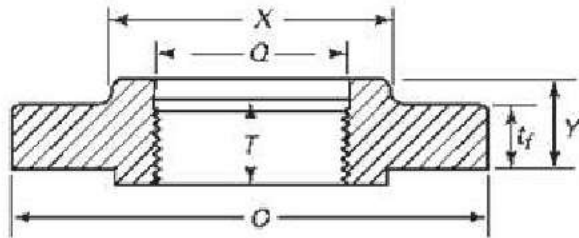


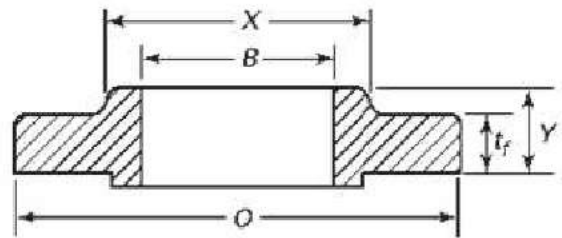
## Stainless Steel ASME/ANSI Flanges – Dimensions & Weights

These diagrams relate to the tables of flange specified dimensions on the following pages.

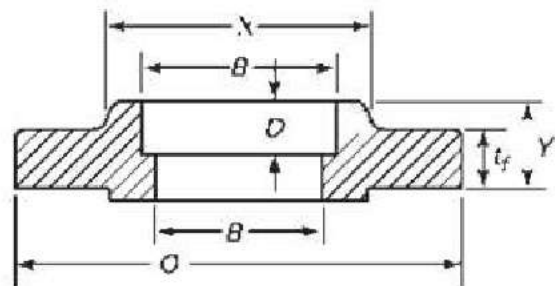
The Notes shown on this page also relate to the tables on the following pages.



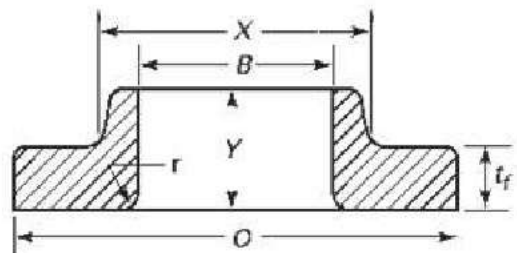
Threaded



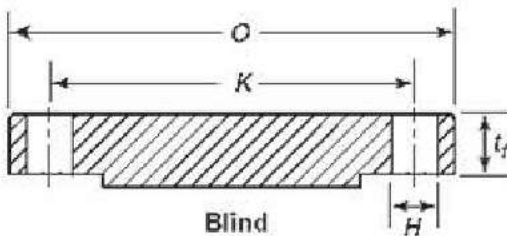
Slip-On Welding



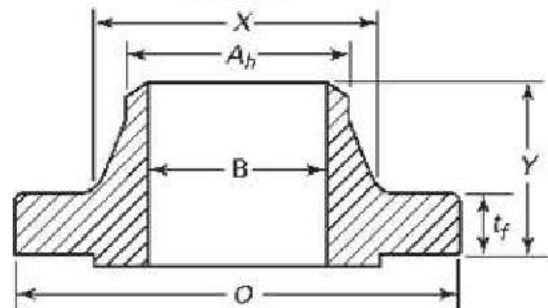
Socket Welding



Lapped



Blind



Welding Neck

Note 1: To be specified by purchase

Note 2: Flange weights are approximate

Note 3: Welding neck flange bore sizes listed are for sch 40S / Standard Wall pipe

