

# DERWENT INDUSTRIES

## Company Overview



**Derwent Pipelines<sup>®</sup> - Derwent Foundry<sup>®</sup>**  
**Derwent Clamps<sup>®</sup> - Derwent Couplings<sup>®</sup>**

# Derwent Industries ...

## News - Clamps & Couplings

Derwent Industries and the Evans family would like to announce the inclusion of the Clamp and Coupling range into the Derwent product offering.

Derwent Clamps® and Derwent Couplings® manufacturing facility is located in North East Victoria. The Stainless Steel Clamps (Kawandah®™ - Cocky Clamp) were originally released by the Evans Group of companies in 1981, while the stainless steel couplings were originally developed in the 1990's.

We look forward to continuing the development advancement of these and other products in the range.

The Clamps and Couplings produced at the plant have recently been granted the Australian Made license and will proudly display the logo.



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## Derwent Industries ... Providing Solutions for Your Industry

Meeting Customer expectations in the 21st Century. Derwent services the Water Industry, Irrigation Industry, Fire Services and Industrial / Commercial markets.

### Water Industry

Derwent Industries offers pipeline solutions for all water industry applications. Derwent, through its manufacturing plant and distribution centres, provides pipeline products and accessories to meet the needs of utilities and contractors.



### Irrigation Industry

Derwent tops up its extensive range of water products with a range of specially manufactured irrigation fittings to meet industry requirements.



### Fire Services

Derwent manufactures and distributes a comprehensive range of products to meet the demands of the vital fire services industry.

### Industrial / Commercial

Derwent Foundry provides – pattern making, moulding, casting, machining and coating facilities to suit individual customer needs.



## Who We Are ...

### Derwent: Pipelines, Foundry, Clamps and Couplings

Derwent Industries Pty Ltd incorporates Derwent Foundry®, Derwent Pipelines® and recently added Derwent Clamps® and Derwent Couplings®.

The Foundry and Pipelines businesses are situated in Derwent Park, Hobart, Tasmania and has both ISO 9001 accreditation and full Standards Mark across its broad range of water fittings. Derwent also currently has distribution centres in both Melbourne and Sydney.

Derwent Foundry® Tasmania has undergone numerous changes and restructuring to allow supply of competitive castings throughout Australia and overseas to various industry segments.

Derwent Clamps® and Derwent Couplings® were recently added back into the Derwent range with the manufacturing facility being located in North East Victoria. The Stainless Steel Clamps (Kawandah®™ - Cocky Clamp) were originally released by the Evans Group of companies in 1981, while the stainless steel couplings were originally developed in the 1990's. We are pleased to announce the reforming of the team and we look forward to continuing the advancement of these and other products in the range.

Derwent Industries New Zealand will commence manufacture in April 2019, with Derwent now having a large CNC, powder coating and manufacturing capability in New Zealand, adding to its existing manufacturing footprint.

Derwent Industries is a 100% Australian owned and operated business by the Evans Group of companies, and prides itself on providing its customers with products, service and solutions to meet their expectations.



### Mission Statement

To provide our customers with the highest quality product and professional service at all times whilst maintaining wherever possible Australian Made in our product offering.

## Derwent Industries ... Providing Solutions for Your Industry

### Derwent Foundry (Est. 1840) - History

Derwent Foundry was originally established in Hobart in 1840, though in the mid 1900's the name was changed to Montpellier Foundry. Montpellier was then purchased in the mid 1980's by Rex Garner and was re-established as Derwent Foundry®.

The Tasmanian Foundry was purchased by the Evans family in 1997 and since then has been upgraded and modernised on a continuing basis.

Derwent Foundry is now a registered entity of Derwent Industries Pty Ltd.

### Manufacturing

- Tasmania:
  - Jobbing castings, (specials, 1 off to 10 off) are a foundry speciality
  - Green and Hard sand moulding facilities
  - Induction furnaces
  - Shell core facilities for production castings available
  - Full CNC Machining Capabilities
  - Powder Coating

On site metallurgical control is carried out on each metal batch for ferrous metals.

Patternmaking facilities are available on site.

Derwent Industries is a quality assured company to ISO 9001. Licence No. QEC 2004, also holding numerous StandardsMark and WaterMark licenses where applicable.

### Materials

Materials manufactured include the following:

- Cast Iron – all grades to AS1830/1
- Ductile Iron grades 500/7 and 400/12
- Ni-resist irons for corrosion, heat, and wear resistance

For further detailed analysis of our capability, we welcome your enquiries.

### Derwent Clamps & Couplings - History

Derwent Clamps® and Derwent Couplings® were recently added back into the Derwent range with a new state of the art robotics manufacturing facility being established in North East Victoria.

The Stainless Steel Clamps (Kawandah®™ - Cocky Clamp) were developed for the Australian and export markets by the Evans Group of companies in 1981, in Wangaratta Victoria. The iconic logo of the cockatoo (Current trademark) is the logo we are still proud to use today to represent the range.

The stainless steel couplings were originally developed in the 1990's by the Evans Group, which was an iconic change to how the market saw the traditional coupling. A world leading Australian innovation, that revolutionized coupling design and manufacture and one that has stood the test of time.

Derwent Industries new facility in North East Victoria, will integrate multiple elements to form complete custom-automated production cells in line with Industry 4.0 concepts, maximising automation and data exchange in the manufacturing process. This signals a major advancement over its previous technology advancements and manufacturing capability and will enable the company to not only look to replacing the imported products currently supplying the Australian Industry but to move towards the establishment of a major export capability.

# Derwent Industries ...

## Products, Service, Solutions

### Products, Service, Solutions...

Derwent Industries prides itself on providing our customers with quality products, service and solutions, through our local Australian and overseas manufacturing. Our registered trademarks represent our main manufacturing, these being Derwent Foundry®, Derwent Pipelines®, Derwent Clamps® and Derwent Couplings®. Derwent produce an array of products for the water, waste water, irrigation, mining and fire markets.

### Products Include:

- Ductile Iron, Steel and PVC Pipe and Fittings
- Stainless Steel Repair, Tapped and Flanged Clamps
- Variable Couplings and Gibaults
- Valves and Hydrants
- Tapping Saddles and Stainless Steel Couplings
- Recycled plastic and DI covers and surrounds
- Insertion Kits and Extension Spindles
- Irrigation Fittings
- Water & Waste Water Products
- Fire Products
- Foundry Products
- Manufacture of competitive production castings for industry

## Products ... Providing Solutions for Your Industry

Derwent Industries manufactures and distributes an extensive range of products to meet the demands of today's industry. Products relate to various industry segments and applications for water, waste water, mining, irrigation, fire and other market/industry requirements.

Note: This is only a small selection of the products available from Derwent, please contact us directly for additional products available.

### Products Include:



#### Ductile Iron Fittings:

Ductile Iron Fittings in sizes from 80mm - 750mm  
(Depending on item selected).

Material: Ductile Iron

Coating: Rilsan, Plascoat or Fusion Bonded Epoxy (FBE)

Standards: AS/NZS 2280 Certification: Product License No. SMK1989

#### Valves DN 50 - DN 600 (Depending on end connection selected):

Derwent manufactures RSGV's in various end configurations to meet industry requirements. Range available includes:

- Flange/Flange
- Socket/Socket
- Spigot/Spigot
- Flange/Socket
- Gripper (Mid 2020)
- Poly Tail (Mid 2020)



#### 316 - Stainless Steel Clamps:

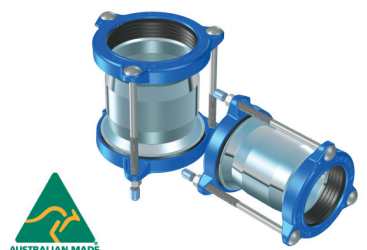
Economical, reliable and permanent solution for pipe repairs both above and below ground.

- Repair Clamps
- Tapped Off-Take's
- Flanged Off-Take's
- Tapping Saddles
- Sewer OB Junctions
- Pin Hole Repair Clamps

#### Variable Couplings and Gibaults:

Derwent manufactures a range of couplings & gibaults which suit various industry requirements. Range available includes:

- Variable Couplings
- Standard Gibaults





# Products ... Providing Solutions for Your Industry

## Spring Hydrants

Standard Spring and SWAB style Spring Hydrants are available from Derwent Industries, including:

- Dn 80 / 100 Standard Spring Hydrants
  - Blue and Lilac Top
- DN 100 SWAB Hydrants



## Accessories:

A variety of accessories including, Recycled and Cast Covers and Surrounds, insertion kits and other accessories are available from Derwent Industries, and include:

- Hydrant & Stop Valve (SV) - All Colours available
- Cast Base Plates, Cast Covers
- Extension Spindles
- Insertion Kits - All Sizes (Gal and 316 SS)

## Fire & Industry Related Products:

A large range of fire & Industry related products are available from Derwent Industries, and include:

- UL / FM OS&Y Gate Valves
- Steel & Galvanised Fittings
- Hose Reels, Cabinets
- Butt Weld Fittings
- Flanges



## Backflow Prevention - Check Valves:

Derwent Industries is in the process of introducing its new check and detector check range to meet the challenges of protecting potable water supplies. This range will include:

- DN100 Check Valve - Ductile Iron FBE Coated - S/S Internals
- DN100 / 150 NSCV

## Industrial / Commercial Castings:

Derwent Foundry® manufactures a variety of castings for the Industrial and Commercial markets:

- Specialised Fitting Configurations
- Raw and coated castings for Mining and other applications
- OEM Equipment manufacture



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Derwent Industries has a wide range of ductile iron fittings available, all of which are supplied in either Rilsan / Nylon 11 or Plascoat or Fusion Bonded Epoxy (FBE), making it unnecessary to wrap the fittings (unless otherwise directed by asset owner) and less susceptible to corrosion.

Derwent Industries prides itself on customer service and being able to provide the required ductile iron fitting configuration to suit our customer's requirements. This may include specially manufactured bends to certain angles or variety of end connection or tapping alternatives.

**Material Specifications:**

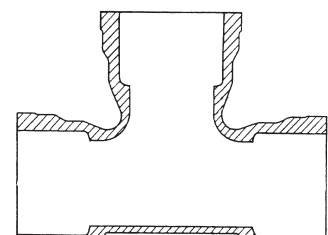
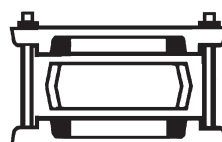
- Size Range:** DN 80 - DN 750  
(Larger by Request)
- Coating:** Rilsan / Nylon 11, Plascoat,  
Fusion Bonded Epoxy (FBE)
- Material:** Ductile Iron
- Standard:** AS/NZS 2280 (where applicable)
- Product License No.:** SMK1989 (where applicable)
- Pressure Rating:** PN16, PN20, PN35,  
PN16 / 20 Light weight

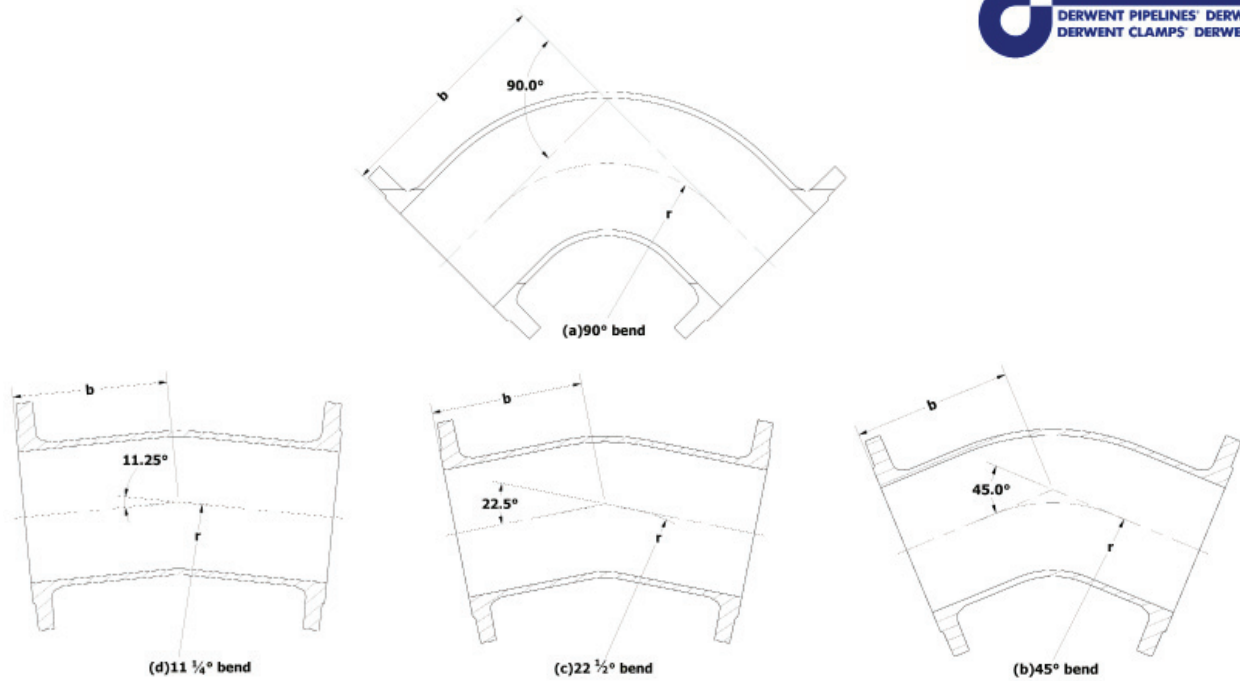


The following list identifies only part of the range of fittings available and these products are also available in various configurations. All fittings are manufactured to Derwent Industries tolerances as per our standards certification. For further information about the range, please contact one of our offices.

**Range Includes:**

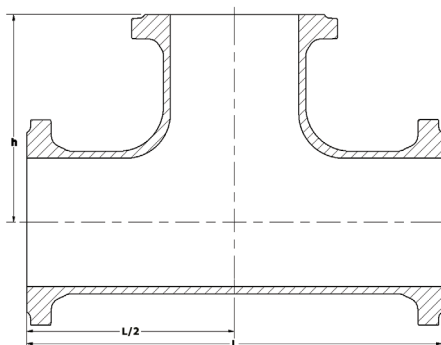
- Bends
- Washout Bends
- Connectors
- Adaptors
- Gibaults
- Tapers
- Tees
- Scour Tees
- Hydrants
- Risers
- Crosses
- Caps & Plugs
- Bellmouth
- Wye Junctions
- Flanges
- Collars





| Derwent Code For PN16 | Nominal Size DN | PN 35 Wall Thickness mm | r mm | b, mm                  |     |        |        |
|-----------------------|-----------------|-------------------------|------|------------------------|-----|--------|--------|
|                       |                 |                         |      | Angle of bend, degrees |     |        |        |
|                       |                 |                         |      | 90                     | 45  | 22 1/2 | 11 1/4 |
| FFB10011              | 100             | 8                       | 152  | 241                    | 152 | 152    | 152    |
| FFB10022              | 100             | 8                       | 152  | 241                    | 152 | 152    | 152    |
| FFB10045              | 100             | 8                       | 152  | 241                    | 152 | 152    | 152    |
| FFB10090              | 100             | 8                       | 152  | 241                    | 152 | 152    | 152    |
| FFB15011              | 150             | 9                       | 190  | 279                    | 190 | 190    | 190    |
| FFB15022              | 150             | 9                       | 190  | 279                    | 190 | 190    | 190    |
| FFB15045              | 150             | 9                       | 190  | 279                    | 190 | 190    | 190    |
| FFB15090              | 150             | 9                       | 190  | 279                    | 190 | 190    | 190    |
| FFB20011              | 200             | 10                      | 203  | 305                    | 203 | 203    | 203    |
| FFB20022              | 200             | 10                      | 203  | 305                    | 203 | 203    | 203    |
| FFB20045              | 200             | 10                      | 203  | 305                    | 203 | 203    | 203    |
| FFB20090              | 200             | 10                      | 203  | 305                    | 203 | 203    | 203    |
| FFB22511              | 225             | 10                      | 229  | 330                    | 229 | 229    | 229    |
| FFB22522              | 225             | 10                      | 229  | 330                    | 229 | 229    | 229    |
| FFB22545              | 225             | 10                      | 229  | 330                    | 229 | 229    | 229    |
| FFB22590              | 225             | 10                      | 229  | 330                    | 229 | 229    | 229    |
| FFB25011              | 250             | 10                      | 254  | 356                    | 254 | 254    | 254    |
| FFB25022              | 250             | 10                      | 254  | 356                    | 254 | 254    | 254    |
| FFB25045              | 250             | 10                      | 254  | 356                    | 254 | 254    | 254    |
| FFB25090              | 250             | 10                      | 254  | 356                    | 254 | 254    | 254    |
| FFB30011              | 300             | 11                      | 305  | 406                    | 305 | 305    | 305    |
| FFB30022              | 300             | 11                      | 305  | 406                    | 305 | 305    | 305    |
| FFB30045              | 300             | 11                      | 305  | 406                    | 305 | 305    | 305    |
| FFB30090              | 300             | 11                      | 305  | 406                    | 305 | 305    | 305    |

