309  | A240-Type 309S                 | -          | STS309S, STS309SW, STS309SF  | STS309STP | STS309S |
|                       | WP310                        | A312-TP310  | A240-Type 310S                 | A182-F310  | STS310S, STS310SW, STS310SF  | STS310STP | STS310S |
|                       | WP316                        | A312-TP316  | A240-Type 316                  | A182-F316  | STS316, STS316W, STS316F     | STS316TP  | STS316  |
|                       | WP316H                       | A312-TP316H | A240-Type 316H                 | A182-F316H | STS316H, STS316HF            | STS316HTP | -       |
|                       | WP316L                       | A312-TP316L | A240-Type 316L                 | A182-F316L | STS316L, STS316LW, STS316LF  | STS316LTP | STS316L |
|                       | WP317L                       | A312-TP317L | A240-Type 317L                 | A182-F317L | STS317L, STS317LW            | STS317LTP | STS317L |
|                       | WP321                        | A312-TP321  | A240-Type 321                  | A182-F321  | STS321, STS321W, STS321F     | STS321TP  | STS321  |
|                       | WP321H                       | A312-TP321H | A240-Type 321H                 | A182-F321H | -                            | -         | -       |
|                       | WP347                        | A312-TP347  | A240-Type 347                  | A182-F347  | STS347, STS347W, STS347F     | STS347TP  | STS347  |
|                       | WP347H                       | A312-TP347H | A240-Type 347H                 | A182-F347H | STS347H, STS347HF            | STS347HTP | -       |