### Common stock items are –

- Slip-On Welding
- Welding Neck
- Blind



## Stainless Steel ASME/ANSI Flanges – Dimensions & Weights

| Class 150 Flanges to ASME B16.5 |     |                  |                      |                  |                                            |                                                |                     |                                        |                                      |                     |                   |             |                          |                             |                    |              |       |
|---------------------------------|-----|------------------|----------------------|------------------|--------------------------------------------|------------------------------------------------|---------------------|----------------------------------------|--------------------------------------|---------------------|-------------------|-------------|--------------------------|-----------------------------|--------------------|--------------|-------|
| Nominal Size                    |     | Dimensions       |                      |                  |                                            |                                                |                     |                                        |                                      |                     |                   |             |                          |                             | Flange Weight (kg) |              |       |
| DN                              | NPS | Flange OD (mm) O | Thickness min (mm) t | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>1</sub> | Length Thru. Hub Slip-on/Socket Welding (mm) Y | Welding Neck (mm) Y | Bore Slip-on/Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.) | RF Stud Bolt Length (mm) | RF Machine Bolt Length (mm) | Slip-on            | Welding Neck | Blind |
| 15                              | ½   | 80               | 9.6                  | 30               | 21.3                                       | 14                                             | 46                  | 22.2                                   | 15.8                                 | 60.3                | 15.9              | 4           | 55                       | 50                          | 0.4                | 0.5          | 0.4   |
| 20                              | ¾   | 100              | 11.2                 | 38               | 26.7                                       | 14                                             | 51                  | 27.7                                   | 20.9                                 | 69.9                | 15.9              | 4           | 65                       | 50                          | 0.6                | 0.7          | 0.6   |
| 25                              | 1   | 110              | 12.7                 | 49               | 33.4                                       | 16                                             | 54                  | 34.5                                   | 26.6                                 | 79.4                | 15.9              | 4           | 65                       | 55                          | 0.8                | 1.0          | 0.9   |
| 32                              | 1 ¼ | 115              | 14.3                 | 59               | 42.2                                       | 19                                             | 56                  | 43.2                                   | 35.1                                 | 88.9                | 15.9              | 4           | 70                       | 55                          | 1.0                | 1.3          | 1.2   |
| 40                              | 1 ½ | 125              | 15.9                 | 65               | 48.3                                       | 21                                             | 60                  | 49.5                                   | 40.9                                 | 98.4                | 15.9              | 4           | 70                       | 65                          | 1.3                | 1.7          | 1.5   |
| 50                              | 2   | 150              | 17.5                 | 78               | 60.3                                       | 24                                             | 62                  | 61.9                                   | 52.5                                 | 120.7               | 19.1              | 4           | 85                       | 70                          | 2.1                | 2.6          | 2.4   |
| 65                              | 2 ½ | 180              | 20.7                 | 90               | 73.0                                       | 27                                             | 68                  | 76.6                                   | 62.7                                 | 139.7               | 19.1              | 4           | 90                       | 75                          | 3.3                | 4.1          | 3.9   |
| 80                              | 3   | 190              | 22.3                 | 108              | 88.9                                       | 29                                             | 68                  | 90.7                                   | 77.9                                 | 162.4               | 19.1              | 4           | 90                       | 75                          | 3.9                | 4.9          | 4.9   |
| 90                              | 3 ½ | 215              | 22.3                 | 122              | 101.6                                      | 30                                             | 70                  | 103.4                                  | 90.1                                 | 177.8               | 19.1              | 8           | 90                       | 75                          | 4.6                | 6.1          | 6.2   |
| 100                             | 4   | 230              | 22.3                 | 135              | 114.3                                      | 32                                             | 75                  | 116.1                                  | 102.3                                | 190.5               | 19.1              | 8           | 90                       | 75                          | 5.3                | 6.8          | 7.0   |
| 125                             | 5   | 255              | 22.3                 | 164              | 141.3                                      | 35                                             | 87                  | 143.8                                  | 128.2                                | 215.9               | 22.2              | 8           | 95                       | 85                          | 6.1                | 8.6          | 8.5   |
| 100                             | 4   | 230              | 22.3                 | 135              | 114.3                                      | 32                                             | 75                  | 116.1                                  | 102.3                                | 190.5               | 19.1              | 8           | 90                       | 75                          | 5.3                | 6.8          | 7.0   |
| 125                             | 5   | 255              | 22.3                 | 164              | 141.3                                      | 35                                             | 87                  | 143.8                                  | 128.2                                | 215.9               | 22.2              | 8           | 95                       | 85                          | 6.1                | 8.6          | 8.6   |
| 150                             | 6   | 280              | 23.9                 | 192              | 168.3                                      | 38                                             | 87                  | 170.7                                  | 154.1                                | 241.3               | 22.2              | 8           | 100                      | 85                          | 7.5                | 11           | 11    |
| 200                             | 8   | 345              | 27.0                 | 246              | 219.1                                      | 43                                             | 100                 | 221.5                                  | 202.7                                | 298.5               | 22.2              | 8           | 110                      | 90                          | 12                 | 18           | 20    |
| 250                             | 10  | 405              | 28.6                 | 305              | 273.0                                      | 48                                             | 100                 | 276.2                                  | 254.6                                | 362.0               | 25.4              | 12          | 115                      | 100                         | 17                 | 24           | 29    |
| 300                             | 12  | 485              | 30.2                 | 365              | 323.8                                      | 54                                             | 113                 | 327.0                                  | 304.8                                | 431.8               | 25.4              | 12          | 120                      | 100                         | 26                 | 37           | 43    |
| 350                             | 14  | 535              | 31.4                 | 400              | 355.6                                      | 56                                             | 125                 | 359.2                                  | Note (1)                             | 476.3               | 28.6              | 12          | 135                      | 115                         | 35                 | 48           | 58    |
| 400                             | 16  | 595              | 35.0                 | 457              | 406.4                                      | 62                                             | 125                 | 410.5                                  | Note (1)                             | 539.8               | 28.6              | 16          | 135                      | 115                         | 45                 | 61           | 76    |
| 450                             | 18  | 635              | 38.1                 | 505              | 457.0                                      | 67                                             | 138                 | 461.8                                  | Note (1)                             | 577.9               | 31.8              | 16          | 145                      | 125                         | 49                 | 68           | 94    |
| 500                             | 20  | 700              | 41.3                 | 559              | 508.0                                      | 71                                             | 143                 | 513.1                                  | Note (1)                             | 635.0               | 31.8              | 20          | 160                      | 140                         | 62                 | 85           | 122   |
| 600                             | 24  | 815              | 40.1                 | 663              | 610.0                                      | 81                                             | 151                 | 616.0                                  | Note (1)                             | 749.3               | 34.9              | 20          | 170                      | 150                         | 87                 | 115          | 186   |

| Class 300 Flanges to ASME B16.5 |     |                  |                      |                  |                                            |                                                |                     |                                        |                                      |                     |                   |             |                          |                             |                    |              |       |
|---------------------------------|-----|------------------|----------------------|------------------|--------------------------------------------|------------------------------------------------|---------------------|----------------------------------------|--------------------------------------|---------------------|-------------------|-------------|--------------------------|-----------------------------|--------------------|--------------|-------|
| Nominal Size                    |     | Dimensions       |                      |                  |                                            |                                                |                     |                                        |                                      |                     |                   |             |                          |                             | Flange Weight (kg) |              |       |
| DN                              | NPS | Flange OD (mm) O | Thickness min (mm) t | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>1</sub> | Length Thru. Hub Slip-on/Socket Welding (mm) Y | Welding Neck (mm) Y | Bore Slip-on/Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.) | RF Stud Bolt Length (mm) | RF Machine Bolt Length (mm) | Slip-on            | Welding Neck | Blind |
| 15                              | ½   | 95               | 12.7                 | 38               | 21.3                                       | 21                                             | 51                  | 22.2                                   | 15.8                                 | 66.7                | 15.9              | 4           | 65                       | 55                          | 0.6                | 0.8          | 0.6   |
| 20                              | ¾   | 115              | 14.3                 | 48               | 26.7                                       | 24                                             | 56                  | 27.7                                   | 20.9                                 | 82.6                | 19.1              | 4           | 75                       | 65                          | 1.2                | 1.3          | 1.2   |
| 25                              | 1   | 125              | 15.9                 | 54               | 33.4                                       | 25                                             | 60                  | 34.5                                   | 26.6                                 | 88.9                | 19.1              | 4           | 75                       | 65                          | 1.4                | 1.6          | 1.4   |
| 32                              | 1 ¼ | 135              | 17.5                 | 64               | 42.2                                       | 25                                             | 64                  | 43.2                                   | 35.1                                 | 98.4                | 19.1              | 4           | 85                       | 70                          | 1.7                | 2.1          | 1.8   |
| 40                              | 1 ½ | 155              | 19.1                 | 70               | 48.3                                       | 29                                             | 67                  | 49.5                                   | 40.9                                 | 114.3               | 22.2              | 4           | 90                       | 75                          | 2.6                | 3.1          | 2.7   |
| 50                              | 2   | 185              | 20.7                 | 84               | 60.3                                       | 32                                             | 68                  | 61.9                                   | 52.5                                 | 127.0               | 19.1              | 8           | 90                       | 75                          | 2.9                | 3.4          | 3.1   |
| 65                              | 2 ½ | 190              | 23.9                 | 100              | 73.0                                       | 37                                             | 75                  | 74.6                                   | 62.7                                 | 149.2               | 22.2              | 8           | 100                      | 85                          | 4.5                | 5.3          | 4.8   |
| 80                              | 3   | 210              | 27.0                 | 117              | 88.9                                       | 41                                             | 78                  | 90.7                                   | 77.9                                 | 168.3               | 22.2              | 8           | 110                      | 90                          | 6.2                | 7.3          | 6.8   |
| 90                              | 3 ½ | 230              | 28.6                 | 133              | 101.6                                      | 43                                             | 79                  | 103.4                                  | 90.1                                 | 184.2               | 22.2              | 8           | 110                      | 95                          | 8.2                | 9.5          | 9.5   |
| 100                             | 4   | 255              | 30.2                 | 146              | 114.3                                      | 46                                             | 84                  | 116.1                                  | 102.3                                | 200.0               | 22.2              | 8           | 115                      | 95                          | 11                 | 12           | 12    |
| 125                             | 5   | 280              | 33.4                 | 178              | 141.3                                      | 49                                             | 97                  | 143.8                                  | 128.2                                | 235.0               | 22.2              | 8           | 120                      | 110                         | 15                 | 16           | 16    |
| 150                             | 6   | 320              | 35.0                 | 206              | 168.3                                      | 51                                             | 97                  | 170.7                                  | 154.1                                | 269.9               | 22.2              | 12          | 120                      | 110                         | 20                 | 21           | 21    |
| 200                             | 8   | 380              | 39.7                 | 260              | 219.1                                      | 60                                             | 110                 | 221.5                                  | 202.7                                | 330.2               | 25.4              | 12          | 140                      | 120                         | 30                 | 35           | 35    |
| 250                             | 10  | 445              | 46.1                 | 321              | 273.0                                      | 65                                             | 116                 | 276.2                                  | 254.6                                | 387.4               | 28.6              | 16          | 160                      | 140                         | 44                 | 55           | 55    |
| 300                             | 12  | 520              | 49.3                 | 375              | 323.8                                      | 71                                             | 129                 | 327.0                                  | 304.8                                | 450.8               | 31.8              | 16          | 170                      | 145                         | 64                 | 79           | 79    |
| 350                             | 14  | 585              | 52.4                 | 425              | 355.6                                      | 75                                             | 141                 | 359.2                                  | Note (1)                             | 514.4               | 31.8              | 20          | 180                      | 160                         | 88                 | 107          | 107   |
| 400                             | 16  | 650              | 55.6                 | 483              | 406.4                                      | 81                                             | 144                 | 410.5                                  | Note (1)                             | 577.5               | 34.9              | 20          | 190                      | 165                         | 113                | 139          | 139   |
| 450                             | 18  | 710              | 58.8                 | 533              | 457.0                                      | 87                                             | 157                 | 461.8                                  | Note (1)                             | 628.6               | 34.9              | 24          | 195                      | 170                         | 138                | 177          | 177   |
| 500                             | 20  | 775              | 62.0                 | 587              | 508.0                                      | 94                                             | 160                 | 513.1                                  | Note (1)                             | 685.8               | 34.9              | 24          | 205                      | 185                         | 167                | 223          | 223   |
| 600                             | 24  | 915              | 68.3                 | 702              | 610.0                                      | 105                                            | 167                 | 616.0                                  | Note (1)                             | 812.8               | 41.3              | 24          | 230                      | 205                         | 235                | 342          | 342   |