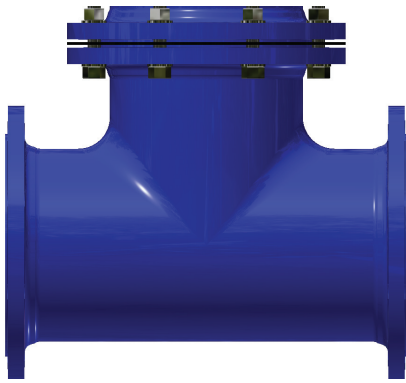
Minimum wall thickness for other pressure classifications shall comply with clause 1.6.3 of AS/NZS 2280. For Details of flanges refer to AS 4087. Flanged Tees Dimensions to AS/NZS 2280-2014



| Derwent Code For PN 16 | Nominal Size |     | PN 35 Wall Thickness mm | PN 35 Throat Thickness mm | h mm | L mm |
|------------------------|--------------|-----|-------------------------|---------------------------|------|------|
|                        | DN           | dn  |                         |                           |      |      |
| FFFT100080             | 100          | 80  | 8                       | 8                         | 178  | 356  |
| FFFT100100             | 100          | 100 | 8                       | 8                         | 178  | 356  |
| FFFT150080             | 150          | 80  | 9                       | 8                         | 203  | 406  |
| FFFT150100             | 150          | 100 | 9                       | 8                         | 203  | 406  |
| FFFT150150             | 150          | 150 | 9                       | 9                         | 203  | 406  |
| FFFT200080             | 200          | 80  | 10                      | 8                         | 241  | 484  |
| FFFT200100             | 200          | 100 | 10                      | 8                         | 241  | 484  |
| FFFT200150             | 200          | 150 | 10                      | 9                         | 241  | 484  |
| FFFT200200             | 200          | 200 | 10                      | 10                        | 241  | 484  |
| FFFT225080             | 225          | 80  | 10                      | 8                         | 254  | 508  |
| FFFT225100             | 225          | 100 | 10                      | 8                         | 254  | 508  |
| FFFT225150             | 225          | 150 | 10                      | 9                         | 254  | 508  |
| FFFT225200             | 225          | 200 | 10                      | 10                        | 254  | 508  |
| FFFT225225             | 225          | 225 | 10                      | 10                        | 254  | 508  |
| FFFT250080             | 250          | 80  | 10                      | 8                         | 267  | 534  |
| FFFT250100             | 250          | 100 | 10                      | 8                         | 267  | 534  |
| FFFT250150             | 250          | 150 | 10                      | 9                         | 267  | 534  |
| FFFT250200             | 250          | 200 | 10                      | 10                        | 267  | 534  |
| FFFT250225             | 250          | 225 | 10                      | 10                        | 267  | 534  |
| FFFT250250             | 250          | 250 | 10                      | 10                        | 267  | 534  |
| FFFT300080             | 300          | 80  | 11                      | 8                         | 305  | 610  |
| FFFT300100             | 300          | 100 | 11                      | 8                         | 305  | 610  |
| FFFT300150             | 300          | 150 | 11                      | 9                         | 305  | 610  |
| FFFT300200             | 300          | 200 | 11                      | 10                        | 305  | 610  |
| FFFT300225             | 300          | 225 | 11                      | 10                        | 305  | 610  |
| FFFT300250             | 300          | 250 | 11                      | 10                        | 305  | 610  |
| FFFT300300             | 300          | 300 | 11                      | 11                        | 305  | 610  |

Note: h and L dimensions are the same for PN16

Flanged Fittings are able to be shortened with approval from purchaser (Excluding Pumping stations). Flanged Tees Dimensions to AS/NZS 2280-2014



## Flanged Fitting Correct Assembly

- Approved Gasket
- Either 316 Stainless Steel Bolts, Nuts and Washers or Galvanised, depending on authority.
  - If 316 SS, Nut should have a form of Anti Galling, such as Molybdenum disulphide (Molybond).



## Initial Step

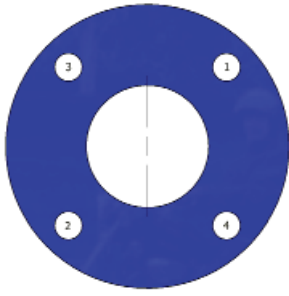
- Ensure Face of Flange is free of contaminants
- Place Approved Gasket onto the Flange
- Gasket should be aligned evenly with all holes
- If gasket does not align, check you have correct Table / Drilling configuration.



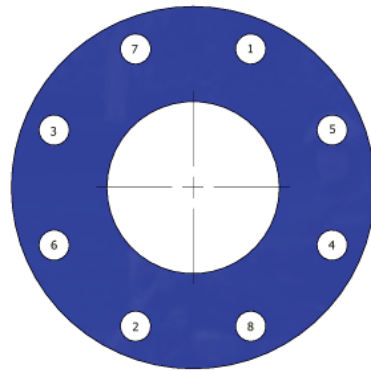
## Step 2

- After Approved Gasket correctly located
- Place the second fitting in alignment with holes
  - Ensure both flanges are perfectly aligned
- Insert Bolts with washer from one side, then on alternate side fit another washer then the nut.
  - Note: If 316 SS, ensure nut has Anti Galling.

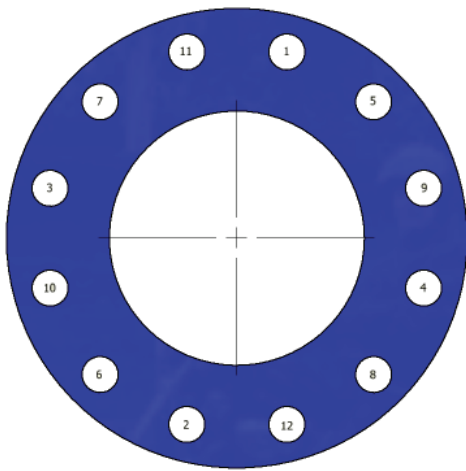
After bolts, nuts and washers are correctly inserted, refer to the following tensioning tables to correctly complete the joining of the two flanges. Tightening Sequence as follows:



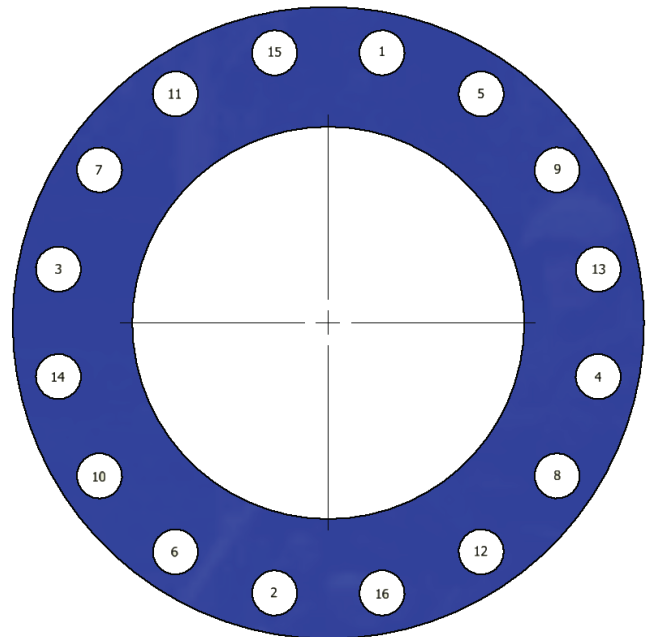
**4 BOLT**



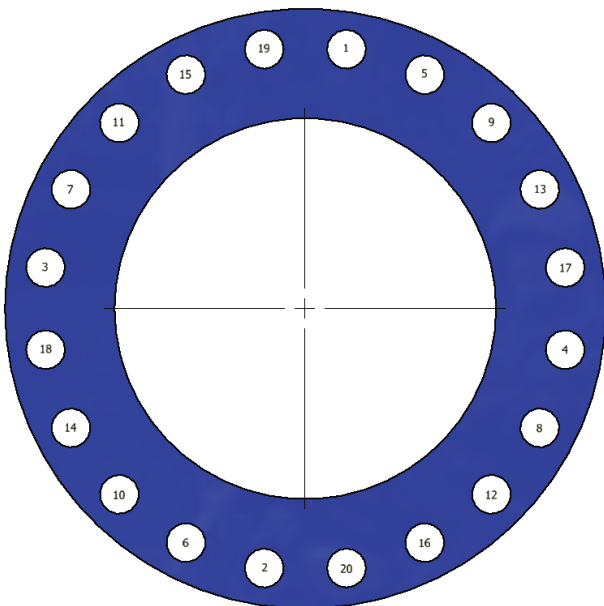
**8 BOLT**



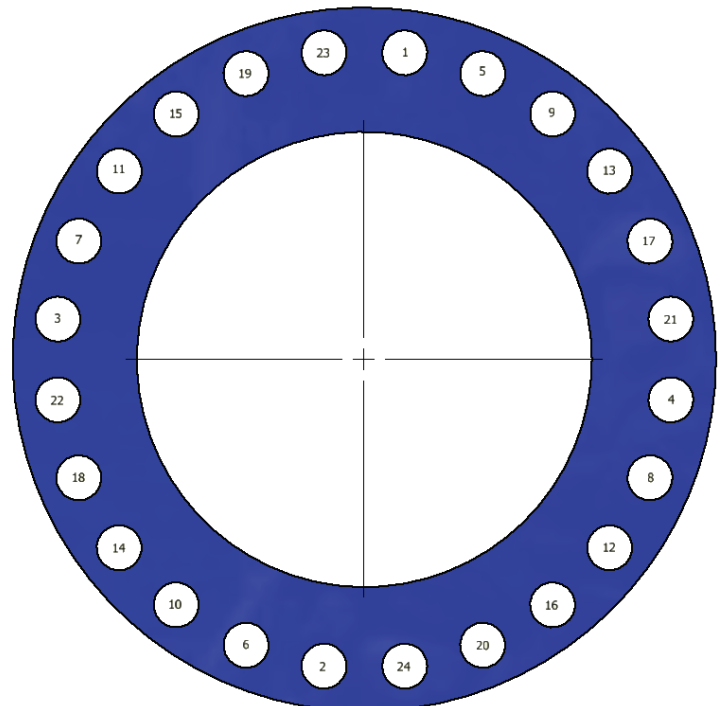
**12 BOLT**



**16 BOLT**



**20 BOLT**



**24 BOLT**

Note: The above sequence is only provided by Derwent as a guide for bolt tightening.

## PN 16 - Torque Values

The following tables represent the tightening torque values for PN16 316 Stainless Steel (Class 50) or Galvanised Bolts Nuts and Washers (Grade 4.6), when inserted with an approved full face 3mm gasket. (Guide Only)

| Nominal Size (DN) | Bolt Size | No. of Bolts | Suggested length of Bolts (mm) | Suggested Bolt Tension (kN) | Estimated Torque (Nm) |                     |                    |
|-------------------|-----------|--------------|--------------------------------|-----------------------------|-----------------------|---------------------|--------------------|
|                   |           |              |                                |                             | Lightly Oiled GAL     | Well Lubricated GAL | Well Lubricated SS |
| 80                | M16       | 4            | 65                             | 16                          | 60                    | 40                  | 55                 |
| 100               | M16       | 4            | 75                             | 22                          | 80                    | 55                  | 70                 |
| 150               | M16       | 8            | 75                             | 17                          | 60                    | 40                  | 55                 |
| 200               | M16       | 8            | 75                             | 22                          | 80                    | 55                  | 70                 |
| 225               | M16       | 8            | 75                             | 24                          | 85                    | 60                  | 80                 |
| 250               | M20       | 12           | 90                             | 35                          | 155                   | 105                 | 140                |
| 300               | M20       | 12           | 100                            | 28                          | 125                   | 85                  | 115                |
| 375               | M24       | 12           | 100                            | 42                          | 220                   | 150                 | 200                |
| 450               | M24       | 12           | 120                            | 53                          | 280                   | 190                 | 255                |
| 500               | M24       | 16           | 120                            | 52                          | 275                   | 185                 | 250                |
| 600               | M27       | 16           | 130                            | 67                          | 400                   | 270                 | 360                |
| 750               | M30       | 20           | 140                            | 80                          | 530                   | 360                 | 480                |

## PN 35 - Torque Values

The following tables represent the tightening torque values for PN35 316 Stainless Steel (Class 70) or Galvanised Bolts Nuts and Washers (Grade 8.8), when inserted with an approved full face 1.5mm fibre gasket. (Guide Only)

| Nominal Size (DN) | Bolt Size | No. of Bolts | Suggested length of Bolts (mm) | Suggested Bolt Tension (kN) | Estimated Torque (Nm) |                     |                    |
|-------------------|-----------|--------------|--------------------------------|-----------------------------|-----------------------|---------------------|--------------------|
|                   |           |              |                                |                             | Lightly Oiled GAL     | Well Lubricated GAL | Well Lubricated SS |
| 80                | M16       | 8            | 110                            | 41                          | 140                   | 100                 | 135                |
| 100               | M16       | 8            | 110                            | 52                          | 100                   | 130                 | 170                |
| 150               | M20       | 12           | 130                            | 66                          | 290                   | 200                 | 265                |
| 200               | M20       | 12           | 130                            | 93                          | 410                   | 280                 | 365                |
| 225               | M24       | 12           | 150                            | 108                         | 570                   | 390                 | 520                |
| 250               | M24       | 12           | 150                            | 118                         | 620                   | 430                 | 570                |
| 300               | M24       | 16           | 150                            | 110                         | 580                   | 400                 | 530                |
| 375               | M27       | 16           | 170                            | 141                         | 840                   | 570                 | 760                |
| 450               | M30       | 20           | 190                            | 150                         | 990                   | 680                 | 900                |
| 500               | M30       | 24           | 190                            | 156                         | 1030                  | 700                 | 935                |
| 600               | M33       | 24           | 210                            | 195                         | 1420                  | 970                 | 1290               |
| 750               | M33       | 28           | 210                            | 230                         | 1670                  | 1140                | 1520               |

### Note:

- Lightly Oiled means that the bolt and nut have a good quality lubricating oil applied
- Well Lubricated means that the nut has a coating of molybdenum disulphate (Molybond) or an equivalent Anti Galling coating.
- It is recommended that bolts be tightened in three steps, a guide being 30%, 60% then 100%, using the bolt tightening sequence provided.

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



**Derwent Code Breaker - Ductile Iron Fittings**

The following information represents the Derwent Product codes for Ductile Iron Fittings to assist clients when requesting products.

|        |      |        |      |         |     |              |      |
|--------|------|--------|------|---------|-----|--------------|------|
| SOCKET | = SO | FLANGE | = F  | SPIGOT  | = S | BEND         | = B  |
| TEE    | = T  | RISERS | = HR | REDUCER | = R | BLANK FLANGE | = BF |

**BENDS:**

|                 |         |     |                                      |
|-----------------|---------|-----|--------------------------------------|
| SOCKET / SOCKET | = SOSOB | EG: | SOSOB10045 = 100 X 45 SOC/SOC BEND   |
| FLANGE / SOCKET | = FSOB  | EG: | FSOB10090 = 100 X 90 FL/SOC BEND     |
| SPIGOT / SPIGOT | = SSB   | EG: | SSB15022 = 150 X 22.5 SPIG/SPIG BEND |
| FLANGE / FLANGE | = FFB   | EG: | FFB15011 = 150 X 11.25 FLANGED BEND  |

**TEES:**

|                 |           |     |   |
|-----------------|-----------|-----|---|
| SOCKET / SOCKET | = SOSOSOT | EG: | SOSOSOT100100 = 100 X 100 SOC/SOC TEE                                     |
| SOCKET / FLANGE | = SOSOFT  | EG: | SOSOFT100080 = 100 X 80 SOC/FL TEE<br>(Note: 80mm Pipe = 080 in the code) |
| SPIGOT / SPIGOT | = SSST    | EG: | SSST150100 = 150 X 100 SPIG/SPIG TEE                                      |
| FLANGE / FLANGE | = FFFT    | EG: | FFFT150100 = 150 X 100 FLANGED TEE  |

**SCOUR TEE - S Replaces the T in the code**

|                 |        |     |                                       |
|-----------------|--------|-----|---------------------------------------|
| SOCKET / FLANGE | = SSFS | EG: | SOSOFS150100 = 150 x 100 SOC/FL SCOUR |
|-----------------|--------|-----|---------------------------------------|

**CONNECTORS:**

|                 |        |     |                                 |
|-----------------|--------|-----|---------------------------------|
| FLANGE / SOCKET | = FSO  | EG: | FSO100 = 100 FL / SOC CONNECTOR |
| SOCKET / SOCKET | = SOSO | EG: | SOSO150 = 150 SOC/SOC CONNECTOR |

**REDUCERS / TAPERS:**

|                 |         |     |                                     |
|-----------------|---------|-----|-------------------------------------|
| FLANGE / FLANGE | = FFR   | EG: | FFR150100 = 150 X 100 FLANGED TAPER |
| SOCKET / SOCKET | = SOSOR | EG: | SOSOR150100 = 150 X 100 SOC TAPER   |
| SPIGOT / SPIGOT | = SSR   | EG: | SSR150100 = 150 X 100 SPIGOT TAPER  |

**HYDRANT RISERS:**

|               |      |     |                                    |
|---------------|------|-----|------------------------------------|
| FLANGE/FLANGE | = HR | EG: | HR100300 = 100 X 300 HYDRANT RISER |
|---------------|------|-----|------------------------------------|

**THRUST CONNECTORS:**

|                 |              |     |  |
|-----------------|--------------|-----|--|
| FLANGE / SOC    | = FSO.....TC | EG: | FSO100TC = 100 X 600 FL/SOC THRUST<br>FSO100915TC = 100 X 915 FL/SOC THRUST  |
| FLANGE / FLANGE | = FF.....TC  | EG: | FF100600TC = 100X600 FLANGED THRUST<br>FF1001000TC = 100X1000 FLANGED THRUST |

**DERTAP CONNECTORS:**

|                 |          |     |   |
|-----------------|----------|-----|---|
| SOCKET / SOCKET | = DERTAP | EG: | DERTAP10020 = 100 X 20 DUAL TAP<br>DERTAP10020Q = 100 X 20 QUAD TAP |
|-----------------|----------|-----|---|

**WASHOUT / HYDRANT BENDS**

|                 |         |     |   |
|-----------------|---------|-----|---|
| SOCKET / FLANGE | = SOFWB | EG: | SOFWB10090 = 100 x 90 SOC / FL WASHOUT BEND |
| SOCKET / FLANGE | = SOFHB | EG: | SOFHB10090 = 100 X 90 SOC / FL HYDRANT BEND |

## Ductile Iron Flanged Offtake (Uniclamp)

The Derwent Industries Ductile Iron Flanged Offtakes are made in accordance with AS/NZS 4129, are used for under pressure tapping on PE pipelines, and can be affixed at desired points where tapping is required. The couplings have been designed in conjunction with pipeline tappers for ease of installation. The use of bracing lugs running between the bolt holes, allows the tapper to hold the two halves of the coupling together whilst inserting bolts and tensioning.