# ASTM CHEMICAL COMPOSITION

| ASTM   | Identification Symbol | C         | Mn        | P         | S         | Si        | Ni        | Cr        | Mo        | Ti      | Other Elements | TS Min ksi(Mpa)     | YS Min ksi(Mpa) | EL Min % | Rrad Min % | HB      |
|--------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|----------------|---------------------|-----------------|----------|------------|---------|
| A105*  |                       | MAX 0.35  | 0.60~1.05 | MAX 0.035 | MAX 0.040 | 0.10~0.35 | MAX 0.040 | MAX 0.30  | MAX 0.12  |         |                | 70(485)             | 36(250)         | 30       | 30         | MAX 187 |
| A182   | F1                    | 0.28      | 0.60~0.90 | 0.045     | 0.045     | 0.10~0.35 |           |           | 0.44~0.65 |         |                | 70(485)             | 40(275)         | 20       | 30         | 143~192 |
| A182   | F5                    | 0.15      | 0.30~0.60 | 0.030     | 0.030     | 0.50      | 0.50      | 4.0~6.0   | 0.44~0.65 |         |                | 70(485)             | 40(275)         | 20       | 35         | 143~217 |
| A182   | F5a                   | 0.25      | 0.60      | 0.040     | 0.030     | 0.50      | 0.50      | 4.0~6.0   | 0.44~0.65 |         |                | 90(620)             | 65(450)         | 22       | 50         | 187~248 |
| A182   | F9                    | 0.15      | 0.30~0.60 | 0.030     | 0.030     | 0.50~1.00 |           | 8.0~10.0  | 0.90~1.10 |         |                | 85(585)             | 55(380)         | 20       | 40         | 179~217 |
| A182** | F91                   | 0.08~0.12 | 0.30~0.60 | 0.030     | 0.10      | 0.20~0.50 | 0.40      | 8.0~9.5   | 0.85~1.05 |         |                | 85(585)             | 65(415)         | 20       | 40         | MAX 248 |
| A182   | F11 CL1               | 0.05~0.15 | 0.30~0.60 | 0.030     | 0.030     | 0.50~1.00 |           | 1.00~1.50 | 0.44~0.65 |         |                | 60(415)             | 30(205)         | 20       | 45         | 121~174 |
| A182   | F11 CL2               | 0.10~0.20 | 0.30~0.80 | 0.040     | 0.040     | 0.50~1.00 |           | 1.00~1.50 | 0.44~0.65 |         |                | 70(485)             | 40(275)         | 20       | 30         | 143~207 |
| A182   | F11 CL3               | 0.10~0.20 | 0.30~0.80 | 0.040     | 0.040     | 0.50~1.00 |           | 1.00~1.50 | 0.44~0.65 |         |                | 75(515)             | 45(310)         | 20       | 30         | 156~207 |
| A182   | F12 CL1               | 0.05~0.15 | 0.30~0.60 | 0.045     | 0.045     | MAX 0.50  |           | 0.80~1.25 | 0.44~0.65 |         |                | 60(415)             | 32(220)         | 20       | 45         | 121~174 |
| A182   | F12 CL2               | 0.10~0.20 | 0.30~0.80 | 0.040     | 0.040     | 0.10~0.60 |           | 0.80~1.25 | 0.44~0.65 |         |                | 70(485)             | 40(275)         | 20       | 30         | 143~207 |
| A182   | F22 CL1               | 0.05~0.15 | 0.30~0.60 | 0.040     | 0.040     | 0.50      |           | 2.00~2.50 | 0.87~1.13 |         |                | 60(415)             | 30(205)         | 20       | 35         | MAX 170 |