These flanges are available in a very wide range of sizes, ratings and types in 304/304L and 316/316L. Other grades such as 2205 are available subject to enquiry.



## Stainless Steel ASME/ANSI Flanges – Dimensions & Weights

| Class 600 Flanges to ASME B16.5 |     |                  |                      |                  |                                            |                                               |                     |                                        |                                      |                     |                   |             |                          |                    |              |       |
|---------------------------------|-----|------------------|----------------------|------------------|--------------------------------------------|-----------------------------------------------|---------------------|----------------------------------------|--------------------------------------|---------------------|-------------------|-------------|--------------------------|--------------------|--------------|-------|
| Nominal Size                    |     | Dimensions       |                      |                  |                                            |                                               |                     |                                        |                                      |                     |                   |             |                          | Flange Weight (kg) |              |       |
| DN                              | NPS | Flange OD (mm) O | Thickness min (mm) t | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>1</sub> | Length Thru Hub Slip-on/Socket Welding (mm) Y | Welding Neck (mm) Y | Bore Slip-on/Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.) | RF Stud Bolt Length (mm) | Slip-on            | Welding Neck | Blind |
| 15                              | ½   | 95               | 14.3                 | 38               | 21.3                                       | 22                                            | 52                  | 22.2                                   | Note (1)                             | 88.7                | 15.9              | 4           | 75                       | 0.9                | 0.9          | 0.9   |
| 20                              | ¾   | 115              | 15.9                 | 48               | 26.7                                       | 25                                            | 57                  | 27.7                                   | Note (1)                             | 82.6                | 19.1              | 4           | 90                       | 1.4                | 1.6          | 1.4   |
| 25                              | 1   | 125              | 17.5                 | 54               | 33.4                                       | 27                                            | 62                  | 34.5                                   | Note (1)                             | 88.9                | 19.1              | 4           | 90                       | 1.8                | 1.9          | 1.8   |
| 32                              | 1 ¼ | 135              | 20.7                 | 64               | 42.2                                       | 29                                            | 67                  | 43.2                                   | Note (1)                             | 98.4                | 19.1              | 4           | 95                       | 2.6                | 2.5          | 2.4   |
| 40                              | 1 ½ | 155              | 22.3                 | 70               | 48.3                                       | 32                                            | 70                  | 49.5                                   | Note (1)                             | 114.3               | 22.2              | 4           | 110                      | 3.2                | 3.6          | 3.4   |
| 50                              | 2   | 165              | 25.4                 | 84               | 60.3                                       | 37                                            | 73                  | 61.9                                   | Note (1)                             | 127.0               | 19.1              | 8           | 110                      | 3.9                | 4.5          | 4.4   |
| 65                              | 2 ½ | 190              | 28.6                 | 100              | 73.0                                       | 41                                            | 79                  | 74.6                                   | Note (1)                             | 149.2               | 22.2              | 8           | 120                      | 5.9                | 6.4          | 6.8   |
| 80                              | 3   | 210              | 31.8                 | 117              | 88.9                                       | 46                                            | 83                  | 90.7                                   | Note (1)                             | 168.3               | 22.2              | 8           | 125                      | 7.4                | 8.1          | 8.9   |
| 90                              | 3 ½ | 230              | 35.0                 | 133              | 101.6                                      | 49                                            | 88                  | 103.4                                  | Note (1)                             | 184.                | 25.4              | 8           | 140                      |                    | 12           | 13    |
| 100                             | 4   | 275              | 38.1                 | 152              | 114.3                                      | 54                                            | 102                 | 116.1                                  | Note (1)                             | 215.9               | 25.4              | 8           | 145                      |                    | 17           | 19    |
| 125                             | 5   | 330              | 44.5                 | 189              | 141.3                                      | 60                                            | 114                 | 143.8                                  | Note (1)                             | 266.7               | 28.6              | 8           | 165                      |                    | 31           | 31    |
| 150                             | 6   | 355              | 47.7                 | 222              | 168.3                                      | 67                                            | 117                 | 170.7                                  | Note (1)                             | 292.1               | 28.6              | 12          | 170                      |                    | 37           | 38    |
| 200                             | 8   | 420              | 55.6                 | 273              | 219.1                                      | 76                                            | 133                 | 221.5                                  | Note (1)                             | 349.2               | 31.8              | 12          | 190                      |                    | 51           | 62    |
| 250                             | 10  | 510              | 63.5                 | 343              | 273.0                                      | 86                                            | 152                 | 276.2                                  | Note (1)                             | 431.8               | 34.9              | 16          | 215                      |                    | 86           | 102   |
| 300                             | 12  | 560              | 66.7                 | 400              | 323.8                                      | 92                                            | 156                 | 327.0                                  | Note (1)                             | 489.0               | 34.9              | 20          | 220                      |                    | 103          | 132   |
| 350                             | 14  | 605              | 69.9                 | 432              | 355.6                                      | 94                                            | 165                 | 359.2                                  | Note (1)                             | 527.0               | 38.1              | 20          | 235                      |                    | 122          | 158   |
| 400                             | 16  | 685              | 76.2                 | 495              | 406.4                                      | 106                                           | 178                 | 410.5                                  | Note (1)                             | 603.2               | 41.3              | 20          | 255                      |                    | 177          | 225   |
| 450                             | 18  | 745              | 82.6                 | 546              | 457.0                                      | 117                                           | 184                 | 461.8                                  | Note (1)                             | 654.0               | 44.5              | 20          | 275                      |                    | 216          | 285   |
| 500                             | 20  | 815              | 88.9                 | 610              | 508.0                                      | 127                                           | 190                 | 513.1                                  | Note (1)                             | 723.9               | 44.5              | 24          | 285                      |                    | 268          | 365   |
| 600                             | 24  | 940              | 101.6                | 718              | 610.0                                      | 140                                           | 203                 | 616.0                                  | Note (1)                             | 838.2               | 50.8              | 24          | 330                      |                    | 372          | 533   |