### Features & Configurations:

- Material: Ductile Iron Body with 316 SS Bolts
- Coating: FBE, Plascoat or Rilsan/ Nylon 11
- Sizes:
  - PE DN 125 & 180
  - Offtakes DN 80 & 100
- Product Codes:
  - 125 x 100 = 125F100PE
  - 125 x 80 = 125F080PE
  - 180 x 100 = 180F100PE
  - 180 x 80 = 180F080PE
- Two parts for ease of assembly
- Bolt Locks/Lugs to support bolts tensioning
- Bracing Lugs to assist installer in holding halves together whilst bolting up



### Certification:

- Product License No. SMK26385 WaterMark License No. WMK26385 WSA No. PA1828

## PE Puddle Flanges

The Derwent Industries PE Puddle Flanges are used as a restraint point on PE pipelines and can be affixed at desired points or at a change of direction.

### Features & Testing:

- Ductile Iron Body, DI Grade 500 - 7
- Coating: PPG 699-87141 (Autoprime Dipping Black)
- Bolts and washers are not supplied (M16 x 75 recommended)
- 125 Puddle tested to 1800 PSI, no movement
- 180 Puddle tested to 1450 PSI, no movement



## Ductile Iron Thrust Connectors

The Derwent Industries Ductile Iron Thrust Connectors are manufactured in accordance with the requirements of AS/NZS 2280 and are manufactured in a number of configurations and lengths.

### Features & Configurations:

- Material: Ductile Iron
- Coating: FBE, Plascoat or Rilsan/ Nylon 11
- Flange / Flange
  - Available in DN 80 – 750
  - Available in lengths 500 – 1200  
(Subject to DN size)
  - Product Code: FF(DN)(Length)TC  
Eg: FF100600TC
- Flange / Spigot
  - Available in DN 80 - 750
  - Available in lengths 500 – 1200  
(Subject to DN size)
  - Product Code: FS(DN)(Length)TC  
Eg: FS100600TC
- Flange / Socket
  - Available in DN 80 - 750
  - Available in lengths 600 and 915  
(Measured from back of socket)
  - Product Code: FSO(DN)(Length)TC  
Eg: FSO100915TC  
Note: FSO100TC = 600 Long
- Please confirm length available for DN size, as some lengths are not standard



### Applications:

The Derwent Industries Thrust Connectors are used as a restraint point on pipelines and can be affixed at desired points. Where thrusting is required to restrain the pipeline, such as change of direction, change in pipe size or to assist in reducing stress on valves when opening and closing. Thrust restraints also assist in preventing 3rd party interference with the integrity of the pipeline when excavating close to existing main. Varying soil conditions may also affect pipeline stability, so addition of thrust points assists integrity.

## Ductile Iron Tapped Connectors

The Derwent Industries Ductile Iron Thrust Connectors are made in accordance with AS/NZS 2280 and are manufactured in a number of DN Pipe sizes with a various tapping sizes. Note, larger tapings above 3/4" (20mm) are currently not available on DN 200 - 300, only DN 100 and 150.

### Features & Configurations:

- Material: Ductile Iron
- Coating: FBE, Plascoat or Rilsan/ Nylon 11
- Sizes: DN100 - DN300
- Connections: Dual and Quad  
(Depending on pipe DN)
- Tapping: 3/4" to 2" BSP (20-50mm)  
(Depending on pipe DN)
- Code: DERTAP(DN)(Tapping)(Q if Quad)  
  
 Eg: DERTAP10020  
 (100 x 20 Dual Tap Connector)  
  
 DERTAP15020Q  
 (150 x 20 Quad Tap Connector)
- Pressure Rating: PN16 Only



### Application:

The Derwent Industries DerTap Connectors are manufactured for use in new service connections. The Dertap are available in both Dual tap and Quad tap as well as for larger connections where up to and including a 2" connection is required. Images displayed show a Dual tap with 3/4" (20mm) service connections.

## Ductile Iron Hydrant Risers / Spool Pieces

The Derwent Industries Ductile Iron Hydrant Risers Connectors are made in accordance with AS/NZS 2280 and are manufactured in a number of DN Pipe sizes and can be manufactured in both PN 16 and PN 35. Derwent is also able to manufacture Hydrant Riser converter pieces to enable an installer to convert from say Table E to Table D. Note in these circumstances the lower pressure rating of the two flanges becomes the fittings rated pressure. Hydrant Risers can also referred to as spool pieces. Note, DN Pipe Size 80 and 100, 100mm in length are slotted one end.

### Features & Configurations:

- Material: Ductile Iron
- Coating: FBE, Plascoat or Rilsan/ Nylon 11
- Sizes: DN 80 - DN 1000  
(Length please see table)
- Pressure: PN 16 and PN 35
- Flanges: Table D, E and F available  
(Standard is Table D PN 16)
- Code: HR(DN)(LENGTH)  
Eg: HR100225  
(100 x 225 Hydrant Riser)  
Note: DN 80 = 080  
HR080225  
(80 x 225 Hydrant Riser)



### Note:

1. Minimum wall thickness for pressures other than PN35, shall comply with Clause 1.6.3 of AS/NZS 2280.
2. For information relating to flanges, refer to AS4087.
3. Sizes outside of Nominal 80 and 100mm are classified as spool pieces and are manufactured in accordance with Derwent specification to comply with AS/NZS 2280.

### Note:

1. Minimum wall thickness for pressures other than PN35, shall comply with Clause 1.6.3 of AS/NZS 2280, or future published AS/NZS 2280 minimum wall thicknesses.
2. For information relating to flanges, refer to AS4087.
3. Sizes outside of Nominal 80 and 100mm are classified as spool pieces and are manufactured in accordance with Derwent specification to comply with AS/NZS 2280.

| Nominal Size<br>DN | Available Length<br>L<br>mm |
|--------------------|-----------------------------|
| 80                 | 100 - 600                   |
| 100                | 100 - 1000                  |
| 150                | 100 - 1200                  |
| 200                | 225 - 1200                  |
| 225                | 225 - 1200                  |
| 250                | 225 - 1200                  |
| 300                | 225 - 1200                  |
| Above 300          | Contact Office              |

## Ductile Iron Wye's and Crosses

The Derwent Industries Ductile Iron Wye's and Crosses are manufactured in accordance with the requirements of AS/NZS 2280 and are manufactured in a number of DN Pipe sizes with a various configurations.

### Features & Configurations:

- Material: Ductile Iron
- Coating: FBE, Plascoat or Rilsan/ Nylon 11
- Sizes: DN100 - DN450
- End Connections: Wye's:
  - Flange / Flange
  - Socket / Socket
  - Others available on request



- Crosses:
  - Flange / Flange
  - Socket / Socket
  - Others available on request



- Code:
  - Crosses: FFCROSS(DN)(DN)
  - Eg: FFCROSS100100  
(100 x 100 FLANGED CROSS)
  - FFCROSS(DN)(DN)
  - Eg: SCCROSS100100  
(100 x 100 SOCKETED CROSS)



- Wyes:
  - FFFY(DN)(DN)
  - Eg: FFFY100100  
(100 x 100 FLANGED CROSS)
  - SOSOSOY(DN)(DN)
  - Eg: SOSOSOY100100  
(100 x 100 SOCKETED CROSS)



- Pressure Rating: PN16 and PN35 available  
(PN35 - In Socket 200 and above)

## Ductile Iron Socketed Fittings - Witness Mark (WM)

Many of the Derwent Industries Ductile Iron Socketed Fittings already come with a WM and a number written on the socket.

Qu: What does the WM mean?

Ans: The WM stands for Witness Mark, which is the depth that a pipe should be inserted into the socketed fitting.

Qu: Why do I need this, the pipe has a Witness Mark already on it?

Ans: Well the Witness Mark on the pipe does not necessarily reflect the correct Witness Mark for inserting that pipe into the Ductile Iron Fitting you have. The Witness Mark on the pipe is for joining that pipe to another pipe from the same supplier in the same size and style.

Qu: So the Witness Mark on the fitting is the same for all suppliers?

Ans: No, the depth of the socket is determined by the manufacturer of the Ductile Iron fittings. Therefore, it is possible that every supplier has a different socket depth, therefore requires a different Witness Mark. Likewise, the pipe and fittings from the same supplier may indeed have different socket depths from the pipe to the fittings. This is less likely, though still possible.

Qu: So what do I do when installing the fittings and pipe?

Ans: If the fitting has detailed the Witness Mark measurement, this should be used to place a new mark on the pipe to be inserted.

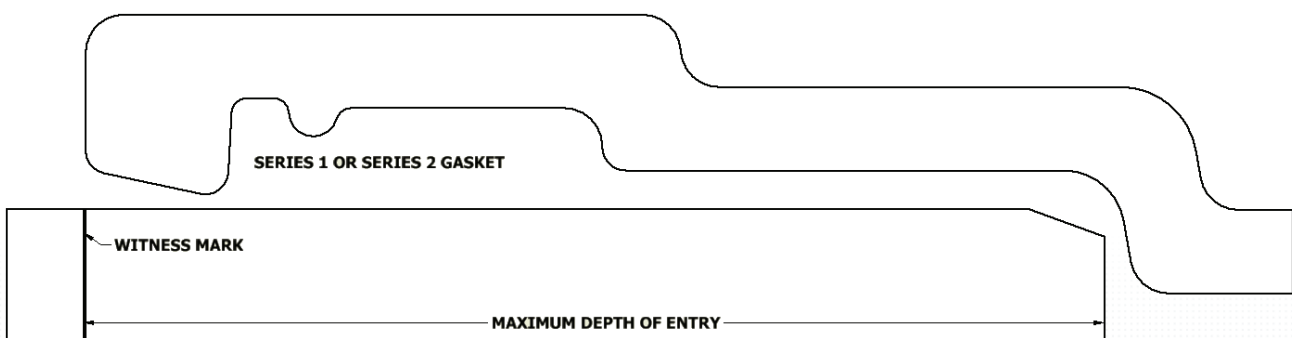
If the fitting does not have a Witness Mark measurement, you can measure the depth of socket as follows:

1. With an accurate ruler or tape measure (preferably rigid)  
Insert ruler/Tape, till it hits the back of the socket.
2. Take the measurement from the back of socket to the opening of the fitting.
3. From this measurement we suggest you deduct approximately 10mm.

Qu: Why deduct from the total?

Ans: You do not want the spigot pushed hard against the internal edge of the end of the socket. Doing so reduces the ability of the pipe to deflect and can potentially damage either the fitting or the pipe by over insertion.

4. The new measurement is the new Witness Mark for the insertion depth of pipe into the fitting.



## Spring Hydrants

The Derwent Industries supplies both standard and SWAB type Spring Hydrants. The Spring Hydrants are manufactured to AS 3952 - 2002. The Spring Hydrants are available for both potable and non potable (Reuse) applications.

### Features & Configurations:

- Material: Ductile Iron Body and top to AS 1831
- Coating: Fusion Bonded Epoxy (FBE) (Or approved equivalent)
- Spring: 316 Stainless Steel
- Brass Dome: To AS 1568
- Bolts, Nuts and Washers: 316 Stainless Steel (Anti galling coating)
- Connections: Potable and Reuse
- Flanges: Table D
- Sizes: DN 80 and DN 100 (SWAB DN100)
- Code: SPRING(DN) = Standard  
 Eg: SPRING100  
 SWAB(DN) = SWAB  
 EG: SWAB100  
 Note: Reuse, add "L" to Code  
 EG: SPRING100L
- Pressure Rating: PN16 Only
- Approval: StandardsMark License No: SMK40418



SWAB Version

### Application:

The Derwent Industries Spring Hydrants are for use with either Potable Water (Blue Top) or Reuse Water (Lilac Top). The unique design of our SWAB Hydrant allows for the easy removal of components.



## UL/FM Resilient Seated OS&Y Gate Valves

In conjunction with Suzhou Alpine Flow Control - AFC, Derwent distributes the UL/FM RSGV throughout Australia and New Zealand. The valves are available in both Flanged Table E and Roll Groove to meet the requirements of the Fire Industry.

### Features & Configurations:

- Material: Ductile Iron Body and Cover
- Coating: In accordance with standard
- Stem: Forged Stem provides stronger Stem operation
- Working Pressure: 300 PSI
- Working Temp: - 10 to 80 Deg C
- End Connection: Flanged: ANSI B16.1 and PN 16  
Roll Grooved: AWWA C606
- Sizes: DN 100 & 150 Standard  
(Other sizes available on request)
- O-Rings: O-Ring Stem seals are designed to prevent stem leakage and allow for replacement
- Approval:
 

|                      |                  |
|----------------------|------------------|
| FM Approval          |                  |
| FM Approval Class:   | 1120             |
| Approval:            | 0003042250       |
|                      |                  |
| UL Approval          |                  |
| Standard for Safety: | UL 262           |
| Certificate No:      | 20130401-EX16074 |



### Application:

The OS&Y Rising Spindle Gate Valves are for use in Fire application. The valves are available in both Flanged Table E and Roll Groove.

## Gear Boxes - Spur and Epicyclic Gear

Derwent International Gear Boxes, made in conjunction with AFC. Connection to ISO5210 and manufactured to ISO9001:2008. The Gear Boxes are rated IP67 and reduce the required torque by approximately 75%.

### Features & Configurations:

- **Material:** Ductile Iron Body and Cover
- **Fasteners:** Bolts, Nuts and Washers are 316 Stainless Steel
- **Filled:** Grease Filled for longer service life
- **Coating:** Fusion coating provides the Gear box with excellent corrosion protection
- **Colour:** Gear Boxes are available in either Blue for ACC or Red for CC Applications
- **Style:** Spur or Epicyclic

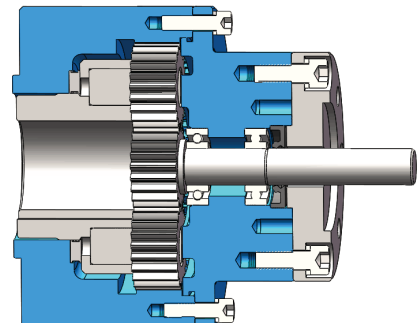


### Applications:

The Derwent International Gear Boxes are for use with Derwent RSGV's and are available in Blue (ACC) or Red (CC). The Gear Boxes direct mount to our ISO mounting plates, which are fitted as standard on our DN400 RSGV's and above.

### Technical Drawings:

For drawings detailing the gear box and valve, please do not hesitate to contact us.



## Resilient Seated Valves

Derwent Resilient Seated Gate Valves, made in conjunction with AFC, are manufactured to AS/NZS 2638.2. The Gate Valves are light weight and applicable for water and waste water applications. Valves are available in both Anticlockwise and Clockwise configuration. Valves are supplied with Key Cap as standard, Hand Wheel is optional. Valve legs are also available on request.

### Features & Configurations:

- **Material:** Ductile Iron Body and Bonnet to AS 1831
- **Wedge:** Ductile Iron AS 1831, fully encapsulated (Vulcanized) EPDM Rubber to AS1646 and AS681.1. The wedge is designed with abrasion resistant nylon guides which reduce the required opening and closing torque through smooth operation
- **Stem:** 431 Stainless Steel to ASTM A276, providing excellent corrosion and strength, reducing moving parts
- **Bolts:** 316 Stainless Steel to ASTM A276, hot melt encapsulated for superior corrosion resistance in harsh environments
- **Coating:** Fusion Bonded Epoxy coated to AS/NZS 4158 provides the valve excellent corrosion protection



### Applications:

The Derwent Gate Valves are for use in Potable Water, Waste Water, Fire, Irrigation, Water Circulation and Heating and Cooling applications and are suitable for both above and below ground installation.