| A182   | F22 CL3               | 0.05~0.15 | 0.30~0.60 | 0.040     | 0.040     | 0.50      |           | 2.00~2.50 | 0.87~1.13 |         |                | 75(515)             | 45(310)         | 20       | 30         | 156~207 |
| A182   | F304                  | 0.08      | 2.00      | 0.045     | 0.030     | 1.00      | 8.0~11.0  | 18.0~20.0 |           |         |                | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F304L                 | 0.030     | 2.00      | 0.045     | 0.030     | 1.00      | 8.0~13.0  | 18.0~20.0 |           |         |                | 70(485)             | 25(170)         | 30       | 50         |         |
| A182   | F316                  | 0.08      | 2.00      | 0.045     | 0.030     | 1.00      | 10.0~14.0 | 16.0~18.0 | 2.00~3.00 |         |                | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F316L                 | 0.030     | 2.00      | 0.045     | 0.030     | 1.00      | 10.0~15.0 | 16.0~18.0 | 2.00~3.00 |         |                | 70(485)             | 25(170)         | 30       | 50         |         |
| A182   | F317                  | 0.08      | 2.00      | 0.045     | 0.030     | 1.00      | 11.0~15.0 | 18.0~20.0 | 3.0~4.0   |         |                | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F317L                 | 0.030     | 2.00      | 0.045     | 0.030     | 1.00      | 11.0~15.0 | 18.0~20.0 |           |         |                | 70(485)             | 25(170)         | 30       | 50         |         |
| A182   | F321                  | 0.08      | 2.00      | 0.045     | 0.030     | 1.00      | 9.0~12.0  | 17.0~19.0 |           | Cx5~0.7 |                | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F321H                 | 0.04~0.10 | 2.00      | 0.045     | 0.030     | 1.00      | 9.0~12.0  | 17.0~19.0 |           | Cx4~0.7 |                | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F347                  | 0.08      | 2.00      | 0.045     | 0.030     | 1.00      | 9.0~12.0  | 17.0~20.0 |           |         | Cb-10xC-1.1    | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F347H                 | 0.04~0.10 | 2.00      | 0.045     | 0.030     | 1.00      | 9.0~13.0  | 17.0~20.0 |           |         | Cb-8xC-1.1     | 75(515)             | 30(205)         | 30       | 50         |         |
| A182   | F51                   | 0.03      | 2.00      | 0.030     | 0.020     | 1.00      | 4.5~6.5   | 21.0~23.0 | 2.5~3.5   |         | N0.08~0.20     | 90(620)             | 65(450)         | 25       | 45         |         |
| A350*  | LF1                   | 0.30      | 0.60~1.35 | 0.035     | 0.040     | 0.15~0.30 | MAX 0.40  | MAX 0.30  | MAX 0.12  |         |                | 60 ~ 85 (415 ~ 585) | 30(205)         | 25       | 38         |         |
| A350*  | LF2                   | 0.30      | 0.60~1.35 | 0.035     | 0.040     | 0.15~0.30 | MAX 0.40  | MAX 0.30  | MAX 0.12  |         |                | 70 ~ 95 (485 ~ 655) | 36(250)         | 22       | 30         |         |
| A350*  | LF3                   | 0.20      | MAX 90    | 0.035     | 0.040     | 0.20~0.35 | 3.3~3.7   | MAX 0.30  | MAX 0.12  |         |                | 70 ~ 95 (485 ~ 655) | 37.5(260)       | 22       | 35         |         |