| Class 900 Flanges to ASME B16.5 |     |                  |                      |                  |                                            |                                               |                     |                                        |                                      |                     |                   |             |                          |                    |              |       |
|---------------------------------|-----|------------------|----------------------|------------------|--------------------------------------------|-----------------------------------------------|---------------------|----------------------------------------|--------------------------------------|---------------------|-------------------|-------------|--------------------------|--------------------|--------------|-------|
| Nominal Size                    |     | Dimensions       |                      |                  |                                            |                                               |                     |                                        |                                      |                     |                   |             |                          | Flange Weight (kg) |              |       |
| DN                              | NPS | Flange OD (mm) O | Thickness min (mm) t | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>1</sub> | Length Thru Hub Slip-on/Socket Welding (mm) Y | Welding Neck (mm) Y | Bore Slip-on/Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.) | RF Stud Bolt Length (mm) | Slip-on            | Welding Neck | Blind |
| 15                              | ½   | 120              | 22.3                 | 38               | 21.3                                       | 32                                            | 60                  | 22.2                                   | Note (1)                             | 82.6                | 22.2              | 4           | 110                      | 1.8                | 2.1          | 1.9   |
| 20                              | ¾   | 130              | 25.4                 | 44               | 26.7                                       | 35                                            | 70                  | 27.7                                   | Note (1)                             | 88.9                | 22.2              | 4           | 115                      | 2.3                | 2.7          | 2.7   |
| 25                              | 1   | 150              | 28.6                 | 52               | 33.4                                       | 41                                            | 73                  | 34.5                                   | Note (1)                             | 101.6               | 25.4              | 4           | 125                      | 3.4                | 3.9          | 4.1   |
| 32                              | 1 ¼ | 160              | 28.6                 | 64               | 42.2                                       | 41                                            | 73                  | 43.2                                   | Note (1)                             | 111.1               | 25.4              | 4           | 125                      | 4.1                | 4.5          | 4.3   |
| 40                              | 1 ½ | 180              | 31.8                 | 70               | 48.3                                       | 44                                            | 83                  | 49.5                                   | Note (1)                             | 123.8               | 28.6              | 4           | 140                      | 5.5                | 5.9          | 5.9   |
| 50                              | 2   | 215              | 38.1                 | 105              | 60.3                                       | 57                                            | 102                 | 61.9                                   | Note (1)                             | 165.1               | 25.4              | 8           | 145                      | 11                 | 11           | 11    |
| 65                              | 2 ½ | 245              | 41.3                 | 124              | 73.0                                       | 64                                            | 105                 | 74.6                                   | Note (1)                             | 190.5               | 28.6              | 8           | 160                      | 16                 | 16           | 16    |
| 80                              | 3   | 240              | 38.1                 | 127              | 88.9                                       | 54                                            | 102                 | 90.7                                   | Note (1)                             | 190.5               | 25.4              | 8           | 145                      | 12                 | 15           | 13    |
| 100                             | 4   | 290              | 44.5                 | 159              | 114.3                                      | 70                                            | 114                 | 116.1                                  | Note (1)                             | 235.0               | 31.8              | 8           | 170                      | 23                 | 23           | 26    |
| 125                             | 5   | 350              | 50.8                 | 190              | 141.3                                      | 79                                            | 127                 | 143.8                                  | Note (1)                             | 279.4               | 34.9              | 8           | 190                      | 38                 | 39           | 39    |
| 150                             | 6   | 380              | 55.6                 | 235              | 168.3                                      | 86                                            | 140                 | 170.7                                  | Note (1)                             | 317.5               | 31.8              | 12          | 190                      | 48                 | 50           | 52    |
| 200                             | 8   | 470              | 63.5                 | 298              | 219.1                                      | 102                                           | 162                 | 221.5                                  | Note (1)                             | 393.7               | 38.1              | 12          | 220                      | 75                 | 79           | 59    |
| 250                             | 10  | 545              | 69.9                 | 368              | 273.0                                      | 108                                           | 184                 | 276.2                                  | Note (1)                             | 469.9               | 38.1              | 16          | 235                      | 111                | 118          | 132   |
| 300                             | 12  | 610              | 79.4                 | 419              | 323.8                                      | 117                                           | 200                 | 327.0                                  | Note (1)                             | 533.4               | 38.1              | 20          | 255                      | 146                | 157          | 187   |
| 350                             | 14  | 640              | 85.8                 | 451              | 355.6                                      | 130                                           | 213                 | 359.2                                  | Note (1)                             | 558.8               | 41.3              | 20          | 275                      | 172                | 182          | 224   |
| 400                             | 16  | 705              | 88.9                 | 508              | 406.4                                      | 133                                           | 216                 | 410.5                                  | Note (1)                             | 616.0               | 44.5              | 20          | 285                      | 193                | 225          | 272   |
| 450                             | 18  | 785              | 101.6                | 565              | 457.0                                      | 152                                           | 229                 | 461.8                                  | Note (1)                             | 685.8               | 50.8              | 20          | 325                      | 272                | 309          | 386   |
| 500                             | 20  | 855              | 108.0                | 622              | 508.0                                      | 159                                           | 248                 | 513.1                                  | Note (1)                             | 749.3               | 54.0              | 20          | 350                      | 331                | 377          | 488   |
| 600                             | 24  | 1040             | 139.7                | 749              | 610.0                                      | 203                                           | 292                 | 616.0                                  | Note (1)                             | 901.7               | 66.7              | 20          | 440                      | 632                | 685          | 905   |

These flanges are available in a very wide range of sizes, ratings and types in 304/304L and 316/316L. Other grades such as 2205 are available subject to enquiry.