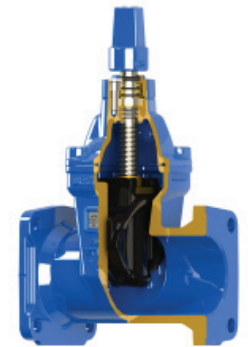
**For further information, please refer to the Valve Brochure.**

### Technical Information:

|                               |  |
|-------------------------------|--|
| Size range:                   | DN 80-DN 600<br>(DN50 and DN65 also available not to AS/NZS2638.2)   |
| Allowable Operating Pressure: | 1600 kPa; 1.6 Mpa  |
| Maximum Test Pressure:        | 2400 kPa, 2.4 Mpa  |
| Maximum Temperature:          | 40 Deg C   |
| End Connection:               | Flanged to AS 4087<br>(Table E drilling also available for DN 100 and above) Socketed, Spigoted and Roll Grooved |
| Certification:                | SAI Global   |
| WSAA Appraisal No.            | PA1511   |
| Watermark Lic. No. 25890      | Standards Mark Lic. No. 25890  |

## Product Guide - Valve Codes

| Size | Code ACC  | Code CC  | Description - Flanged                        |
|------|-----------|----------|--|
| 80   | VFF80ACC  | VFF80CC  | 80MM FL/FL GATE VALVE (DIRECTION ACC OR CC)  |
| 100  | VFF100ACC | VFF100CC | 100MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 150  | VFF150ACC | VFF150CC | 150MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 200  | VFF200ACC | VFF200CC | 200MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 225  | VFF225ACC | VFF225CC | 225MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 250  | VFF250ACC | VFF250CC | 250MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 300  | VFF300ACC | VFF300CC | 300MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 375  | VFF375ACC | VFF375CC | 375MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 400  | VFF400ACC | VFF400CC | 400MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 450  | VFF450ACC | VFF450CC | 450MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 500  | VFF500ACC | VFF500CC | 500MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |
| 600  | VFF600ACC | VFF600CC | 600MM FL/FL GATE VALVE (DIRECTION ACC OR CC) |



| Size | Code ACC    | Code CC    | Description - Socket                           |
|------|-------------|------------|--|
| 80   | VSOSO80ACC  | VSOSO80CC  | 80MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC)  |
| 100  | VSOSO100ACC | VSOSO100CC | 100MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 150  | VSOSO150ACC | VSOSO150CC | 150MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 200  | VSOSO200ACC | VSOSO200CC | 200MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 225  | VSOSO225ACC | VSOSO225CC | 225MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 250  | VSOSO250ACC | VSOSO250CC | 250MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 300  | VSOSO300ACC | VSOSO300CC | 300MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 375  | VSOSO375ACC | VSOSO375CC | 375MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC) |



| Size | Code ACC  | Code CC  | Description - Spigot                             |
|------|-----------|----------|--|
| 100  | VSS100ACC | VSS100CC | 100MM SPIG/SPIG GATE VALVE (DIRECTION ACC OR CC) |
| 150  | VSS150ACC | VSS150CC | 150MM SPIG/SPIG GATE VALVE (DIRECTION ACC OR CC) |



| Size | Code ACC   | Code CC   | Description - Flange / Socket                 |
|------|------------|-----------|---|
| 100  | VFSO100ACC | VFSO100CC | 100MM FL/SOC GATE VALVE (DIRECTION ACC OR CC) |
| 150  | VFSO150ACC | VFSO150CC | 150MM FL/SOC GATE VALVE (DIRECTION ACC OR CC) |



**Valve Gland Design**



**DN 80 - DN 150**



**DN 200 - DN 400**



**DN 450 - DN 600**

**Torque & Turns to Close**

| Size | Turns to Close | Torque N.M | Description                            |
|------|----------------|------------|--|
| 80   | 7              | 40         | 80MM GATE VALVE (DIRECTION ACC OR CC)  |
| 100  | 9              | 50         | 100MM GATE VALVE (DIRECTION ACC OR CC) |
| 150  | 13             | 75         | 150MM GATE VALVE (DIRECTION ACC OR CC) |
| 200  | 17             | 140        | 200MM GATE VALVE (DIRECTION ACC OR CC) |
| 225  | 21             | 140        | 225MM GATE VALVE (DIRECTION ACC OR CC) |
| 250  | 21             | 140        | 250MM GATE VALVE (DIRECTION ACC OR CC) |
| 300  | 25             | 150        | 300MM GATE VALVE (DIRECTION ACC OR CC) |
| 375  | 34             | 300        | 375MM GATE VALVE (DIRECTION ACC OR CC) |
| 400  | 34             | 300        | 400MM GATE VALVE (DIRECTION ACC OR CC) |
| 450  | 38             | 350        | 450MM GATE VALVE (DIRECTION ACC OR CC) |
| 500  | 42             | 400        | 500MM GATE VALVE (DIRECTION ACC OR CC) |
| 600  | 50             | 450        | 600MM GATE VALVE (DIRECTION ACC OR CC) |



**ANCHOR LEGS**



**ACC**



**CC**



## DERWENT INDUSTRIES - KAWANDAH®™

The owners of Derwent - the "Evans Family", are the people who originally introduced the clamps and couplings and are the original owners of WANG Industries Pty Ltd. The industry experience in these products is second to none anywhere in the world. Many of the original team are again part of the Derwent Clamp and Coupling team, further enhancing the depth of knowledge available to our customers.

Our new manufacturing facility in NE Victoria manufactures the range of full circle, 316 Stainless Steel Repair Clamps to meet the needs of industry and are a permanent solution for pipe repairs and connections.

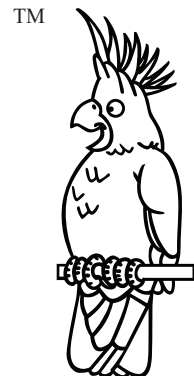
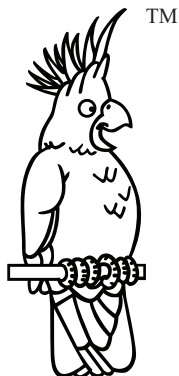
Derwent Clamps (Kawandah) are constructed from one or more sections of 316 Stainless Steel, in single, double or multi part clamps, depending on the DN of the pipe. The full 316 Stainless Steel construction and water potable gasket means that you can feel secure when using our products.

Clamps are a fast and economical way to repair a leaking pipe and are easy to install, by following the installation instructions provided with each product.

### Costs Savings and Benefits of Clamps & Couplings:

1. Clamps are a fast, simple and economical solution to pipe repairs. Providing a permanent repair solution.
2. Clamps provide minimal downtime to the pipeline as there is usually no need for complete shut down of the pipeline, avoiding potential contamination of the service as a result.

3. The only tool required to install a clamp correctly is a tension wrench. Tension details are written on each clamp.
4. The various range allows for not only repair, but also tapping, sewer OB junctions, Flanged Offtakes for live tapping of mains.
5. The Flanged Offtakes allow for under pressure tapplings on existing mains, again reducing downtime by avoiding shutdown of the main due to cut in and again potential contamination.
6. Derwent Clamps and Couplings are Australian made, manufactured in our plant located in NE Victoria.
7. All Clamps are manufactured from 316 Stainless Steel as per the Australian Standard. The stud threads and nut are also protected with stud protectors.
8. Derwent can provide technical advice on not only the installation and maintenance but also special requests.
9. All products supplied by Derwent in the Clamp and Coupling range, come with installation instructions and pipe lubricant.
10. Derwent intends to provide a special service for emergency breakdowns and system failures.





**TIPS FOR INSTALLATION**

1. Ensure the area around the damaged section on the pipe is wiped clean.
2. It is recommended that you apply a reference line/s to the pipe, so as to ensure that the clamp is centred upon installation to the damaged area.
3. When installing on a damaged pipe, assemble the clamp, following correct installation procedures, beside the damage, then while still loose, slide the clamp over the damage, using reference points, then tighten as per tensioning instructions.

**CLAMP FITTING INSTRUCTION**

These fitting instructions generally apply to all Derwent Clamps and Couplings, though details shown are the most common Single Part Repair Clamps.

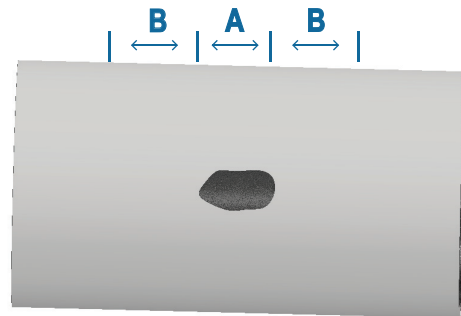
1. Ensure pipe is clean where clamp is to be located.
2. Loosen the nuts to the end of the stud – do not remove.
3. Apply an approved RRJ lubricant to rubber gasket and pipe. (Lubricant swab included).
4. Wrap clamp around pipe ensuring damaged area is in centre of clamp and gasket is flat.
5. Locate locking plate into position with folded edge locked under flat bar, hand tighten nuts to lock mechanism into position.
6. Evenly tighten nuts to required tension as printed on the clamp.
7. Re-tension after 15 minutes minimum to counter gasket rubber relaxation.

**SELECTION OF CLAMP LENGTH**

When selecting the clamp length required for the pipe repair, the installer needs to ensure that they have sufficient space at either end of the area to be repaired to the edge of the clamp.

The following table provides a guide to what we recommend as the minimum sealing dimension from edge of area to be repaired to edge of clamp, represented as “B” in the following diagram, whilst the length of the area to be repaired is shown as “A”. Therefore to select the correct length of clamp:

$$A + 2B = \text{Minimum recommended clamp length}$$



| Pipe Nominal Diameter | Minimum “B” Length (Distance from edge of damage to edge of clamp) |
|-----------------------|--|
| 40 - 80mm             | 50mm   |
| 100 - 200mm           | 75mm   |
| 200 - 300mm           | 100mm  |
| 400 - 650mm           | 150mm  |

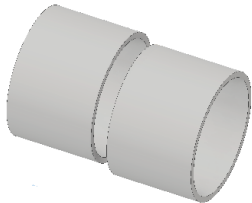
Note: It is recommended that the Clamp Length selected should not be less than the Nominal Pipe Diameter when installed on pipe diameter sizes upto 400mm.



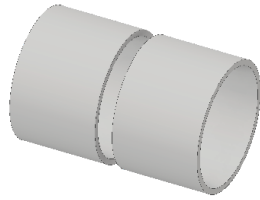
## PIPE DAMAGE

Types of pipe damage that maybe encountered that a clamp can solve.

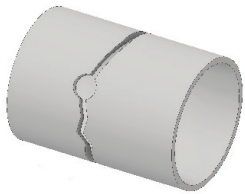
(Note: Any repairs undertaken, must be in accordance with Water Authority guidelines)



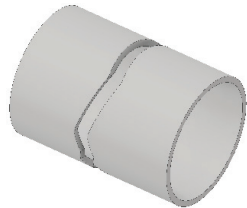
**Deflection**



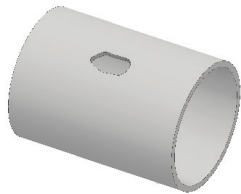
**Plain End**



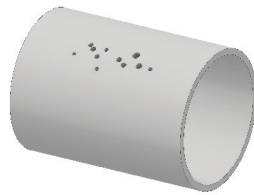
**Full Break at Service**



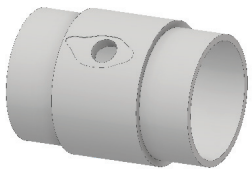
**Full Break**



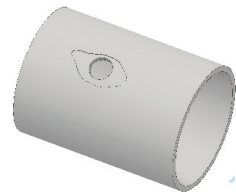
**Hole**



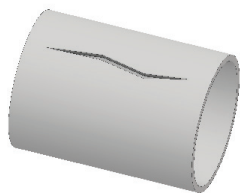
**Pin Holes**



**Pulled Branch**



**Pulled Service**



**Split**

## PRESSURE RATING

The range of products manufactured by Derwent, covers both pressure and non-pressure applications  
 Pressure (Unless otherwise specified):

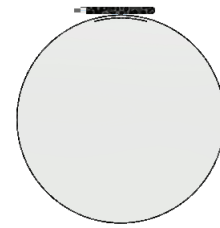
1. Clamps NB 80 - 600mm  
 - 1.6 Mpa, PN 16

For further information regarding pressure or temperature, please contact our technical staff for these products.

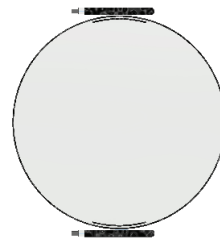
## CORRECT CLAMP STYLE & SIZE

There are a number of factors to be considered in selecting the correct clamp size and type for the pipe that requires repair.

1. Clamp Length
2. Pipe Diameter
3. Pipe Operating Pressure
4. Number of Clamp Parts  
 (See below illustrations)



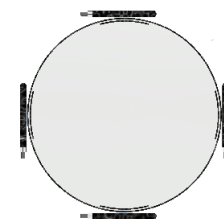
**Single Part Clamps**



**Double 2 Part Clamps**



**Multi 3 Part Clamps**



**Multi 4 Part Clamps**





TM



### 316 Stainless Steel Flanged Offtake - Codes

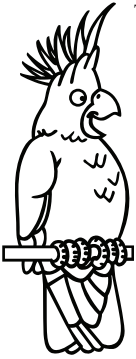
| FLANGES       | Code (Example: NB 100) |
|---------------|------------------------|
| AS4087 (PN16) | F100AS16               |
| Table E       | F100ASTE               |
| Table F       | F100ASTF               |
| BS/DIN10      | F100DIN10              |
| BS/DIN16      | F100DIN16              |
| ANSI150       | F100A150               |
| JAPAN16       | F100JIS16              |

| Flanged Offtake Code       | Descriptor |   | Definition          |
|----------------------------|------------|---|---------------------|
| <b>KCF-210F-410100AS16</b> | K          | = | Kawandah            |
|                            | C          | = | Clamp               |
|                            | F          | = | Flanged Offtake     |
|                            | 2          | = | 2 Part              |
|                            | 10         | = | 2 Bolt              |
|                            | F          | = | 400 Long            |
|                            | -          |   |                     |
|                            | 410        | = | Start of Size Range |
|                            | 100        | = | Offtake Size        |
|                            | AS16       | = | Flange Spec         |

### 316 Stainless Steel Sewer OB - Codes

| Sewer OB Code            | Descriptor |   | Definition          |
|--------------------------|------------|---|---------------------|
| <b>KCS-206D-16011045</b> | K          | = | Kawandah            |
|                          | C          | = | Clamp               |
|                          | S          | = | Sewer OB            |
|                          | 2          | = | 2 Part              |
|                          | 0          | = |                     |
|                          | 6          | = | 6 Bolt              |
|                          | D          |   |                     |
|                          | 160        | = | Start of Size Range |
|                          | 110        | = | Offtake Branch Size |
|                          | 45         | = | Angle of Branch     |





**316 Stainless Steel Repair Clamps - Codes**

The following represents the new part numbers for the Derwent Clamp Range. These Codes provide the customer with the necessary information to identify the products clearly.