\*OTHER ELEMENTS : Copper(0.40% MAX), Vanadium(0.80% MAX), Columbium(0.20% MAX)

\*The sum of Cu, Ni, Cr and Mo shall not be exceed 1.00%

\*The sum of Cr and Mo shall not be exceed 0.32%

\*\*A182F91 : Cb 0.06 ~ 0.10, N 0.03 ~ 0.07, Al 0.04, V 0.18 ~ 0.25

# WALL THICKNESS OF WELDED AND SEAMLESS PIPE

Unit : mm

| Nominal Pipe Size |       | Outside Diameter |         | Nominal Wall Thickness |        |         |        |         |        |        |         |
|-------------------|-------|------------------|---------|------------------------|--------|---------|--------|---------|--------|--------|---------|
| A                 | B     | KS/JIS           | ANSI    | SPP SGP                | Sch 5S | Sch 10S | Sch 10 | Sch 20S | Sch 20 | Sch 30 | Sch 40S |
| 6                 | 1/8   | 10.50            | 10.29   | -                      | -      | 1.24    | -      | 1.5     | -      | -      | 1.73    |
| 8                 | 1/4   | 13.80            | 13.72   | -                      | -      | 1.65    | -      | 2.0     | -      | -      | 2.24    |
| 10                | 3/8   | 17.30            | 17.14   | -                      | -      | 1.65    | -      | 2.0     | -      | -      | 2.31    |
| 15                | 1/2   | 21.70            | 21.34   | 2.8                    | 1.65   | 2.11    | -      | 2.5     | -      | -      | 2.77    |
| 20                | 3/4   | 27.20            | 26.67   | 2.8                    | 1.65   | 2.11    | -      | 2.5     | -      | -      | 2.87    |
| 25                | 1     | 34.00            | 33.40   | 3.2                    | 1.65   | 2.77    | -      | 3.0     | -      | -      | 3.38    |
| 32                | 1-1/4 | 42.70            | 42.16   | 3.5                    | 1.65   | 2.77    | -      | 3.0     | -      | -      | 3.56    |
| 40                | 1-1/2 | 48.60            | 48.26   | 3.5                    | 1.65   | 2.77    | -      | 3.2     | -      | -      | 3.68    |
| 50                | 2     | 60.50            | 60.32   | 3.8                    | 1.65   | 2.77    | -      | 3.5     | 3.20   | --     | 3.91    |
| 65                | 2-1/2 | 76.30            | 73.02   | 4.2                    | 2.11   | 3.05    | -      | 3.5     | 4.50   | -      | 5.16    |
| 80                | 3     | 89.10            | 88.90   | 4.2                    | 2.11   | 3.05    | -      | 4.0     | 4.50   | -      | 5.49    |
| 90                | 3-1/2 | 101.60           | 101.60  | 4.2                    | 2.11   | 3.05    | -      | 4.0     | 4.50   | -      | 5.74    |
| 100               | 4     | 114.30           | 114.30  | 4.5                    | 2.11   | 3.05    | -      | 4.0     | 4.90   | -      | 6.02    |
| 125               | 5     | 139.80           | 141.30  | 4.5                    | 2.77   | 3.40    | -      | 5.0     | 5.10   | -      | 6.55    |
| 150               | 6     | 165.20           | 168.30  | 5.0                    | 2.77   | 3.40    | -      | 5.0     | 5.50   | -      | 7.11    |
| 200               | 8     | 216.30           | 219.08  | 5.8                    | 2.77   | 3.76    | -      | 6.5     | 6.35   | 7.04   | 8.18    |
| 250               | 10    | 267.40           | 273.05  | 6.6                    | 3.40   | 4.19    | -      | 6.5     | 6.35   | 7.80   | 9.27    |
| 300               | 12    | 318.50           | 323.80  | 6.9                    | 3.96   | 4.57    | -      | 6.5     | 6.35   | 8.38   | 9.52    |
| 350               | 14    | 355.60           | 355.60  | 7.9                    | 3.96   | 4.78    | 6.35   | 8.0     | 7.92   | 9.52   | *9.52   |
| 400               | 16    | 406.40           | 406.40  | 7.9                    | 4.19   | 4.78    | 6.35   | 8.0     | 7.92   | 9.52   | *9.52   |
| 450               | 18    | 457.20           | 457.20  | 7.9                    | 4.19   | 4.78    | 6.35   | 8.0     | 7.92   | 11.12  | *9.52   |
| 500               | 20    | 508.00           | 508.00  | 7.9                    | 4.78   | 5.54    | 6.35   | 9.5     | 9.52   | 12.70  | *9.52   |
| 550               | 22    | 558.80           | 558.80  | -                      | 4.78   | 5.54    | 6.35   | -       | 9.52   | 12.70  | *9.52   |
| 600               | 24    | 609.60           | 609.60  | -                      | 5.54   | 6.35    | 6.35   | -       | 9.52   | 14.27  | *9.52   |
| 650               | 26    | 660.40           | 660.40  | -                      | -      | *7.92   | 7.92   | -       | 12.70  | -      | *9.52   |
| 700               | 28    | 711.20           | 711.20  | -                      | -      | *7.92   | 7.92   | -       | 12.70  | 15.88  | *9.52   |
| 750               | 30    | 762.00           | 762.00  | -                      | 6.35   | *7.92   | 7.92   | -       | 12.70  | 15.88  | *9.52   |
| 800               | 32    | 812.80           | 812.80  | -                      | -      | *7.92   | 7.92   | -       | 12.70  | 15.88  | *9.52   |
| 850               | 34    | 863.60           | 863.60  | -                      | -      | *7.92   | 7.92   | -       | 12.70  | 15.88  | *9.52   |
| 900               | 36    | 914.40           | 914.40  | -                      | -      | *7.92   | 7.92   | -       | 12.70  | 15.88  | *9.52   |
| 950               | 38    | 965.20           | 965.20  | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |
| 1000              | 40    | 1016.00          | 1016.00 | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |
| 1050              | 42    | 1066.80          | 1066.80 | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |
| 1100              | 44    | 1117.60          | 1117.60 | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |
| 1150              | 46    | 1168.40          | 1168.40 | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |
| 1200              | 48    | 1219.20          | 1219.20 | -                      | -      | *7.92   | -      | -       | -      | -      | *9.52   |