## Stainless Steel ASME/ANSI Flanges – Dimensions & Weights

| Class 1500 Flanges to ASME B16.5 |     |                  |                       |                  |                                            |                                |                     |                                    |                                      |                     |                   |                    |                          |         |              |       |
|----------------------------------|-----|------------------|-----------------------|------------------|--------------------------------------------|--------------------------------|---------------------|------------------------------------|--------------------------------------|---------------------|-------------------|--------------------|--------------------------|---------|--------------|-------|
| Nominal Size                     |     | Dimensions       |                       |                  |                                            |                                |                     |                                    |                                      |                     |                   | Flange Weight (kg) |                          |         |              |       |
| DN                               | NPS | Flange OD (mm) O | Thick-ness min (mm) L | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>w</sub> | Slip-on/ Socket Welding (mm) Y | Welding Neck (mm) Y | Slip-on/ Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.)        | RF Stud Bolt Length (mm) | Slip-on | Welding Neck | Blind |
| 16                               | ¾   | 120              | 22.3                  | 38               | 21.3                                       | 32                             | 60                  | 22.2                               | Note (1)                             | 82.6                | 22.2              | 4                  | 110                      | 1.8     | 2.1          | 1.9   |
| 20                               | ¾   | 130              | 25.4                  | 44               | 26.7                                       | 35                             | 70                  | 27.7                               | Note (1)                             | 88.9                | 22.2              | 4                  | 115                      | 2.8     | 2.7          | 2.7   |
| 25                               | 1   | 150              | 28.6                  | 52               | 33.4                                       | 41                             | 73                  | 34.5                               | Note (1)                             | 101.6               | 25.4              | 4                  | 125                      | 3.6     | 3.9          | 4.1   |
| 32                               | 1 ¼ | 160              | 28.6                  | 64               | 42.2                                       | 41                             | 73                  | 43.2                               | Note (1)                             | 111.1               | 25.4              | 4                  | 125                      | 5.0     | 4.5          | 4.3   |
| 40                               | 1 ½ | 180              | 31.8                  | 70               | 48.3                                       | 44                             | 83                  | 49.5                               | Note (1)                             | 123.8               | 28.6              | 4                  | 140                      | 6.8     | 5.9          | 5.9   |
| 50                               | 2   | 215              | 38.1                  | 105              | 60.3                                       | 57                             | 102                 | 61.9                               | Note (1)                             | 165.1               | 25.4              | 8                  | 145                      | 11      | 11           | 11    |
| 65                               | 2 ½ | 245              | 41.3                  | 124              | 73.0                                       | 64                             | 105                 | 74.6                               | Note (1)                             | 190.5               | 28.6              | 8                  | 160                      | 16      | 16           | 16    |
| 80                               | 3   | 265              | 47.7                  | 133              | 88.9                                       |                                | 117                 |                                    | Note (1)                             | 203.2               | 31.8              | 8                  | 180                      |         | 22           | 22    |
| 100                              | 4   | 310              | 54.0                  | 162              | 114.3                                      |                                | 124                 |                                    | Note (1)                             | 241.3               | 34.9              | 8                  | 195                      |         | 31           | 33    |
| 125                              | 5   | 375              | 73.1                  | 197              | 141.3                                      |                                | 156                 |                                    | Note (1)                             | 292.1               | 41.3              | 8                  | 250                      |         | 59           | 60    |
| 150                              | 6   | 395              | 82.6                  | 229              | 168.3                                      |                                | 171                 |                                    | Note (1)                             | 317.5               | 38.1              | 12                 | 260                      |         | 75           | 75    |
| 200                              | 8   | 485              | 92.1                  | 292              | 219.1                                      |                                | 213                 |                                    | Note (1)                             | 393.7               | 44.5              | 12                 | 290                      |         | 124          | 137   |
| 250                              | 10  | 585              | 108.0                 | 368              | 273.0                                      |                                | 254                 |                                    | Note (1)                             | 482.6               | 50.8              | 12                 | 335                      |         | 206          | 230   |
| 300                              | 12  | 675              | 123.9                 | 451              | 323.8                                      |                                | 283                 |                                    | Note (1)                             | 571.5               | 54.0              | 16                 | 375                      |         | 306          | 316   |
| 350                              | 14  | 750              | 133.4                 | 495              | 355.6                                      |                                | 298                 |                                    | Note (1)                             | 635.0               | 60.3              | 16                 | 405                      |         | 416          | 421   |
| 400                              | 16  | 825              | 146.1                 | 552              | 406.4                                      |                                | 311                 |                                    | Note (1)                             | 704.8               | 66.7              | 16                 | 445                      |         | 568          | 559   |
| 450                              | 18  | 915              | 162.0                 | 597              | 457.0                                      |                                | 327                 |                                    | Note (1)                             | 774.7               | 73.0              | 16                 | 495                      |         | 736          | 761   |
| 500                              | 20  | 985              | 177.8                 | 641              | 508.0                                      |                                | 356                 |                                    | Note (1)                             | 831.8               | 79.4              | 16                 | 540                      |         | 929          | 967   |
| 600                              | 24  | 1170             | 203.2                 | 762              | 610.0                                      |                                | 406                 |                                    | Note (1)                             | 990.6               | 92.1              | 16                 | 615                      |         | 1504         | 1568  |