- KCR-102B-120
- KCT-102B-120020
- KCT-102B-120020NPT
- KCR-103D-120
- KCR-104D-285
- KCR-105F-175
- KCR-210F-410
- KCT-210F-410020
- KCF-210F-410100AS16
- KCF-210F-410100DIN16

Here are a few examples of how these codes work:

**EXAMPLE 1. – REPAIR CLAMP**

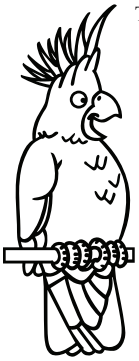
| Clamp Code          | Descriptor |   | Definition          |
|---------------------|------------|---|---------------------|
| <b>KCR-102B-120</b> | K          | = | Kawandah            |
|                     | C          | = | Clamp               |
|                     | R          | = | Repair              |
|                     | 1          | = | 1 Part              |
|                     | 0          |   |                     |
|                     | 2          | = | 2 Bolt              |
|                     | B          | = | 200 Long            |
|                     | 120        | = | Start of Size Range |

These are the codes for the Clamp length:

|        |     |     |     |     |     |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code   | A   | B   | C   | D   | E   | F   | G   | H   | I   | J   |
| Length | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |

|        |     |     |     |     |     |     |     |      |      |      |
|--------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| Code   | K   | L   | M   | N   | O   | P   | Q   | R    | S    | T    |
| Length | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |





**Variable Coupling - Codes**

The following represents the new part numbers for the Derwent Coupling Range. These Codes provide the customer with the necessary information to identify the products clearly. The variable couplings are manufactured to accommodate up to a 24mm Variation in pipe OD that can be inserted into the coupling.

|                          | Type     | Code              | Description                      |
|--------------------------|----------|-------------------|----------------------------------|
| <b>Joiner / Coupling</b> | Straight | KJC-FCS-0109      | 109-133 175L SS BOLT             |
|                          | Stepped  | KJS-FFG-0109-158  | 109-133 / 158-182 DI SL Gal Bolt |
|                          | Flanged  | KJF-FFS-0158-AS16 | 158-182 DI SL / SS Bolt AS 16    |
|                          | Blank    | KJB-FFS-109       | 109-133 Blank End                |
|                          | Tapped   | KJT-FCS-158T050   | 158-182 175L x 2" BSP SS Bolt    |

Here are a few examples of how these codes work:

EXAMPLE 1. – Variable Coupling 109-133 OD Range

| Coupling Code       | Descriptor |   | Definition                |
|---------------------|------------|---|---------------------------|
| <b>KJC-FCS-0109</b> | K          | = | Kawandah                  |
|                     | J          | = | Coupling                  |
|                     | C          | = | Straight Coupling         |
|                     | F          | = | DI Flange, FBE Coated     |
|                     | C          | = | 316SS barrel - length 175 |
|                     | S          | = | 316SS Bolts/Nuts/Washers  |
|                     | 0109       | = | Start of Size Range       |

These are the descriptors for the Coupling length and Bolt type:

| Item                 | Descriptor |   | Definition                 |
|----------------------|------------|---|----------------------------|
| <b>SLEEVE</b>        | A          | = | 110L 316 SS                |
|                      | B          | = | 135L 316 SS                |
|                      | C          | = | 175L 316 SS                |
|                      | D          | = | 215L 316 SS                |
|                      | E          | = | Reserved                   |
|                      | F          | = | FBE DI                     |
| <b>Bolt Material</b> | G          | = | Gal Bolt / Nut / Washers   |
|                      | S          | = | 316SS Bolt / Nut / Washers |



### 316 STAINLESS STEEL REPAIR CLAMPS

Derwent Industries 316 Stainless Steel Repair Clamps are Australian manufactured. Stainless Steel Clamps are used throughout various industries as a fast, simple and economical permanent solution for pipe repair. Derwent Clamps are manufactured to AS4181. Note: Clamps may not be suitable for all pipe types and should not be used for axial restraint or for joining pipes together in new works.

**Features:**

- 316 Stainless Steel for superior corrosion protection
- Studs and Nuts coated with molybond to prevent galling
- Provide a simple and permanent repair whilst supporting the integrity of the main
- Nitrile Gasket providing a full circle seal
- Clamps are fully passivated, ensuring superior quality
- All studs are supplied with plastic thread protectors
- Variable OD range allows for pipe variance
- Manufactured in Australia



**Applications:**

The Derwent Industries 316 Stainless Steel Repair Clamps are ideal as a fast, simple and economical permanent solution for pipe repair for most pipe types.

Repair clamps are an ideal product for use on holes, splits, pulled service connections or branch lines or even full breaks. Installation must be in line with the relevant water authority installation allowances. The flexibility given via the OD range of the clamps provides the user with a simple repair solution.

Please refer to installation instruction for all installations.

**Technical Data:**

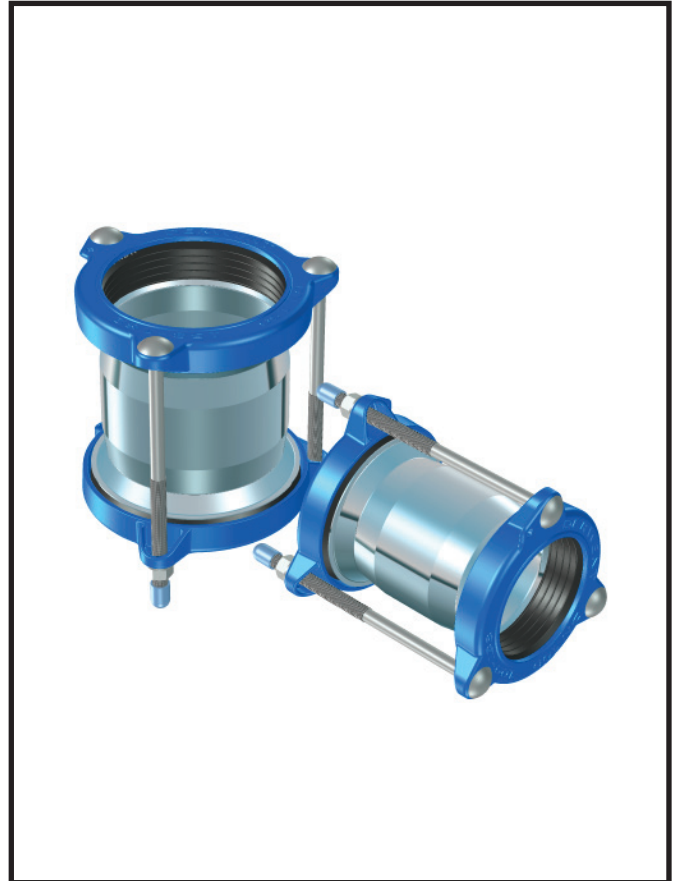
|                          |  |
|--------------------------|--|
| Size Range:              | DN40 – DN 1200<br>(Larger sizes are available as specials) |
| Temperature Range:       | -10°C to 60°C  |
| Max. Operating Pressure: | 1600 kPa<br>(Only to OD 690mm)                             |
| Quality Assurance:       | ISO9001:2015   |
| Certificate Number:      | QEC2004  |
| AS/NZS 4181:             | SMK26386 (Refer Schedule)                                  |
| WSAA Appraisal No.       | PA1833 (Refer Schedule)                                    |

## Variable Coupling

Derwent Industries Variable Couplings are Australian manufactured. The couplings have been designed to alleviate the issues encountered when connecting pipes of different outside diameters and/or pipe materials. The DERGIB provides the installer with a precise simple way of connecting pipes that have OD variances of up to 24mm.

### Features:

- 316 Stainless Steel Sleeve for superior corrosion protection
- 316 SS Bolts and Nuts coated with molybond to prevent galling
- Flanges are Ductile Iron, Fusion Coated
- Nitrile Gasket
- Sleeves are fully passivated, ensuring superior quality
- Ease of installation via tension wrench
- All bolts are supplied with plastic thread protectors
- Barrel is convex (not straight) allowing for angular deflection to be achieved.



### Applications:

The Derwent Industries Variable Couplings are the perfect solution for joining two sections of pipe together. The coupling allows for an OD variance between pipes requiring joining, allowing for a simple repair to damaged sections of pipe or for new joins. Regulations at water authorities may differ as to allowable usage.

Variable Couplings are not suited to all type of pipe, such as Polyethylene unless a form of restraint is included in the coupling.

Please refer to installation instruction for all installations.

### Technical Data:

|                          |                         |
|--------------------------|-------------------------|
| Size Range:              | DN40 – DN 1200          |
| Temperature Range:       | -10°C to 60°C           |
| Max. Operating Pressure: | 1600 kPa (DN40 - DN600) |
| Quality Assurance:       | ISO9001:2015            |
| Certificate Number:      | QEC2004                 |



## Sewer OB Junctions DN 100 - DN 450

Derwent Industries 316 Stainless Steel Sewer OB's are Australian manufactured. Sewer OB's are a permanent sewer branch connection and can also be used for repairs on Non-Pressure Sewer pipelines. Manufactured in accordance with AS4181 and the new WSAAs specifications.

### Features:

- 316 Stainless Steel for superior corrosion protection
- Studs and Nuts coated with molybond to prevent galling
- Sewer OB's provide a simple and permanent Connection whilst supporting the integrity of the main
- Nitrile Gasket providing a full circle seal
- Sewer OB's are fully passivated, ensuring superior quality
- Junctions available in 45° and 90° (45° as standard, 90° as specials)
- uPVC coupling attached to offtake to allow for ease of connection to PVC property drain
- All studs are supplied with plastic thread protectors
- Junction does not extend past the end of the clamp

### Applications:

The Derwent Industries Sewer OB's are ideal for new service connections on existing or new sewer mains. The Sewer OB's can also be used for repair and reconnecting a damaged branch. Sizes are available for new and older styles of sewer mains.

Please refer to installation instruction for all installations.



### Technical Data:

Size Range: DN100 – DN 450

Offtake Sizes: DN 100 / 150 / 225

(Offtake size is dependent on host pipe)

Temperature Range: -10°C to 60°C

Max. Operating Pressure: 100 kPa

Quality Assurance: ISO9001:2015

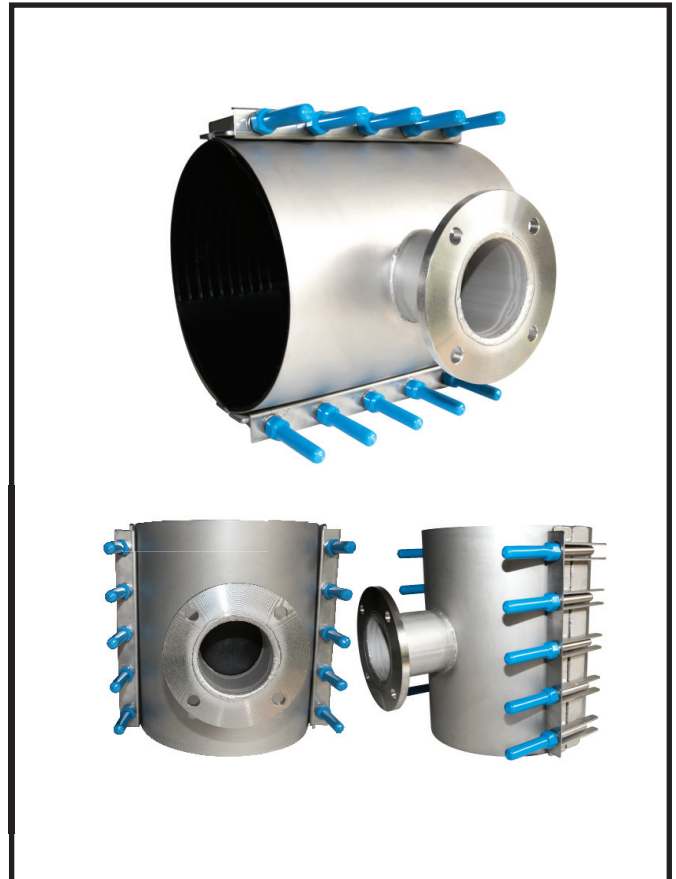
Certificate Number: QEC2004

### 316 Stainless Steel Flanged Offtakes

Derwent Industries 316 Stainless Steel Flanged Offtakes are Australian manufactured. The range of Flanged Offtakes are available in various sizes with the number of segments dependant on pipe OD and offtake required. Flanged offtakes are an ideal solution to add new service connections without the need for service interruption.

#### Features:

- 316 Stainless Steel for superior corrosion protection
- Studs and Nuts coated with molybond to prevent galling
- Flanges 316 SS:  
 - Table C/D to AS 4087 standard  
 - Others available on Request
- Nitrile Gasket: Other gasket materials are available on request
- Flanged Offtakes are fully passivated, ensuring superior quality
- All studs are supplied with plastic thread protectors



#### Applications:

The Derwent Industries Flanged Offtakes are ideal for new service connections on existing or new mains. The ability to tap an existing main under pressure through the utilisation of a Stainless Steel Flanged Offtake, eliminates the need to shut the main, interrupting service to utility customers as well as reducing the risk of contamination via a cut in.

Please refer to installation instruction for all installations.

#### Technical Data:

|                          |  |
|--------------------------|--|
| Size Range:              | DN100 – DN 900                           |
| Offtake Sizes:           | DN100 / 150 / 225 / 250 / 300            |
|                          | (Offtake size is dependent on host pipe) |
| Temperature Range:       | -10°C to 60°C                            |
| Max. Operating Pressure: | 1600 kPa (DN100-450)                     |
| Quality Assurance:       | ISO9001:2015                             |
| Certificate Number:      | QEC2004                                  |

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Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



| Name  | Material    | Designation       | Standard | Nominal Diameter |       |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      |      |      |      |      |
|-------|-------------|-------------------|----------|------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
|       |             |                   |          | 50               | 65    | 80  | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 375 | 400  | 450  | 500  | 525  | 600  | 675  | 750  | 900  | 1000 |
| ISO   | DICL        | International     | DIS2531E | 66               | 77/82 | 98  | 118 | 144 | 170 | 222 | 274 | 326 | 378 | 429 | 480 | 532 | 635  | 738  | 842  | 945  | 1048 | 1152 | 1255 |      |      |
| DICL  | DICL        | Class K9 or K12   | AS2280   | .                | .     | 96  | 122 | 177 | 232 | 259 | 286 | 345 | 426 | 507 | 560 | 667 | 747  | 826  | 924  | 1026 | .    | .    | .    |      |      |
| HOBAS | Hobas (GRP) | AS1413            | .        | .                | .     | 122 | 177 | 232 | 259 | 286 | 345 | 399 | 426 | 453 | 507 | 560 | 587  | 667  | 747  | 826  | 924  | 1026 | 1229 |      |      |
| CICL  | CICL        | Class B           | AS1742-2 | .                | .     | .   | 122 | 177 | 232 | 259 | 286 | 334 | 413 | 492 | 545 | 650 | 747  | 826  | 924  | 1026 | 1229 | .    | .    |      |      |
| CICL  | CICL        | Class C           | AS1544   | .                | .     | 96  | 122 | 149 | 177 | 203 | 259 | 286 | 345 | 426 | 507 | 560 | 667  | 747  | 826  | 924  | 1026 | 1229 |      |      |      |
| AC    | AC          | Class AB          | AS1711   | .                | .     | 96  | 122 | 177 | 232 | 259 | 286 | 334 | 413 | 492 | 545 | 650 | 747  | 826  | 924  | 1026 | 1229 | .    | .    |      |      |
| AC    | AC          | Class CD          | AS1711   | .                | .     | 96  | 122 | 177 | 232 | 259 | 286 | 345 | 426 | 507 | 560 | 667 | 747  | 826  | 924  | 1026 | 1229 | .    | .    |      |      |
| uPVC  | uPVC        | CIOD (Blue)       | AS1477   | .                | .     | 122 | 177 | 232 | 259 | 286 | 345 | 426 | 507 | 560 | 667 | 747 | 826  | 924  | 1026 | 1229 | .    | .    |      |      |      |
| uPVC  | uPVC        | Metric White      | AS1477   | 60               | 75    | 89  | 114 | 140 | 160 | 200 | 225 | 250 | 280 | 315 | 355 | 400 | 450  | 500  | 560  | 630  | 730  | 800  | 900  | 1000 | 1200 |
| STEEL | Steel       | MSCL              | AS1579   | .                | .     | 114 | 168 | 219 | 273 | 324 | 356 | 406 | 457 | 508 | 610 | 762 | 914  | 1050 | 1200 | 1283 | 1290 | .    | .    |      |      |
| STEEL | Galv.       | GWJ               | AS1074   | 60               | 76    | 89  | 114 | 140 | 165 | 219 | 273 | 324 | 356 | 406 | 457 | 508 | 610  | 762  | 914  | 1050 | 1200 | 1283 | 1290 |      |      |
| PE    | PE          | To Actual OD      | AS4130   | 50               | 63    | 75  | 110 | 125 | 140 | 180 | 200 | 225 | 250 | 280 | 315 | 355 | 400  | 450  | 500  | 560  | 630  | 730  | 800  | 900  | 1000 |
| RC    | RC          | Class 2-12        | AS4058   | .                | .     | .   | 197 | 279 | 362 | 445 | 533 | 616 | 699 | 787 | 870 | 946 | 1029 | 1105 | 1194 | 1354 | .    | .    |      |      |      |
| CU    | CU          | Internal Diameter | AS3688   | 51               | 64    | 76  | 102 | 127 | 152 | 203 | 229 | 365 | 440 | 590 | 740 | .   | .    | .    | .    | .    | .    | .    | .    | .    |      |

Note: These charts should only be used as a guide. Figures are rounded to the closest decimal place - Use actual pipe measurements for accuracy  
 Handy tip: To get accurate average diameter divide circumference by 3.142 (pi) eg. if circumference is 383mm then diameter = 121.9mm  
 Caution: Steel and reinforced concrete have many intermediate sizes that have not been included here.

| Pipe Material | Designation       | Standard | Nominal Diameter |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |
|---------------|-------------------|----------|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|               |                   |          | 50               | 65 | 80  | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 375 | 400 | 450 | 500 | 525 | 600 | 675 | 750 |      |      |
| VC            | VC                | AS1741   | .                | .  | 138 | 194 | 280 | 370 | 450 | 535 | 635 | 710 | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |
| FRC           | Class X           | .        | .                | .  | 124 | 179 | 261 | 345 | 426 | 510 | 594 | 679 | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |
| AC            | Class 35          | AS1712   | .                | .  | 120 | 177 | 230 | 257 | 283 | 336 | 419 | 497 | 576 | 657 | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |
| AC            | Class 50          | AS1712   | .                | .  | 122 | 183 | 236 | 262 | 289 | 344 | 425 | 505 | 585 | 664 | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |
| CI            | Cast Iron         | AS1631   | .                | .  | 85  | 114 | 140 | 165 | 244 | 323 | 403 | 483 | 563 | 643 | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |
| uPVC          | SWW               | AS1260   | 59               | 69 | 83  | 110 | 160 | 210 | 260 | 310 | 360 | 410 | 460 | 510 | 560 | 610 | 660 | 710 | 760 | 810 | 860 | 910 | 960  | 1010 |
| uPVC          | Sewer             | AS1260   | .                | .  | 110 | 160 | 210 | 260 | 310 | 360 | 410 | 460 | 510 | 560 | 610 | 660 | 710 | 760 | 810 | 860 | 910 | 960 | 1010 | 1060 |
| Black Brute   | Internal Diameter | DN16961  | .                | .  | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .   | .    | .    |