Asterisks(\*) denote SUPERLOK Standards as no internationally Recognized Standards for these wallthickness have been established

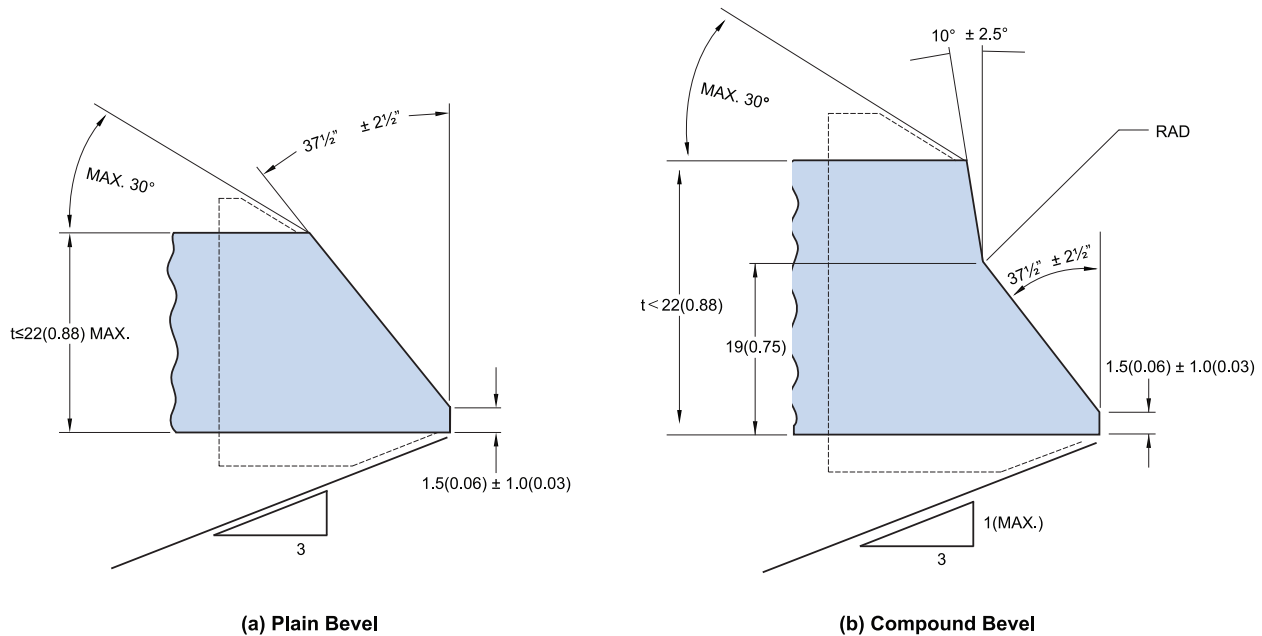
# WALL THICKNESS OF WELDED AND SEAMLESS PIPE