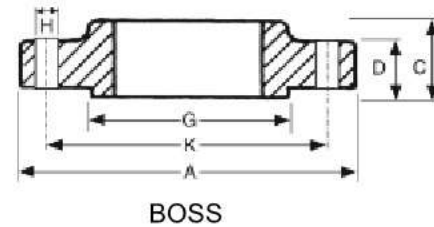
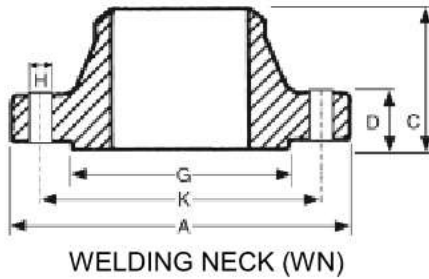
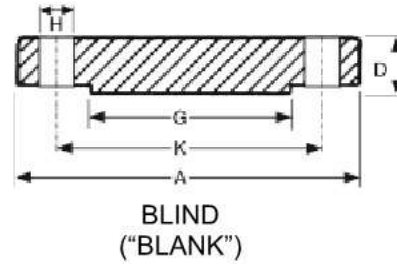
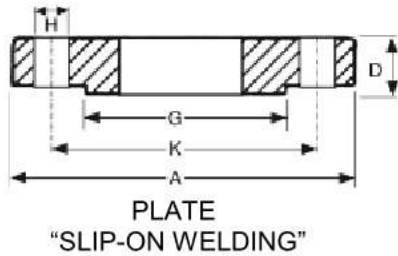
| Class 2500 Flanges to ASME B16.5 |     |                  |                       |                  |                                            |                                |                     |                                    |                                      |                     |                   |                    |                          |         |              |       |
|----------------------------------|-----|------------------|-----------------------|------------------|--------------------------------------------|--------------------------------|---------------------|------------------------------------|--------------------------------------|---------------------|-------------------|--------------------|--------------------------|---------|--------------|-------|
| Nominal Size                     |     | Dimensions       |                       |                  |                                            |                                |                     |                                    |                                      |                     |                   | Flange Weight (kg) |                          |         |              |       |
| DN                               | NPS | Flange OD (mm) O | Thick-ness min (mm) L | Hub Diam. (mm) X | Hub Diam. Welding Neck (mm) A <sub>w</sub> | Slip-on/ Socket Welding (mm) Y | Welding Neck (mm) Y | Slip-on/ Socket Welding min (mm) B | Welding Neck / Socket Welding (mm) B | Circle Diam. (mm) K | Hole Diam. (mm) H | Bolts (No.)        | RF Stud Bolt Length (mm) | Slip-on | Welding Neck | Blind |
| 15                               | ¾   | 135              | 30.2                  | 43               | 21.3                                       | 40                             | 73                  | 22.9                               | Note (1)                             | 88.9                | 22.2              | 4                  | 120                      | 3.0     | 3.2          | 3.2   |
| 20                               | ¾   | 140              | 31.8                  | 51               | 26.7                                       | 43                             | 79                  | 28.2                               | Note (1)                             | 95.2                | 22.2              | 4                  | 125                      | 3.6     | 4.1          | 4.5   |
| 25                               | 1   | 160              | 35.0                  | 57               | 33.4                                       | 48                             | 89                  | 34.9                               | Note (1)                             | 108.0               | 25.4              | 4                  | 140                      | 5.0     | 5.5          | 5.4   |
| 32                               | 1 ¼ | 185              | 38.1                  | 73               | 42.2                                       | 52                             | 95                  | 43.7                               | Note (1)                             | 130.2               | 28.6              | 4                  | 150                      | 7.3     | 9.1          | 8.2   |
| 40                               | 1 ½ | 205              | 44.5                  | 79               | 48.3                                       | 60                             | 111                 | 50.0                               | Note (1)                             | 146.0               | 31.8              | 4                  | 170                      | 10      | 11           | 10    |
| 50                               | 2   | 235              | 50.9                  | 95               | 60.3                                       | 70                             | 127                 | 62.5                               | Note (1)                             | 171.4               | 28.6              | 8                  | 180                      | 17      | 19           | 18    |
| 65                               | 2 ½ | 265              | 57.2                  | 114              | 73.0                                       | 79                             | 143                 | 75.4                               | Note (1)                             | 196.8               | 31.8              | 8                  | 195                      | 24      | 24           | 25    |
| 80                               | 3   | 305              | 66.7                  | 133              | 88.9                                       | 92                             | 168                 | 91.4                               | Note (1)                             | 228.6               | 34.9              | 8                  | 220                      | 36      | 43           | 39    |
| 100                              | 4   | 355              | 76.2                  | 165              | 114.3                                      | 108                            | 190                 | 116.8                              | Note (1)                             | 273.0               | 41.3              | 8                  | 255                      | 54      | 64           | 60    |
| 125                              | 5   | 420              | 92.1                  | 203              | 141.3                                      | 130                            | 229                 | 144.4                              | Note (1)                             | 323.8               | 47.6              | 8                  | 300                      | 93      | 111          | 101   |
| 150                              | 6   | 485              | 108.0                 | 236              | 168.3                                      | 152                            | 273                 | 171.4                              | Note (1)                             | 368.3               | 54.0              | 8                  | 345                      | 143     | 176          | 157   |
| 200                              | 8   | 550              | 127.0                 | 305              | 219.1                                      | 178                            | 318                 | 222.2                              | Note (1)                             | 438.2               | 54.0              | 12                 | 380                      | 213     | 261          | 241   |
| 250                              | 10  | 675              | 165.1                 | 375              | 273.0                                      | 229                            | 419                 | 277.4                              | Note (1)                             | 539.8               | 66.7              | 12                 | 490                      | 409     | 484          | 465   |
| 300                              | 12  | 760              | 184.2                 | 441              | 323.8                                      | 254                            | 464                 | 328.2                              | Note (1)                             | 619.1               | 73.0              | 12                 | 540                      | 573     | 692          | 664   |

These flanges are available in a very wide range of sizes, ratings and types in 304/304L and 316/316L.  
Other grades such as 2205 are available subject to enquiry.

## Stainless Steel Table Flanges – Dimensions & Weights

These diagrams relate to the tables of flange specified dimensions on the following pages.  
Refer note below regarding terminology of Table flange types.

### Types of Table Flanges specified in AS 2129.



### Notes to these diagrams and the following tables of dimensions.

- Diagrams above show the optional Raised Face.
- Standard Atlas Steels Table Flange stock is Flat Faced.
- All weights are approximate
- A diametrical clearance of 4mm maximum applies to pipe or tube OD for plate flanges
- The flange thickness "D" dimension includes the raised face height, if a non-standard raised sealing face is present.
- Welding Neck bore is derived from the pipe schedule
- Atlas standard stock table flanges are plate and blind type. Note that AS2129 plate flanges are usually referred to by end users as "slip-on welding" flanges and this terminology is also used in Atlas product descriptions.
- PN16 "DIN" flanges to EN1092-1 and AS4087 waterworks flanges are also available subject to enquiry.