## Heavy & Medium Pipe to Australian Standards

### CHS Grade C250 MASS AND BUNDLING DATA -Calculated in accordance with AS 1163

| DIMENSIONS  |     |     | BUNDLING |            |         |        | MASS         |       |         |      |                 |      |
|-------------|-----|-----|----------|------------|---------|--------|--------------|-------|---------|------|-----------------|------|
| Designation |     |     | Nominal  | Bundle     | Lengths | Metres | Nominal Mass |       |         |      | Mass Per Bundle |      |
|             |     |     | Size     | Dimensions | per     | per    | kg/m         |       | m/tonne |      | tonnes          |      |
| do          | t   |     | DN       | mm         | Bundle  | Bundle |              |       |         |      |                 |      |
| mm          | mm  |     | mm       | W x H      | 6.5m    | Metres | Black        | Galv  | Black   | Galv | Black           | Galv |
| 26.9        | 2.6 | CHS | 20M      | 350 306    | 127     | 825.5  | 1.56         | 1.6   | 642     | 623  | 1.29            | 1.32 |
|             | 3.2 | CHS | 20H      | 350 306    | 127     | 825.5  | 1.87         | 1.92  | 535     | 522  | 1.54            | 1.58 |
| 33.7        | 3.2 | CHS | 25M      | 327 327    | 91      | 591.5  | 2.41         | 2.46  | 415     | 406  | 1.42            | 1.46 |
|             | 4   | CHS | 25H      | 327 327    | 91      | 591.5  | 2.93         | 2.99  | 341     | 335  | 1.73            | 1.77 |
| 42.4        | 3.2 | CHS | 32M      | 383 337    | 61      | 396.5  | 3.09         | 3.17  | 323     | 316  | 1.23            | 1.26 |
|             | 4   | CHS | 32H      | 383 337    | 61      | 396.5  | 3.79         | 3.86  | 264     | 259  | 1.5             | 1.53 |
| 48.3        | 3.2 | CHS | 40M      | 436 384    | 61      | 396.5  | 3.56         | 3.64  | 281     | 274  | 1.41            | 1.44 |
|             | 4   | CHS | 40H      | 436 384    | 61      | 396.5  | 4.37         | 4.45  | 229     | 225  | 1.73            | 1.77 |
| 60.3        | 3.6 | CHS | 50M      | 422 374    | 37      | 240.5  | 5.03         | 5.14  | 199     | 195  | 1.21            | 1.24 |
|             | 4.5 | CHS | 50H      | 422 374    | 37      | 240.5  | 6.19         | 6.3   | 161     | 159  | 1.49            | 1.51 |
| 76.1        | 3.6 | CHS | 65M      | 533 472    | 37      | 240.5  | 6.44         | 6.57  | 155     | 152  | 1.55            | 1.58 |
|             | 4.5 | CHS | 65H      | 533 472    | 37      | 240.5  | 7.95         | 8.08  | 126     | 124  | 1.91            | 1.94 |
| 88.9        | 4   | CHS | 80M      | 445 397    | 19      | 123.5  | 8.38         | 8.54  | 119     | 117  | 1.03            | 1.05 |
|             | 4.9 | CHS | 80H      | 445 397    | 19      | 123.5  | 10.15        | 10.31 | 99      | 97   | 1.25            | 1.27 |
| 101.6       | 4   | CHS | 90M      | 508 454    | 19      | 123.5  | 9.63         | 9.81  | 104     | 102  | 1.19            | 1.21 |
|             | 4.9 | CHS | 90H      | 508 454    | 19      | 123.5  | 11.69        | 11.87 | 86      | 84   | 1.44            | 1.47 |
| 114.3       | 4.5 | CHS | 100M     | 571 509    | 19      | 123.5  | 12.19        | 12.39 | 82      | 81   | 1.50            | 1.53 |
|             | 5.4 | CHS | 100H     | 571 509    | 19      | 123.5  | 14.50        | 14.71 | 69      | 68   | 1.79            | 1.82 |
| 139.7       | 5   | CHS | 125M     | 699 382    | 13      | 84.5   | 16.61        | 16.86 | 60      | 59   | 1.40            | 1.42 |
|             | 5.4 | CHS | 125H     | 699 382    | 13      | 84.5   | 17.89        | 18.14 | 56      | 55   | 1.51            | 1.53 |
| 165.1       | 5   | CHS | 150M     | 660 451    | 10      | 65     | 19.74        | 20.04 | 51      | 50   | 1.28            | 1.30 |
|             | 5.4 | CHS | 150H     | 660 451    | 10      | 65     | 21.27        | 21.57 | 47      | 46   | 1.38            | 1.40 |

Notes: M=Medium H=Heavy

#### WORKING PRESSURES - WELDED JOINTS

Where AS 1074 pipe is used in pressure piping covered by AS 4041, the maximum pressure shall not exceed 1210 kPa for AS 1074 pipe up to and including DN100 and 1030 kPa for AS 1074 pipe exceeding DN100

#### SPECIFICATION

C250 Pipe is manufactured and tested to meet the requirement of the following specifications:-

- AS 1074 Steel Tubes and Tubulars for ordinary service.
- AS 1163 Structural steel and hollow sections.  
(Grade C250 and C250L0).

#### THREADED PIPE

Screwed on one or both ends in accordance with AS 1074. The tapered Whitworth thread used complies with the requirements of AS 1722, Part 1 and is suitable for both parallel and threaded sockets.

#### END PROCESSING OPTIONS

- Plain End
- Shouldered
- Roll Grooved
- Threaded

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

Heavy & Medium Pipe to Australian Standards

**WORKING PRESSURES - THREADED JOINTS TAPER/PARALLEL THREAD**

| TYPE OF SERVICE |                   |       |                 |            |          |            |          |  |          |            |          |
|-----------------|-------------------|-------|-----------------|------------|----------|------------|----------|--|----------|------------|----------|
| Nominal Size    | Water & Inert Oil |       | LPG             | Fuel Oil   |          |            |          | Other Applications<br>(including Steam & Compressed Air) |          |            |          |
|                 | Med               | Heavy |                 | Medium     |          | Heavy      |          | Medium   | Temp.    | Heavy      | Temp.    |
| DN (mm)         | kPa               | kPa   | Med & Heavy kPa | Press. kPa | Temp. °C | Press. kPa | Temp. °C | Press. kPa   | Temp. °C | Press. kPa | Temp. °C |
| 25              | 2070              | 2410  | 140             | 1030       | 100      | 1210       | 192      | 1210   | 100      | 1210       | 192      |
| 32              | 1720              | 2070  | 140             | 1030       | 100      | 1030       | 192      | 1030   | 100      | 1030       | 192      |
| 40              | 1720              | 2070  | 140             | 1030       | 100      | 1030       | 192      | 1030   | 100      | 1030       | 192      |
| 50              | 1380              | 1720  | 140             | 860        | 100      | 860        | 192      | 860  | 100      | 860        | 192      |
| 65              | 1380              | 1720  |                 | 860        | 100      | 860        | 192      | 860  | 100      | 860        | 192      |
| 80              | 1380              | 1720  |                 | 860        | 100      | 860        | 192      | 860  | 100      | 860        | 192      |
| 100             | 1030              | 1380  |                 | 690        | 100      | 850        | 192      | 690  | 100      | 690        | 192      |
| 125             | 1030              | 1380  |                 |            |          |            |          |  |          |            |          |
| 150             | 860               | 1030  |                 |            |          |            |          |  |          |            |          |

**SUPPLY CONDITIONS**

|                     |                          |
|---------------------|--------------------------|
| Surface Finish      | Black/Painted/Galvanised |
| Straightness        | Refer to                 |
| Thickness Tolerance | Australian Standards     |
| Dimension Tolerance | 6.5m                     |
| Standard Length     | + 25mm /- 0mm            |
| Length Tolerance    |                          |

**MECHANICAL PROPERTIES**

|                               |        |
|-------------------------------|--------|
| Minimum Yield Strength        | 250MPa |
| Minimum Tensile Strength      | 320MPa |
| Minimum Elongation in 5.65√So | 20%    |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| FLANGE DIMENSIONS  |                   | NOMINAL SIZE | 50  | 65  | 80  | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 375 | 400 | 450 | 500 | 525 | 600 | 700 | 750  |
|--|-------------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| <b>AS 4087 &amp; AS 2129</b><br>Drilling Compatible with<br>Table C & D<br><b>AS Standard Pressure</b> | Outside Dia.      |              | 150 | 165 | 185 | 215 | 255 | 280 |     | 335 | 370 | 405 | 455 | 525 | 550 | 580 | 640 | 705 | 735 | 825 | 910 | 995  |
|  | Pitch Circle Dia  |              | 114 | 127 | 146 | 178 | 210 | 235 |     | 292 | 324 | 356 | 406 | 470 | 495 | 521 | 584 | 641 | 673 | 756 | 845 | 927  |
|  | No. of Holes      |              | 4   | 4   | 4   | 4   | 8   | 8   |     | 8   | 8   | 8   | 12  | 12  | 12  | 12  | 12  | 16  | 16  | 16  | 20  | 20   |
|  | Dia. of Holes     |              | 18  | 18  | 18  | 18  | 18  | 18  |     | 18  | 18  | 22  | 22  | 26  | 26  | 26  | 26  | 26  | 26  | 26  | 30  | 30   |
|  | Bolt Diameter     |              | 16  | 16  | 16  | 16  | 16  | 16  |     | 16  | 16  | 20  | 20  | 24  | 24  | 24  | 24  | 24  | 24  | 24  | 27  | 27   |
| <b>Flange Thickness</b>  |                   |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| AS Standard Pressure   |                   | Class 16     |     |     |     | 18  | 20  | 23  |     | 23  | 24  | 24  | 30  |     | 33  | 33  | 35  | 35  |     | 42  |     | 47   |
|  |                   | Class 14     |     |     |     | 19  | 22  | 22  |     | 25  | 25  | 25  | 29  | 32  | 32  | 32  | 35  | 38  | 38  | 41  | 44  | 48   |
|  |                   | Class 14     | 11  | 11  | 11  | 11  | 11  | 13  | 15  | 19  | 19  | 19  | 23  | 30  | 30  | 30  | 30  | 38  | 41  |     | 48  |      |
| <b>AS 4087 &amp; AS 2129</b><br>Drilling Compatible with<br>Table F & H<br><b>AS High Pressure</b>     | Outside Dia.      |              | 165 | 185 | 205 | 230 |     | 305 |     | 370 | 405 | 430 | 490 | 550 | 580 | 610 | 675 | 735 | 760 | 850 |     | 1015 |
|  | Pitch Circle Dia  |              | 127 | 146 | 165 | 191 |     | 260 |     | 324 | 356 | 381 | 438 | 495 | 521 | 552 | 610 | 673 | 699 | 781 |     | 940  |
|  | No. of Holes      |              | 4   | 8   | 8   | 8   |     | 12  |     | 12  | 12  | 12  | 16  | 16  | 16  | 20  | 20  | 24  | 24  | 24  |     | 28   |
|  | Dia. of Holes     |              | 18  | 18  | 18  | 18  |     | 22  |     | 22  | 26  | 26  | 26  | 30  | 30  | 30  | 33  | 33  | 33  | 36  |     | 36   |
|  | Bolt Diameter     |              | 16  | 16  | 16  | 16  |     | 20  |     | 20  | 24  | 24  | 24  | 27  | 27  | 27  | 27  | 30  | 30  | 30  |     | 33   |
| <b>Flange Thickness</b>  |                   |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| AS High Pressure   |                   | Class 35     |     |     |     | 22  | 22  | 27  |     | 31  | 34  | 34  | 38  |     | 42  |     | 46  | 49  |     | 54  |     | 59   |
|  |                   | Class 21     |     |     |     | 19  | 22  | 25  |     | 29  | 29  | 32  | 32  | 35  | 35  | 35  | 38  | 41  | 41  | 44  |     | 51   |
|  |                   | Class 35     |     |     |     | 29  | 32  | 35  |     | 41  | 41  | 44  | 44  | 48  | 51  | 51  | 54  | 57  | 60  | 64  |     |      |
|  |                   | Class 21     | 15  | 15  | 15  | 19  | 19  | 24  |     | 24  | 30  | 30  | 30  | 30  | 38  | 38  | 38  | 48  | 48  | 51  | 58  | 58   |
|  |                   | Class 35     | 19  | 19  | 24  | 24  | 24  | 31  |     | 31  | 38  | 38  | 38  | 48  | 48  | 48  | 58  | 58  | 70  | 68  |     |      |
| <b>AS 2129</b><br>Table E  | Outside Dia.      |              | 150 | 165 | 185 | 215 | 255 | 280 |     | 335 | 370 | 405 | 455 | 525 | 550 | 580 | 640 | 705 | 735 | 825 | 910 | 995  |
|  | Pitch Circle Dia. |              | 114 | 127 | 146 | 178 | 210 | 235 |     | 292 | 324 | 356 | 406 | 470 | 495 | 521 | 584 | 641 | 675 | 756 | 845 | 927  |
|  | No. of Holes      |              | 4   | 4   | 4   | 8   | 8   | 8   |     | 8   | 12  | 12  | 12  | 12  | 12  | 12  | 12  | 16  | 16  | 16  | 20  | 20   |
|  | Dia. of Holes     |              | 18  | 18  | 18  | 18  | 18  | 18  |     | 22  | 22  | 22  | 26  | 26  | 26  | 26  | 26  | 26  | 26  | 26  | 30  | 33   |
|  | Bolt Diameter     |              | 16  | 16  | 16  | 16  | 16  | 16  |     | 20  | 20  | 20  | 24  | 24  | 24  | 24  | 24  | 24  | 24  | 27  | 30  | 30   |
| <b>Flange Thickness</b>  |                   |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| Table E  |                   | Class 14     | 19  | 19  | 19  | 22  | 22  | 22  |     | 25  | 25  | 25  | 29  | 32  | 32  | 32  | 35  | 38  | 38  | 41  | 44  | 48   |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| FLANGE DIMENSIONS        |                   | NOMINAL SIZE | 50  | 65  | 80  | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 375 | 400 | 450 | 500 | 525 | 600 | 700 | 750 |
|--------------------------|-------------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>ISO 7005 PN 16</b>    | Outside Dia.      |              | 165 | 185 | 200 | 220 | 250 | 285 | 315 | 340 |     | 405 | 460 | 520 |     | 580 | 640 | 715 |     | 840 | 910 |     |
|                          | Pitch Circle Dia. |              | 125 | 145 | 160 | 180 | 210 | 240 | 270 | 295 |     | 355 | 410 | 470 |     | 525 | 585 | 650 |     | 770 | 840 |     |
|                          | No. of Holes      |              | 4   | 4   | 8   | 8   | 8   | 8   | 8   | 12  |     | 12  | 12  | 16  |     | 16  | 20  | 20  |     | 20  | 24  |     |
|                          | Dia. of Holes     |              | 18  | 18  | 18  | 18  | 18  | 22  | 22  | 22  |     | 27  | 27  | 27  |     | 30  | 30  | 33  |     | 36  | 36  |     |
|                          | Bolt Diameter     |              | 16  | 16  | 16  | 16  | 16  | 20  | 20  | 20  |     | 24  | 24  | 24  |     | 27  | 27  | 30  |     | 33  | 33  |     |
| <b>Flange Thickness</b>  |                   |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Class 16                 |                   | Ductile Iron | 19  | 19  | 19  | 19  | 19  | 19  |     | 20  |     | 22  | 25  | 27  |     | 28  | 30  | 32  |     | 36  | 40  |     |
| Class 16                 |                   | Cast Iron    | 20  | 20  | 22  | 24  | 26  | 26  |     | 30  |     | 32  | 32  | 36  |     | 38  | 40  | 42  |     | 48  | 54  |     |
| <b>ANSI B16.1 125 lb</b> | Outside Dia.      |              | 152 | 178 | 191 | 229 | 255 | 280 |     | 343 |     | 405 | 483 | 533 |     | 597 | 635 | 699 |     | 813 |     | 984 |
|                          | Pitch Circle Dia. |              | 121 | 140 | 152 | 191 | 216 | 241 |     | 298 |     | 362 | 432 | 476 |     | 540 | 578 | 635 |     | 749 |     | 914 |
|                          | No. of Holes      |              | 4   | 4   | 4   | 8   | 8   | 8   |     | 8   |     | 12  | 12  | 12  |     | 16  | 16  | 20  |     | 20  |     | 28  |
|                          | Dia. of Holes     |              | 19  | 19  | 19  | 19  | 22  | 22  |     | 22  |     | 25  | 25  | 29  |     | 29  | 32  | 32  |     | 35  |     | 35  |
|                          | Bolt Diameter     |              | 16  | 16  | 16  | 16  | 20  | 20  |     | 20  |     | 22  | 22  | 25  |     | 25  | 29  | 29  |     | 32  |     | 32  |
| <b>Flange Thickness</b>  |                   |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Class 17                 |                   | Cast Iron    | 16  | 18  | 2   | 20  | 24  | 25  |     | 29  |     | 26  | 32  | 35  |     | 37  | 40  | 48  |     | 48  |     | 54  |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