Unit : mm

| Normal Wall Thickness |        |        |         |       |        |         |         |         |         |       | Normal Pipe Size Inch |
|-----------------------|--------|--------|---------|-------|--------|---------|---------|---------|---------|-------|-----------------------|
| STD                   | Sch 40 | Sch 60 | Sch 80s | X-S   | Sch 80 | Sch 100 | Sch 120 | Sch 140 | Sch 160 | XX-S  |                       |
| 1.73                  | 1.73   | 2.20   | 2.41    | 2.41  | 2.41   | -       | -       | -       | 3.15    | 4.83  | 1/8                   |
| 2.24                  | 2.24   | 2.40   | 3.02    | 3.02  | 3.02   | -       | -       | -       | 3.68    | 6.05  | 1/4                   |
| 2.31                  | 2.31   | 2.80   | 3.20    | 3.20  | 3.20   | -       | -       | -       | 4.01    | 6.40  | 3/8                   |
| 2.77                  | 2.77   | 3.20   | 3.73    | 3.73  | 3.73   | -       | -       | -       | 4.78    | 7.47  | 1/2                   |
| 2.87                  | 2.87   | 3.40   | 3.91    | 3.91  | 3.91   | -       | -       | -       | 5.56    | 7.82  | 3/4                   |
| 3.38                  | 3.38   | 3.90   | 4.55    | 4.55  | 4.55   | -       | -       | -       | 6.35    | 9.09  | 1                     |
| 3.56                  | 3.56   | 4.50   | 4.85    | 4.85  | 4.85   | -       | -       | -       | 6.35    | 9.70  | 1-1/4                 |
| 3.68                  | 3.68   | 4.50   | 5.08    | 5.08  | 5.08   | -       | -       | -       | 7.14    | 10.16 | 1-1/2                 |
| 3.91                  | 3.91   | 4.90   | 5.54    | 5.54  | 5.54   | -       | -       | -       | 8.74    | 11.07 | 2                     |
| 5.16                  | 5.16   | 6.00   | 7.01    | 7.01  | 7.01   | -       | -       | -       | 9.52    | 14.02 | 2-1/2                 |
| 5.49                  | 5.49   | 6.60   | 7.62    | 7.62  | 7.62   | -       | -       | -       | 11.12   | 15.24 | 3                     |
| 5.74                  | 5.74   | 7.00   | 8.08    | 8.08  | 8.08   | -       | -       | -       | -       | -     | 3-1/2                 |
| 6.02                  | 6.02   | 7.10   | 8.56    | 8.56  | 8.56   | -       | 11.12   | -       | 13.49   | 17.12 | 4                     |
| 6.55                  | 6.55   | 8.10   | 9.53    | 9.53  | 9.53   | -       | 12.70   | -       | 15.88   | 19.05 | 5                     |
| 7.11                  | 7.11   | 9.30   | 10.97   | 10.97 | 10.97  | -       | 14.27   | -       | 18.26   | 21.94 | 6                     |
| 8.18                  | 8.18   | 10.31  | 12.70   | 12.70 | 12.70  | 15.09   | 18.26   | 20.62   | 23.01   | 22.22 | 8                     |
| 9.27                  | 9.27   | 12.70  | 12.70   | 12.70 | 15.09  | 18.26   | 21.44   | 25.40   | 28.58   | 25.40 | 10                    |
| 9.52                  | 10.31  | 14.27  | 12.70   | 12.70 | 17.48  | 21.44   | 25.40   | 28.58   | 33.32   | 25.40 | 12                    |
| 9.52                  | 11.13  | 15.09  | *12.70  | 12.70 | 19.05  | 23.83   | 27.79   | 31.75   | 35.71   | -     | 14                    |
| 9.52                  | 12.70  | 16.66  | *12.70  | 12.70 | 21.44  | 26.19   | 30.96   | 36.52   | 40.49   | -     | 16                    |
| 9.52                  | 14.27  | 19.05  | *12.70  | 12.70 | 23.82  | 29.36   | 34.92   | 39.67   | 45.24   | -     | 18                    |
| 9.52                  | 15.09  | 20.62  | *12.70  | 12.70 | 26.19  | 32.54   | 38.10   | 44.45   | 50.01   | -     | 20                    |
| 9.52                  | -      | 22.22  | *12.70  | 12.70 | 25.58  | 34.92   | 41.28   | 47.62   | 53.98   | -     | 22                    |
| 9.52                  | 17.48  | 24.61  | *12.70  | 12.70 | 30.96  | 38.89   | 46.02   | 52.37   | 59.54   | -     | 24                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 26                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 28                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 30                    |
| 9.52                  | 17.48  | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 32                    |
| 9.52                  | 17.48  | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 34                    |
| 9.52                  | 19.05  | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 36                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 38                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 40                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 42                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 44                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 46                    |
| 9.52                  | -      | -      | *12.70  | 12.70 | -      | -       | -       | -       | -       | -     | 48                    |

# ANSI WELDING END PREPARATION

## ASME B16.9



(in inches)

| Normal Pipe Wall Thickness(t) | End Preparation  |
|-------------------------------|--|
| Less than x*                  | Cut Square or slightly chamfer, at manufacturer's option |
| x* to 7/8 inch                | Plan bevel as in sketch "a" above                        |
| more than 7/8                 | Compound bevel as in sketch b" above                     |

\* x=3/16 for carbon steel, ferritic alloy steel or wrought iron; 1/8 for austenitic alloy steel

## HYDROSTATIC TEST

Butt-Welding Fittings can withstand a hydrostatic pressure test determined by the following equatoin;  
where,

$$P = \frac{2St}{D}$$

- P = Hydrostatic test pressure, psi
- S = 60% of the specified minimum yield strength for carbon and alloy steel, psi or 50% of the specified minimum yield strength for carbon and alloy steel, psi
- t = Nominal Wall thickness, in of designated Schedule number
- D = Outside diameter at bevel, in.