## Stainless Steel Table Flanges – Dimensions & Weights

| Table D Flanges to AS 2129 |                 |             |                     |                     |                   |                 |                    |             |       |
|----------------------------|-----------------|-------------|---------------------|---------------------|-------------------|-----------------|--------------------|-------------|-------|
| Nominal Size               | Dimensions (mm) |             |                     |                     |                   |                 |                    | Weight (kg) |       |
| DN                         | OD A            | Thickness D | Raised Face Diam. G | Drilling            |                   |                 | Bolt Size & Thread | SOW         | Blind |
|                            |                 |             |                     | Bolt Circle Diam. K | Bolt Hole Diam. H | Number of Bolts |                    |             |       |
| 15                         | 95              | *5          | 47                  | 67                  | 14                | 4               | M12                | 0.6         | 0.6   |
| 20                         | 100             | *5          | 53                  | 73                  | 14                | 4               | M12                | 0.7         | 0.7   |
| 25                         | 115             | *5          | 65                  | 83                  | 14                | 4               | M12                | 0.9         | 1.0   |
| 32                         | 120             | *6          | 67                  | 87                  | 14                | 4               | M12                | 0.9         | 1.1   |
| 40                         | 135             | *6          | 78                  | 98                  | 14                | 4               | M12                | 1.2         | 1.4   |
| 50                         | 150             | *8          | 90                  | 114                 | 18                | 4               | M16                | 1.4         | 1.7   |
| 65                         | 165             | *8          | 103                 | 127                 | 18                | 4               | M16                | 1.6         | 2.1   |
| 80                         | 185             | *10         | 122                 | 146                 | 18                | 4               | M16                | 2.0         | 2.7   |
| 90                         | 205             | *10         | 141                 | 165                 | 18                | 4               | M16                | 2.2         | 3.2   |
| 100                        | 215             | *10         | 154                 | 178                 | 18                | 4               | M16                | 2.5         | 3.6   |
| 125                        | 255             | 13          | 186                 | 210                 | 18                | 8               | M16                | 3.3         | 4.9   |
| 150                        | 280             | 13          | 211                 | 235                 | 18                | 8               | M16                | 4.0         | 6.1   |
| 200                        | 335             | 13          | 268                 | 292                 | 18                | 8               | M16                | 5.0         | 8.8   |
| 250                        | 405             | 16          | 328                 | 356                 | 22                | 8               | M20                | 8.7         | 15.8  |
| 300                        | 455             | 19          | 378                 | 406                 | 22                | 12              | M20                | 11.3        | 23.6  |
| 350                        | 525             | 22          | 430                 | 470                 | 26                | 12              | M24                | 19.6        | 30.6  |
| 400                        | 580             | 22          | 489                 | 521                 | 26                | 12              | M24                | 22.3        | 44.9  |
| 450                        | 640             | 25          | 532                 | 584                 | 26                | 12              | M24                | 29.0        | 63.0  |
| 500                        | 705             | 29          | 609                 | 641                 | 26                | 16              | M24                | 39.9        | 86.0  |
| 550                        | 760             | 29          | 637                 | 699                 | 30                | 16              | M27                | 50.0        | 107.0 |
| 600                        | 825             | 32          | 720                 | 756                 | 30                | 16              | M27                | 58.0        | 125.0 |
| 700                        | 910             | 35          | 809                 | 845                 | 30                | 20              | M27                |             |       |
| 750                        | 995             | 41          | 888                 | 927                 | 33                | 20              | M30                |             |       |
| 800                        | 1060            | 41          | 942                 | 984                 | 36                | 20              | M33                |             |       |
| 850                        | 1090            | 44          | 974                 | 1016                | 36                | 20              | M33                |             |       |
| 900                        | 1175            | 48          | 1050                | 1092                | 36                | 24              | M33                |             |       |
| 1000                       | 1255            | 51          | 1133                | 1175                | 36                | 24              | M33                |             |       |
| 1200                       | 1490            | 60          | 1368                | 1410                | 36                | 32              | M33                |             |       |

| Table E Flanges to AS 2129 |                 |             |                     |                     |                   |                 |                    |             |       |
|----------------------------|-----------------|-------------|---------------------|---------------------|-------------------|-----------------|--------------------|-------------|-------|
| Nominal Size               | Dimensions (mm) |             |                     |                     |                   |                 |                    | Weight (kg) |       |
| DN                         | OD A            | Thickness D | Raised Face Diam. G | Drilling            |                   |                 | Bolt Size & Thread | SOW         | Blind |
|                            |                 |             |                     | Bolt Circle Diam. K | Bolt Hole Diam. H | Number of Bolts |                    |             |       |
| 15                         | 95              | *6          | 47                  | 67                  | 14                | 4               | M12                | 0.6         | 0.7   |
| 20                         | 100             | *6          | 53                  | 73                  | 14                | 4               | M12                | 0.7         | 0.8   |
| 25                         | 115             | *7          | 63                  | 83                  | 14                | 4               | M12                | 0.9         | 1.0   |
| 32                         | 120             | *8          | 67                  | 87                  | 14                | 4               | M12                | 1.0         | 1.1   |
| 40                         | 135             | *9          | 78                  | 98                  | 14                | 4               | M12                | 1.2         | 1.4   |
| 50                         | 150             | *10         | 90                  | 114                 | 18                | 4               | M16                | 1.4         | 1.7   |
| 65                         | 165             | *10         | 103                 | 127                 | 18                | 4               | M16                | 1.6         | 2.1   |
| 80                         | 185             | *11         | 122                 | 146                 | 18                | 4               | M16                | 2.0         | 2.7   |
| 90                         | 205             | 12          | 141                 | 165                 | 18                | 8               | M16                |             |       |
| 100                        | 215             | 13          | 154                 | 178                 | 18                | 8               | M16                | 2.5         | 3.6   |
| 125                        | 255             | 14          | 186                 | 210                 | 18                | 8               | M16                | 3.7         | 5.5   |
| 150                        | 280             | 17          | 207                 | 235                 | 22                | 8               | M20                | 5.0         | 8.3   |
| 200                        | 335             | 19          | 264                 | 292                 | 22                | 8               | M20                | 7.1         | 12.9  |
| 250                        | 405             | 22          | 328                 | 356                 | 22                | 12              | M20                | 11.4        | 21.9  |
| 300                        | 455             | 25          | 374                 | 406                 | 26                | 12              | M24                | 15.1        | 31.8  |
| 350                        | 525             | 29          | 438                 | 470                 | 26                | 12              | M24                | 25.3        | 47.6  |
| 400                        | 580             | 32          | 489                 | 521                 | 26                | 12              | M24                | 31.3        | 66.0  |
| 450                        | 640             | 35          | 552                 | 584                 | 26                | 16              | M24                | 40.8        | 87.0  |
| 500                        | 705             | 38          | 609                 | 641                 | 26                | 16              | M24                | 53.0        | 114.0 |
| 550                        | 760             | 44          | 663                 | 699                 | 30                | 16              | M27                |             |       |
| 600                        | 825             | 48          | 717                 | 756                 | 33                | 16              | M30                | 85.0        | 195.0 |
| 700                        | 910             | 51          | 806                 | 845                 | 33                | 20              | M30                |             |       |
| 750                        | 995             | 54          | 885                 | 927                 | 36                | 20              | M33                |             |       |
| 800                        | 1060            | 54          | 942                 | 984                 | 36                | 20              | M33                |             |       |
| 850                        | 1090            | 57          | 974                 | 1016                | 36                | 20              | M33                |             |       |
| 900                        | 1175            | 64          | 1050                | 1092                | 36                | 24              | M33                |             |       |
| 1000                       | 1255            | 67          | 1130                | 1175                | 39                | 24              | M36                |             |       |
| 1200                       | 1490            | 79          | 1365                | 1410                | 39                | 32              | M36                |             |       |