## Steel Pipes to American Standard ANSI B36.10

NOMINAL SIZES SHOWN ARE DN : SI METRIC TERM NPS : ANSI TERM

| Nominal Size |       | Outside Diam<br>mm | NOMINAL WALL THICKNESS FOR WELDED AND SEAMLESS STEEL PIPE |              |           |   |          |          |          |          |          |           |           |           |           |
|--------------|-------|--------------------|---|--------------|-----------|---|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| DN           | NPS   |                    | ANSI B36.10   |              |           | All dimensions are shown in millimetres |          |          |          |          |          |           |           |           |           |
|              |       |                    | Std   | Extra Strong | XX Strong | Sched 10                                | Sched 20 | Sched 30 | Sched 40 | Sched 60 | Sched 80 | Sched 100 | Sched 120 | Sched 140 | Sched 150 |
| 6            | 1/8   | 10.3               | 1.73  | 2.41         |           |   |          |          | 1.73     |          | 2.41     |           |           |           |           |
| 8            | 1/4   | 13.7               | 2.24  | 3.02         |           |   |          |          | 2.24     |          | 3.02     |           |           |           |           |
| 10           | 3/8   | 17.1               | 2.31  | 3.20         |           |   |          |          | 2.31     |          | 3.20     |           |           |           |           |
| 15           | 1/2   | 21.3               | 2.77  | 3.73         | 7.47      |   |          |          | 2.77     |          | 3.73     |           |           |           | 4.78      |
| 20           | 3/4   | 26.7               | 2.87  | 3.91         | 7.82      |   |          |          | 2.87     |          | 3.91     |           |           |           | 5.56      |
| 25           | 1     | 33.4               | 3.38  | 4.55         | 9.09      |   |          |          | 3.38     |          | 4.55     |           |           |           | 6.35      |
| 32           | 1 1/4 | 42.2               | 3.56  | 4.85         | 9.70      |   |          |          | 3.56     |          | 4.85     |           |           |           | 6.35      |
| 40           | 1 1/2 | 48.3               | 3.68  | 5.08         | 10.15     |   |          |          | 3.68     |          | 5.08     |           |           |           | 7.14      |
| 50           | 2     | 60.3               | 3.91  | 5.54         | 11.07     |   |          |          | 3.91     |          | 5.54     |           |           |           | 8.74      |
| 65           | 2 1/2 | 73.0               | 5.16  | 7.01         | 14.02     |   |          |          | 5.16     |          | 7.01     |           |           |           | 9.53      |
| 80           | 3     | 88.9               | 5.49  | 7.62         | 15.24     |   |          |          | 5.49     |          | 7.62     |           |           |           | 11.13     |
| 90           | 3 1/2 | 101.6              | 5.74  | 8.08         |           |   |          |          | 5.74     |          | 8.08     |           |           |           |           |
| 100          | 4     | 114.3              | 6.02  | 8.56         | 17.12     |   |          |          | 6.02     |          | 8.56     |           | 11.13     |           | 13.49     |
| 125          | 5     | 141.3              | 6.55  | 9.53         | 19.05     |   |          |          | 6.55     |          | 9.53     |           | 12.70     |           | 15.88     |
| 150          | 6     | 168.3              | 7.11  | 10.97        | 21.95     |   |          |          | 7.11     |          | 10.97    |           | 14.27     |           | 18.26     |
| 200          | 8     | 219.1              | 8.18  | 12.70        | 22.23     |   | 6.35     | 7.04     | 8.18     | 10.31    | 12.70    | 15.09     | 18.26     | 20.62     | 23.01     |
| 250          | 10    | 273.1              | 9.27  | 12.70        | 25.40     |   | 6.35     | 7.80     | 9.27     | XS       | 15.09    | 18.26     | 21.44     | XXS       | 28.58     |
| 300          | 12    | 323.9              | 9.53  | 12.70        | 25.40     |   | 6.35     | 8.38     | 10.31    | 14.27    | 17.48    | 21.44     | XXS       | 28.58     | 33.32     |
| 350          | 14    | 355.6              | 9.53  | 12.70        |           | 6.35                                    | 7.92     | Std.W.T. | 11.13    | 15.09    | 19.05    | 23.83     | 27.79     | 31.75     | 35.71     |
| 400          | 16    | 406.4              | 9.53  | 12.70        |           | 6.35                                    | 7.92     | Std.W.T. | XS       | 16.66    | 21.44    | 26.19     | 30.96     | 36.53     | 40.49     |
| 450          | 18    | 457                | 9.53  | 12.70        |           | 6.35                                    | 7.92     | 11.13    | 14.27    | 19.05    | 23.83    | 29.36     | 34.93     | 39.67     | 45.24     |
| 500          | 20    | 508                | 9.53  | 12.70        |           | 6.35                                    | Std.W.T. | XS       | 15.09    | 20.62    | 26.19    | 32.54     | 38.10     | 44.45     | 50.01     |
| 550          | 22    | 559                | 9.53  | 12.70        |           | 6.35                                    | Std.W.T. | XS       |          | 22.23    | 28.58    | 34.93     | 41.28     | 47.63     | 53.98     |
| 600          | 24    | 610                | 9.53  | 12.70        |           | 6.35                                    | Std.W.T. | 14.27    | 17.48    | 24.61    | 30.96    | 38.89     | 46.02     | 52.37     | 59.54     |
| 650          | 26    | 660                | 9.53  | 12.70        |           | 7.92                                    | XS       |          |          |          |          |           |           |           |           |
| 700          | 28    | 711                | 9.53  | 12.70        |           | 7.92                                    | XS       | 15.88    |          |          |          |           |           |           |           |
| 750          | 30    | 762                | 9.53  | 12.70        |           | 7.92                                    | XS       | 15.88    |          |          |          |           |           |           |           |
| 800          | 32    | 813                | 9.53  | 12.70        |           | 7.92                                    | XS       | 15.88    | 17.48    |          |          |           |           |           |           |
| 850          | 34    | 864                | 9.53  | 12.70        |           | 7.92                                    | XS       | 15.88    | 17.48    |          |          |           |           |           |           |
| 900          | 36    | 914                | 9.53  | 12.70        |           | 7.92                                    | XS       | 15.88    | 19.05    |          |          |           |           |           |           |
| 1050         | 42    | 1067               | 9.53  | 12.70        |           |   |          |          |          |          |          |           |           |           |           |

### Formula to attain approximate mass in kilograms per metre (kg/m) for Steel Round Pipe and Tubing

$$m = (D - t) \times 0.02466$$

Where:

- m = mass to the nearest 0.01 kg/m
- D = Outside Diameter in millimetres  
(To nearest 0.1 mm for OD up to 406.4mm)  
(To nearest 1.0mm for OD 457 mm and above)
- t = Wall thickness to nearest 0.01 mm

- Nominal Size Step 1. 323.9 - 9.53 = 314.37
- DN300 NPS12 Step 2. 314.37 x 9.53 = 2995.946
- OD = 323.9 mm Step 3. 2995.9461 x 0.024.66
- W.T. - 9.53 mm = 73.88 kg/m

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| <b>Standard Pressure Flange (AS 4087) - Table C or E drilling - maximum working pressure 1.6 Mpa.</b> |                   |                    |                    |                 |           |                    |                 |           |
|---|-------------------|--------------------|--------------------|-----------------|-----------|--------------------|-----------------|-----------|
| Nominal Size  | Flange Diameter A | Flange Thickness T | Table C            |                 |           | Table E            |                 |           |
|   |                   |                    | Bolt Circle Dia. P | Number of Bolts | Bolt Size | Bolt Circle Dia. P | Number of Bolts | Bolt Size |
| 80  | 185               | 18                 | 146                | 4               | M16 x 65  | 146                | 4               | M16 x 65  |
| 100   | 215               | 20                 | 178                | 4               | M16 x 75  | 178                | 8               | M16 x 75  |
| 150   | 280               | 23                 | 235                | 8               | M16 x 75  | 235                | 8               | M20 x 75  |
| 200   | 335               | 23                 | 292                | 8               | M16 x 75  | 292                | 8               | M20 x 75  |
| 225   | 370               | 24                 | 324                | 8               | M16 x 75  | 324                | 12              | M20 x 75  |
| 250   | 405               | 24                 | 356                | 8               | M20 x 90  | 356                | 12              | M20 x 90  |
| 300   | 455               | 30                 | 406                | 12              | M20 x 100 | 406                | 12              | M24 x 100 |
| 375   | 550               | 33                 | 495                | 12              | M24 x 100 | 495                | 12              | M24 x 100 |
| 450   | 640               | 33                 | 584                | 12              | M24 x 120 | 584                | 16              | M24 x 120 |
| 500   | 705               | 35                 | 641                | 16              | M24 x 120 | 641                | 16              | M24 x 120 |
| 600   | 825               | 42                 | 756                | 16              | M27 x 130 | 756                | 16              | M30 x 140 |
| 750   | 995               | 47                 | 927                | 20              | M30 x 140 | 927                | 20              | M33 x 140 |

| <b>High Pressure Flange (AS 4087) - Table F drilling - maximum working pressure 3.5 Mpa.</b> |                   |                    |                    |                 |           |
|--|-------------------|--------------------|--------------------|-----------------|-----------|
| Nominal Size   | Flange Diameter A | Flange Thickness T | Table F            |                 |           |
|  |                   |                    | Bolt Circle Dia. P | Number of Bolts | Bolt Size |
| 80   | 205               | 22                 | 165                | 8               | M16 x75   |
| 100  | 230               | 22                 | 191                | 8               | M16 x75   |
| 150  | 305               | 27                 | 260                | 12              | M20 x90   |
| 200  | 370               | 31                 | 324                | 12              | M20 x100  |
| 225  | 405               | 34                 | 356                | 12              | M24 x 120 |
| 250  | 430               | 34                 | 381                | 12              | M24 x 120 |
| 300  | 490               | 38                 | 438                | 16              | M24 x 120 |
| 375  | 580               | 42                 | 521                | 16              | M27 x 130 |
| 450  | 675               | 46                 | 610                | 20              | M30 x 140 |
| 500  | 735               | 49                 | 673                | 24              | M30 x 140 |
| 600  | 850               | 54                 | 781                | 24              | M33 x 160 |
| 750  | 1015              | 59                 | 940                | 28              | M33 x 160 |

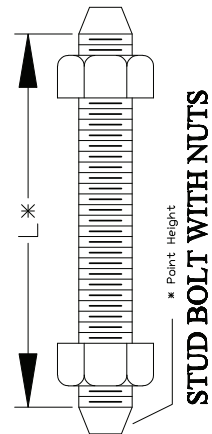
Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

## Bolt & Stud Dimensions for American Standard Flanges

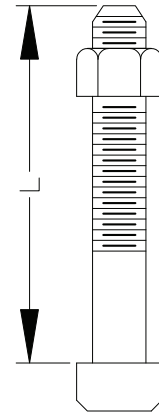
To suit Flange Sizes 15mm to 600mm to ANSI B16.5 (BS.1560) and sizes 750mm & 900mm to BS.3293  
NOMINAL SIZES SHOWN ARE SAA METRIC (mm) & ANSI (ins) NOMINAL SIZE

| Nominal Flange Size | Class 150 |               |               | Class 300     |           |               | Class 600     |               |           | Class 900     |               |  | Class 1500    |               |           | Class 2500    |               |           | Nominal Flange Size |               |     |       |
|---------------------|-----------|---------------|---------------|---------------|-----------|---------------|---------------|---------------|-----------|---------------|---------------|--|---------------|---------------|-----------|---------------|---------------|-----------|---------------------|---------------|-----|-------|
|                     | No. Bolts | Dia Bolts ins | Stud Bolts mm | Mach Bolts mm | No. Bolts | Dia Bolts ins | Stud Bolts mm | Mach Bolts mm | No. Bolts | Dia Bolts ins | Stud Bolts mm | No. Bolts                                | Dia Bolts ins | Stud Bolts mm | No. Bolts | Dia Bolts ins | Stud Bolts mm | No. Bolts | Dia Bolts ins       | Stud Bolts mm | mm  | ins   |
| 15                  | 4         | 1/2           | 60            | 45            | 4         | 1/2           | 65            | 55            | 4         | 1/2           | 80            | Use Class 1500 dimensions in these sizes |               |               | 4         | 3/4           | 105           | 4         | 3/4                 | 125           | 15  | 1/2   |
| 20                  | 4         | 1/2           | 65            | 50            | 4         | 5/8           | 75            | 60            | 4         | 5/8           | 90            | Use Class 1500 dimensions in these sizes |               |               | 4         | 3/4           | 115           | 4         | 3/4                 | 125           | 20  | 3/4   |
| 25                  | 4         | 1/2           | 65            | 55            | 4         | 5/8           | 80            | 65            | 4         | 5/8           | 90            | Use Class 1500 dimensions in these sizes |               |               | 4         | 7/8           | 125           | 4         | 7/8                 | 140           | 25  | 1     |
| 32                  | 4         | 1/2           | 70            | 55            | 4         | 5/8           | 80            | 65            | 4         | 5/8           | 100           | Use Class 1500 dimensions in these sizes |               |               | 4         | 7/8           | 125           | 4         | 1                   | 150           | 32  | 1 1/4 |
| 40                  | 4         | 1/2           | 70            | 60            | 4         | 5/8           | 90            | 75            | 4         | 5/8           | 105           | Use Class 1500 dimensions in these sizes |               |               | 4         | 1             | 140           | 4         | 1 1/8               | 170           | 40  | 1 1/2 |
| 50                  | 4         | 5/8           | 80            | 65            | 8         | 5/8           | 90            | 75            | 8         | 3/4           | 105           | Use Class 1500 dimensions in these sizes |               |               | 8         | 7/8           | 145           | 8         | 1                   | 175           | 50  | 2     |
| 65                  | 4         | 5/8           | 90            | 75            | 8         | 3/4           | 100           | 85            | 8         | 3/4           | 120           | Use Class 1500 dimensions in these sizes |               |               | 8         | 1             | 160           | 8         | 1 1/8               | 195           | 65  | 2 1/2 |
| 80                  | 4         | 5/8           | 90            | 75            | 8         | 3/4           | 110           | 90            | 8         | 3/4           | 125           | Use Class 1500 dimensions in these sizes |               |               | 8         | 1 1/8         | 180           | 8         | 1 1/4               | 220           | 80  | 3     |
| 90                  | 8         | 5/8           | 90            | 75            | 8         | 3/4           | 110           | 95            | 8         | 7/8           | 140           | Use Class 1500 dimensions in these sizes |               |               | 8         | 1 1/8         | 180           | 8         | 1 1/4               | 220           | 90  | 3 1/2 |
| 100                 | 8         | 5/8           | 90            | 75            | 8         | 3/4           | 110           | 95            | 8         | 7/8           | 145           | Use Class 1500 dimensions in these sizes |               |               | 8         | 1 1/8         | 170           | 8         | 1 1/2               | 255           | 100 | 4     |
| 125                 | 8         | 3/4           | 90            | 80            | 8         | 3/4           | 120           | 100           | 8         | 1             | 165           | Use Class 1500 dimensions in these sizes |               |               | 8         | 1 1/4         | 190           | 8         | 1 1/2               | 250           | 125 | 5     |
| 150                 | 8         | 3/4           | 100           | 85            | 12        | 3/4           | 125           | 105           | 12        | 1             | 170           | Use Class 1500 dimensions in these sizes |               |               | 12        | 1 1/8         | 195           | 12        | 1 3/8               | 260           | 150 | 6     |
| 200                 | 8         | 3/4           | 110           | 90            | 12        | 7/8           | 140           | 110           | 12        | 1 1/8         | 195           | Use Class 1500 dimensions in these sizes |               |               | 12        | 1 1/8         | 220           | 12        | 1 3/8               | 290           | 200 | 8     |
| 250                 | 10        | 7/8           | 115           | 95            | 16        | 1             | 155           | 130           | 16        | 1 1/4         | 215           | Use Class 1500 dimensions in these sizes |               |               | 16        | 1 3/8         | 235           | 12        | 1 3/8               | 335           | 250 | 10    |
| 300                 | 12        | 7/8           | 120           | 100           | 16        | 1 1/8         | 170           | 145           | 20        | 1 1/4         | 220           | Use Class 1500 dimensions in these sizes |               |               | 20        | 1 3/8         | 255           | 16        | 2                   | 375           | 300 | 12    |
| 350                 | 14        | 1             | 130           | 110           | 20        | 1 1/8         | 175           | 150           | 20        | 1 3/8         | 235           | Use Class 1500 dimensions in these sizes |               |               | 20        | 1 3/8         | 275           | 16        | 2 1/4               | 405           | 350 | 14    |
| 400                 | 16        | 1             | 135           | 115           | 20        | 1 1/4         | 190           | 160           | 20        | 1 1/2         | 255           | Use Class 1500 dimensions in these sizes |               |               | 20        | 1 3/8         | 285           | 16        | 2 1/2               | 445           | 400 | 16    |
| 450                 | 16        | 1 1/8         | 150           | 125           | 24        | 1 1/4         | 195           | 170           | 20        | 1 5/8         | 275           | Use Class 1500 dimensions in these sizes |               |               | 20        | 1 3/8         | 325           | 16        | 2 3/4               | 495           | 450 | 18    |
| 500                 | 20        | 1 1/8         | 160           | 135           | 24        | 1 1/4         | 205           | 180           | 24        | 1 5/8         | 290           | Use Class 1500 dimensions in these sizes |               |               | 20        | 2             | 345           | 16        | 3                   | 540           | 500 | 20    |
| 600                 | 24        | 1 1/4         | 175           | 145           | 24        | 1 1/2         | 230           | 195           | 24        | 1 7/8         | 330           | Use Class 1500 dimensions in these sizes |               |               | 20        | 2 1/2         | 435           | 16        | 3 1/2               | 615           | 600 | 24    |
| 750                 | 30        | 1 1/4         | 190           | 160           | 28        | 1 3/4         | 290           | 250           | 28        | 2             | 355           | Use Class 1500 dimensions in these sizes |               |               | 20        | 2 1/2         | 435           | 16        | 3 1/2               | 615           | 750 | 30    |
| 900                 | 36        | 1 1/2         | 215           | 180           | 32        | 2             | 325           | 280           | 28        | 2 1/2         | 400           | Use Class 1500 dimensions in these sizes |               |               | 20        | 2 1/2         | 435           | 16        | 3 1/2               | 615           | 900 | 36    |

NOTE: Raised face height of 1.6mm for Class 150 and 300 and 6.4mm for Class 600, 900, 1500 and 2500 is included in dimension L (Bolt Length).