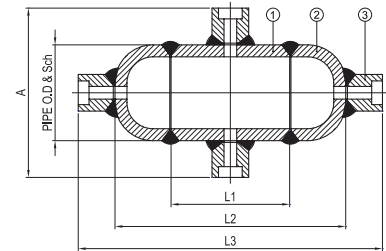
# CONDENSATE POT

## SUPERLOK CONDENSAT POT

**SCP Series**

### MATERIAL OF CONSTRUCTION

| NO | Description                 | Material   |
|----|-----------------------------|------------|
| 1  | PIPE Sch 80S                | A312-TP316 |
| 2  | CAP Sch 80S                 | A312-TP316 |
| 3  | HALF COUPLING #3000 1/2" SW | A312-TP316 |



### TABLE OF DIMENSIONS

| Order Number |            | Connection       | Dimensions (mm) |     |       |     |     |       |
|--------------|------------|------------------|-----------------|-----|-------|-----|-----|-------|
| Series       | Part No.   |                  | PIPE O.D        | Sch | A     | L1  | L2  | L3    |
| SCP2B2C      | 24-SW04-8S | 1/2" Socket Weld | 3" (88.9)       | 80S | 157.1 | 110 | 214 | 282.2 |
| SCP2B2C      | 32-SW04-8S | 1/2" Socket Weld | 4" (114.3)      | 80S | 182.5 | 229 | 360 | 428.2 |

1. The length of pipe "L1" is changeable by customer request.
2. The length of "L2", "L3" is cahnged by "L1".

### ORDERING INFORMATION

**SCP - 2B1C - 24 - 04N - 16 - 220 - 304**

**1                      2                      3                      4                      5                      6                      7**

#### 1. SUPERLOK CONDENSAT POT

- SCP(Dimensions)

#### 2. POT TYPE

| Designation | 2B2C | 2B1C | 1B2C | 1B1C | 2C |
|-------------|------|------|------|------|----|
| POT Type    |      |      |      |      |    |

#### 3. PIPE SIZE

| Size        | 3" | 4" |
|-------------|----|----|
| Designation | 24 | 32 |

#### 4. PORT SIZE & TYPE

| Type<br>Size | Socket Weld |      |      |      |      | Female NPT |      |      |      |     |
|--------------|-------------|------|------|------|------|------------|------|------|------|-----|
|              | 1/4"        | 3/8" | 1/2" | 3/4" | 1"   | 1/4"       | 3/8" | 1/2" | 3/4" | 1"  |
| Designation  | SW02        | SW03 | SW04 | SW06 | SW08 | 02N        | 03N  | 04N  | 06N  | 08N |

#### 5. PIPE WALLTHICKNESS

| Sch         | 40 | 40S | 80 | 80S | 160 | XXS |
|-------------|----|-----|----|-----|-----|-----|
| Designation | 4  | 4S  | 8  | 8S  | 16  | DS  |

#### 6. PIPE LENGTH "L1"

- Blank : Standard Length
- Unit : mm EX) Length 220mm ==> 220 (Designation)

#### 7.MATERIAL

| Sch         | STS316 | STS316L | STS304 | STS304L | MONEL |
|-------------|--------|---------|--------|---------|-------|
| Designation | Blank  | 36L     | 304    | 34L     | M40   |

# BMT Co., Ltd.

## Headquarters

(46031) 부산시 기장군 장안읍 신소재산단2로 17 (반룡리)

17, Sinsojaesandan 2-ro, Jangan-eup, Gijang-gun, Busan, 46031 South Korea

TEL: +82 51 780 5000 FAX: +82 51 780 5100

E-mail: [superlok@superlok.com](mailto:superlok@superlok.com)

WEB: [www.superlok.com](http://www.superlok.com)

## Fittings & Valves

### Industrial

Instrumentation Tube Fittings

i-Fitting®

Ball/Plug Valves

Double Block & Bleed Valves

Manifold/Gauge Valves

Globe/Needle Valves

Cryogenic Valves

Check/Relief/Excess Flow Valves

Medium/High Pressure Fittings & Valves

Eco-fuel Conversion and Supply Units

### Ultra High Purity

HGS® (High-integrated Gas System)

Weld & Metal Face Seal Fittings

Bend Fittings

Diaphragm Valves

Bellows Valves

Check Valves

Clean Ball Valves

Regulators

Gas Filters

HGS® : Trademark registered in Republic of Korea (as of April 2024)

## Electric & Energy

Metal Clad Switchgear (MCSG)

Compact Switchboard

Motor Control Center (MCC)

Smart Distribution Board

Energy Management System (EMS)