## Stainless Steel Table Flanges – Dimensions & Weights

| Table F Flanges to AS 2129 |                 |             |                     |                     |                   |                 |                    |             |       |
|----------------------------|-----------------|-------------|---------------------|---------------------|-------------------|-----------------|--------------------|-------------|-------|
| Nominal Size               | Dimensions (mm) |             |                     |                     |                   |                 |                    | Weight (kg) |       |
| DN                         | OD A            | Thickness D | Raised Face Diam. G | Drilling            |                   |                 | Bolt Size & Thread | SOW         | Blind |
|                            |                 |             |                     | Bolt Circle Diam. K | Bolt Hole Diam. H | Number of Bolts |                    |             |       |
| 15                         | 95              | 10          | 47                  | 67                  | 14                | 4               | M12                | 0.6         | 0.7   |
| 20                         | 100             | 10          | 53                  | 73                  | 14                | 4               | M12                | 0.7         | 0.8   |
| 25                         | 120             | 10          | 63                  | 87                  | 18                | 4               | M16                | 0.9         | 1.0   |
| 32                         | 135             | 13          | 74                  | 98                  | 18                | 4               | M16                | 1.1         | 1.3   |
| 40                         | 140             | 13          | 81                  | 105                 | 18                | 4               | M16                | 1.2         | 1.4   |
| 50                         | 165             | 16          | 103                 | 127                 | 18                | 4               | M16                | 2.2         | 2.6   |
| 65                         | 185             | 16          | 122                 | 146                 | 18                | 4               | M16                | 2.5         | 3.0   |
| 80                         | 205             | 16          | 141                 | 165                 | 18                | 8               | M16                | 3.0         | 3.8   |
| 90                         | 215             | 19          | 154                 | 178                 | 18                | 8               | M16                |             |       |
| 100                        | 230             | 19          | 167                 | 191                 | 18                | 8               | M16                | 4.3         | 5.9   |
| 125                        | 280             | 22          | 207                 | 235                 | 22                | 8               | M20                | 7.4         | 10.1  |
| 150                        | 305             | 22          | 232                 | 260                 | 22                | 12              | M20                | 8.1         | 11.9  |
| 200                        | 370             | 35          | 296                 | 324                 | 22                | 12              | M20                | 12.7        | 20.3  |
| 250                        | 430             | 29          | 349                 | 381                 | 26                | 12              | M24                | 18.1        | 31.4  |
| 300                        | 490             | 32          | 406                 | 438                 | 26                | 16              | M24                | 23.9        | 44.7  |
| 350                        | 550             | 35          | 459                 | 495                 | 30                | 16              | M27                | 35.3        | 63.0  |
| 400                        | 610             | 41          | 516                 | 552                 | 30                | 20              | M27                | 47.6        | 90.0  |
| 450                        | 675             | 44          | 571                 | 610                 | 33                | 20              | M30                | 62.0        | 120.0 |
| 500                        | 735             | 51          | 634                 | 673                 | 33                | 24              | M30                | 80.0        | 162.0 |
| 550                        | 785             | 54          | 685                 | 724                 | 33                | 24              | M30                |             |       |
| 600                        | 850             | 57          | 739                 | 781                 | 36                | 24              | M33                | 112.0       |       |
| 700                        | 935             | 60          | 815                 | 857                 | 36                | 24              | M33                |             |       |
| 750                        | 1015            | 67          | 898                 | 940                 | 36                | 28              | M33                |             |       |
| 800                        | 1060            | 68          | 942                 | 984                 | 36                | 28              | M33                |             |       |
| 850                        | 1090            | 70          | 974                 | 1016                | 36                | 32              | M33                |             |       |
| 900                        | 1185            | 76          | 1060                | 1105                | 39                | 32              | M36                |             |       |
| 1000                       | 1275            | 83          | 1149                | 1194                | 39                | 36              | M36                |             |       |
| 1200                       | 1530            | 95          | 1385                | 1441                | 42                | 40              | M39                |             |       |

| Table H Flanges to AS 2129 |                 |             |                     |                     |                   |                 |                    |             |       |
|----------------------------|-----------------|-------------|---------------------|---------------------|-------------------|-----------------|--------------------|-------------|-------|
| Nominal Size               | Dimensions (mm) |             |                     |                     |                   |                 |                    | Weight (kg) |       |
| DN                         | OD A            | Thickness D | Raised Face Diam. G | Drilling            |                   |                 | Bolt Size & Thread | SOW         | Blind |
|                            |                 |             |                     | Bolt Circle Diam. K | Bolt Hole Diam. H | Number of Bolts |                    |             |       |
| 15                         | 115             | 57          | 57                  | 83                  | 18                | 4               | M16                | 0.8         | 1.0   |
| 20                         | 115             | 57          | 57                  | 83                  | 18                | 4               | M16                | 0.9         | 1.0   |
| 25                         | 120             | 64          | 64                  | 87                  | 18                | 4               | M16                | 1.1         | 1.2   |
| 32                         | 135             | 76          | 76                  | 98                  | 18                | 4               | M16                | 1.5         | 1.8   |
| 40                         | 140             | 83          | 83                  | 105                 | 18                | 4               | M16                | 1.7         | 2.0   |
| 50                         | 165             | 102         | 102                 | 127                 | 18                | 4               | M16                | 2.6         | 3.1   |
| 65                         | 185             | 114         | 114                 | 146                 | 18                | 8               | M16                | 3.1         | 3.8   |
| 80                         | 205             | 127         | 127                 | 165                 | 18                | 8               | M16                | 4.3         | 5.4   |
| 90                         | 215             | 140         | 140                 | 178                 | 18                | 8               | M16                |             |       |
| 100                        | 230             | 152         | 152                 | 191                 | 18                | 8               | M16                | 5.8         | 7.9   |
| 125                        | 280             | 178         | 178                 | 235                 | 22                | 8               | M20                | 9.9         | 12.6  |
| 150                        | 305             | 210         | 210                 | 260                 | 22                | 12              | M20                | 10.8        | 15.4  |
| 200                        | 370             | 260         | 260                 | 324                 | 22                | 12              | M20                | 19.3        | 28.2  |
| 250                        | 430             | 311         | 311                 | 381                 | 26                | 12              | M24                | 22.1        | 38.0  |
| 300                        | 490             | 362         | 362                 | 438                 | 26                | 16              | M24                | 31.0        | 58.0  |
| 350                        | 550             | 419         | 419                 | 495                 | 30                | 16              | M27                | 47.7        | 85.0  |
| 400                        | 610             | 483         | 483                 | 552                 | 30                | 20              | M27                | 62.0        | 118.0 |
| 450                        | 675             | 533         | 533                 | 610                 | 33                | 20              | M30                | 105.0       | 196.0 |
| 500                        | 735             | 597         | 597                 | 673                 | 33                | 24              | M30                |             |       |
| 550                        | 785             | 648         | 648                 | 724                 | 33                | 24              | M30                |             |       |
| 600                        | 850             | 699         | 699                 | 781                 | 36                | 24              | M33                |             |       |