STUD BOLT WITH NUTS



MACHINE BOLT WITH NUT

**Length of Bolts (L)** is shown in millimeters rounded to the nearest 5 mm. \*Stud Bolt lengths (L) **do not** include the height of point. Machine Bolt lengths (L) include the height of point. **The length shown includes the height of the Raised Face in all cases.**

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



**TEMPERATURE / PRESSURE RATINGS**

Carbon Steel Pipe Flanges to ANSI B16.5 (BS1560)

Forgings to ASTM A105 - Prolonged use above 427 deg C is not recommended

Forgings to ASTM A350 - LF2 - Not for use above 343 deg C

Forgings to ASTM A181 Grade 11 for Class 150 & 300 only

| TEMPERATURE<br>°C | MAXIMUM WORKING PRESSURE IN kPa BY CLASSES<br>(For the approximate P.S.I. divide by 7) |              |               |               |                |                |
|-------------------|--|--------------|---------------|---------------|----------------|----------------|
|                   | PN 20<br>150   | PN 50<br>300 | PN 100<br>600 | PN 150<br>900 | PN 250<br>1500 | PN 420<br>2500 |
| - 29 to 38        | 1960   | 5110         | 10210         | 15320         | 25530          | 42550          |
| 50                | 1920   | 5010         | 10020         | 15020         | 25040          | 41730          |
| 100               | 1770   | 4640         | 9280          | 13910         | 23190          | 38650          |
| 150               | 1580   | 4520         | 9050          | 13570         | 22610          | 37690          |
| 200               | 1400   | 4380         | 8760          | 13150         | 21910          | 36520          |
| 250               | 1210   | 4170         | 8340          | 12520         | 20860          | 34770          |
| 300               | 1020   | 3870         | 7750          | 11620         | 19370          | 32280          |
| 350               | 840  | 3700         | 7390          | 11090         | 18480          | 30800          |
| 375               | 740  | 3650         | 7290          | 10940         | 18230          | 30390          |
| 400               | 650  | 3450         | 6900          | 10350         | 17250          | 28750          |
| 425               | 560  | 2880         | 5750          | 8630          | 14380          | 23960          |
| 450               | 470  | 2000         | 4010          | 6010          | 10020          | 16690          |
| 475               | 370  | 1350         | 2710          | 4060          | 6770           | 11290          |
| 500               | 280  | 880          | 1760          | 2640          | 4400           | 7330           |
| 525               | 190  | 520          | 1040          | 1550          | 2590           | 4320           |
| 540               | 130  | 330          | 650           | 980           | 1630           | 2720           |

Flanges above 600NPS are not included in ANSI B16.5 and the Class designations in these large diameters DO NOT IMPLY specific temperature / pressure ratings.

| Inch/Metric Bolting interchangeable for A.N.S.I. B16.5 flanges as below |     |
|---|-----|
| FOR   | USE |
| 1/2   | M14 |
| 5/8   | M18 |
| 3/4   | M20 |
| 7/8   | M24 |
| 1"  | M27 |
| 1 1/8   | M30 |
| 1 1/4   | M33 |
| 1 3/8   | M36 |
| 1 1/2   | M39 |
| 1 5/8   | M42 |
| 1 3/4   | M45 |
| 1 7/8   | M48 |
| 2"  | M52 |
| 2 1/4   | M56 |
| 2 1/2   | M64 |
| 2 3/4   | M72 |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

## PRESSURE AND LIQUID HEAD

| psi    | Foot of Water | kPa   | Kilogram per cm <sup>2</sup> | Atmosphere or Bar | Metre of Water |
|--------|---------------|-------|------------------------------|-------------------|----------------|
| 1      | 2.31          | 6.895 | 0.0703                       | 0.068             | 0.704          |
| 0.433  | 1             | 2.986 | 0.0305                       | 0.03              | 0.305          |
| 0.145  | 0.335         | 1     | 0.0102                       | 0.01              | 0.102          |
| 14.233 | 32.85         | 98.09 | 1                            | 0.98              | 10             |
| 14.5   | 33.50         | 100   | 1.02                         | 1                 | 10.21          |
| 1.42   | 3.281         | 9.797 | 0.1                          | 0.098             | 1              |
| 0.019  | 0.044         | 0.131 | 0.0014                       | 0.0013            | 0.014          |
| 0.491  | 1.134         | 3.377 | 0.034                        | 0.0339            | 0.345          |

## FLOW

| Gallons per Minute | Gallons per Hour | Litres per Second | Litres per Minute | US Gallons per Minute | Cubic Metre per Hour | Cubic Metre per Minute | Cubic Feet per Minute |
|--------------------|------------------|-------------------|-------------------|-----------------------|----------------------|------------------------|-----------------------|
| 1                  | 60               | 0.076             | 4.546             | 1.2                   | 0.2728               | 0.00455                | 0.1605                |
| 0.01667            | 1                | 0.00127           | 0.07578           | 0.02                  | 0.004547             |                        | 0.00268               |
| 13.2               | 792              | 1                 | 60                | 15.84                 | 3.6                  | 0.06                   | 2.119                 |
| 0.22               | 13.2             | 0.0167            | 1                 | 0.264                 | 0.06                 | 0.001                  | 0.0353                |
| 0.833              | 50               | 0.063             | 3.787             | 1                     |                      | 0.0038                 | 0.1337                |
| 3.666              | 220              | 0.278             | 16.667            | 4.400                 | 1                    | 0.0167                 | 0.5886                |
| 220                | 13200            | 16.68             | 1000              | 264.0                 | 60                   | 1                      | 35.31                 |
| 6.23               | 373.8            | 0.472             | 28.32             | 7.48                  | 1.699                | 0.0283                 | 1                     |

## VOLUME

| Imp.Gallons | Litres | US Gallons | Cubic Feet | Lbs Water | Cubic Metre | Acre Feet | Cubic Inch |
|-------------|--------|------------|------------|-----------|-------------|-----------|------------|
| 1           | 4.546  | 1.2        | 0.1605     | 10        | 0.00455     |           | 277.34     |
| 0.22        | 1      | 0.264      | 0.0353     | 2.2       | 0.00100     |           | 61.02      |
| 0.833       | 3.785  | 1          | 0.1337     | 8.333     | 0.00379     |           | 231.06     |
| 6.23        | 28,317 | 7.48       | 1          | 62.3      | 0.02832     |           | 1728       |
| 0.1         | 0.4546 | 0.12       | 0.0161     | 1         | 0.00046     |           | 27.820     |
| 220         | 1000   | 264        | 35.32      | 2200      | 1           | 0.00081   | 61.032     |
| 271,378     |        | 325,828    | 43,560     | 2,713,788 | 1234        | 1         |            |

## FORCE

| Newton  | Kg Force | Pound Force | Poundal  |
|---------|----------|-------------|----------|
| N       | kgf      | lbf         | pdl      |
| 1       | 0.102 0  | 0.224 8     | 7.233 0  |
| 9.806 7 | 1        | 2.204 6     | 70.931 6 |
| 4.448 2 | 0.453 6  | 1           | 32.174 1 |
| 0.138 3 | 0.014 1  | 0.031 1     | 1        |

## TORQUE

| Newton Metre | Kilogramme Force Metre | Pound Force Foot | Pound Force Inch |
|--------------|------------------------|------------------|------------------|
| Nm           | kgf m                  | lbf ft           | lbf in           |
| 1            | 0.102.0                | 0.737.6          | 8.850.8          |
| 9.806 65     | 1                      | 7.233 0          | 86.795 7         |
| 1.355 8      | 0.138 3                | 1                | 12               |
| 0.113 0      | 0.011 52               | 0.083 3          | 1                |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

**LENGTH**

| mm        | cms     | Metre  | Km        | Inch   | Foot   | Yard    | Mile   |
|-----------|---------|--------|-----------|--------|--------|---------|--------|
| 1         | 0.1     | 0.001  | ..        | 0.0394 | 0.0033 | ..      | ..     |
| 10        | 1       | 0.01   | ..        | 0.3937 | 0.0328 | 0.01093 | ..     |
| 1000      | 100     | 1      | 0.001     | 39.37  | 3.2808 | 1.0936  | ..     |
| 1 000 000 | 10 000  | 1000   | 1         | 39 370 | 3280.8 | 1093.6  | 0.6214 |
| 1 609 300 | 160 930 | 1609.3 | 1.6093    | 63 360 | 5280   | 1760    | 1      |
| 304.8     | 30.48   | 0.3048 | 0.0003048 | 12     | 1      | 0.333   | ..     |
| 25.4      | 2.54    | 0.0254 | ..        | 1      | 0.0833 | 0.02778 | ..     |
| 914.4     | 91.44   | 0.9144 | ..        | 36     | 3      | 1       | ..     |

**WEIGHT**

| lbs    | oz      | gms       | Kg      | Ton       | Tonne     | cwt      | Stone   |
|--------|---------|-----------|---------|-----------|-----------|----------|---------|
| 1      | 16      | 453.6     | 0.4536  | 0.0004464 | 0.0004535 | 0.008929 | 0.07143 |
| 0.625  | 1       | 28.35     | 0.02836 | ..        | ..        | ..       | ..      |
| 0.0022 | 0.03527 | 1         | 0.001   | ..        | ..        | ..       | ..      |
| 2.205  | 35.274  | 1000      | 1       | 0.000984  | 0.001     | ..       | ..      |
| 2240   | 35 840  | 1 016 064 | 1 016   | 1         | 1.016     | 20       | 160     |
| 2204.6 | 35 274  | 1 000 000 | 1000    | 0.9842    | 1         | 19.684   | 157.47  |
| 112    | 1792    | 50 803    | 50.8    | 0.05      | 0.0508    | 1        | ..      |
| 14     | 224     | 6350      | 6.35    | 0.00625   | 0.0064    | 0.125    | 1       |

**Square Measurements**

|            |              |              |                 |
|------------|--------------|--------------|-----------------|
| 1 Sq Mile  | 640 acres    | 259 hectares | 2.59 Sq Km      |
| 1 Sq Km    | 247 acres    | 100 hectares |                 |
| 1 Acre     | 4840 Sq yds  | 43,560 Sq ft | 0.4047 hectares |
| 1 Hectare  | 10,000 Sq m  | 2.471 acres  | 107,640 sq ft   |
| 1 Sq Metre | 10.764 Sq ft |              |                 |
| 10 Sq Feet | 0.929 Sq m   |              |                 |

**Temperature**

|                  |                 |
|------------------|-----------------|
| Centigrade =     | (F-32) x 5/9    |
| Fahrenheit =     | (C x 9/5 + 32)  |
| Water Boils at   | 100°C, or 212°F |
| Water Freezes at | 0°C, or 32°F    |

**Length Equivalents**

|           |            |             |            |
|-----------|------------|-------------|------------|
| 1 league  | 3 miles    | 24 furlongs | 960 poles  |
| 1 mile    | 8 furlongs | 320 poles   | 5280 feet  |
| 1 furlong | 40 poles   | 660 feet    | 1000 links |
| 1 chain   | 4 poles    | 66 feet     | 100 links  |
| 1 fathom  | 6 feet     | 9.091 links |            |

**Water Catchment Volume**

|                    |             |
|--------------------|-------------|
| Sq Metre x 1mm =   | 1 Litre     |
| Sq Foot x 1 inch = | 0.52 Gallon |

**Fluid Equivalents**

|          |          |                  |
|----------|----------|------------------|
| 1 gallon | 4 quarts | 10lbs of water   |
| 1 quart  | 2 pints  | 2.5lbs of water  |
| 1 pint   | 4 gills  | 1.25lbs of water |
| 1 gill   | 5 ozs    |                  |

**Velocity of Flow**

$$\text{Velocity in meters/second} = \frac{1000 \times \text{flow in 1/s}}{\text{area of pipe in mm}^2}$$

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

The **mass** of an object is the quantity of matter it contains and is constant irrespective of the location or altitude. The **weight** of that object is the force exerted on it by gravity and thus varies from place to place and according to height above sea level or the distance from the Earth's centre.

A. To Use, locate "given mass" in the "given mass" column - whether lbs. or kg.

B. If the "given mass" is in pounds (lbs), read kilograms (kg) in the right hand column. eg. Given mass 70 lbs = 31.75 kg

**Conversion Factors:-** 1 pound (lb) x 0.4536 = kilograms (kg) 1 kilogram (kg) x 2.2046 = pound (lbs)

| 1 to 65 |            |       | 66 to 130 |            |       | 131 to 375 |            |       | 380 to 700 |            |        | 750 to 1500 |            |        |
|---------|------------|-------|-----------|------------|-------|------------|------------|-------|------------|------------|--------|-------------|------------|--------|
| lbs     | Given Mass | kg    | lbs       | Given Mass | kg    | lbs        | Given Mass | kg    | lbs        | Given Mass | kg     | lbs         | Given Mass | kg     |
| 2.20    | 1          | 0.45  | 145.50    | 66         | 29.94 | 288.80     | 131        | 59.42 | 838        | 380        | 172.37 | 1554        | 705        | 319.79 |
| 4.41    | 2          | 0.91  | 147.71    | 67         | 30.39 | 291.01     | 132        | 59.88 | 849        | 385        | 174.64 | 1565        | 710        | 322.06 |
| 6.61    | 3          | 1.36  | 149.91    | 68         | 30.84 | 293.21     | 133        | 60.33 | 860        | 390        | 176.90 | 1576        | 715        | 324.32 |
| 8.82    | 4          | 1.81  | 152.12    | 69         | 31.30 | 295.42     | 134        | 60.78 | 871        | 395        | 179.17 | 1587        | 720        | 326.59 |
| 11.02   | 5          | 2.27  | 154.32    | 70         | 31.75 | 297.62     | 135        | 61.24 | 882        | 400        | 181.44 | 1598        | 725        | 328.86 |
| 13.23   | 6          | 2.72  | 156.53    | 71         | 32.21 | 299.83     | 136        | 61.69 | 893        | 405        | 183.71 | 1609        | 730        | 331.13 |
| 15.43   | 7          | 3.18  | 158.73    | 72         | 32.66 | 302.03     | 137        | 62.14 | 904        | 410        | 185.98 | 1620        | 735        | 333.40 |
| 17.64   | 8          | 3.63  | 160.94    | 73         | 33.11 | 304.24     | 138        | 62.60 | 915        | 415        | 188.24 | 1631        | 740        | 335.66 |
| 19.84   | 9          | 4.08  | 163.35    | 74         | 33.57 | 306.44     | 139        | 63.05 | 926        | 420        | 190.51 | 1642        | 745        | 337.93 |
| 22.05   | 10         | 4.54  | 165.35    | 75         | 34.02 | 308.64     | 140        | 63.50 | 937        | 425        | 192.78 | 1653        | 750        | 340.20 |
| 24.25   | 11         | 4.99  | 167.55    | 76         | 34.47 | 310.85     | 141        | 63.96 | 948        | 430        | 195.05 | 1664        | 755        | 342.47 |
| 26.46   | 12         | 5.44  | 169.75    | 77         | 34.93 | 313.05     | 142        | 64.41 | 959        | 435        | 197.32 | 1676        | 760        | 344.74 |
| 28.66   | 13         | 5.90  | 171.96    | 78         | 35.38 | 315.26     | 143        | 64.87 | 970        | 440        | 199.58 | 1687        | 765        | 347.00 |
| 30.86   | 14         | 6.35  | 174.16    | 79         | 35.83 | 317.46     | 144        | 65.32 | 981        | 445        | 201.85 | 1698        | 770        | 349.27 |
| 33.07   | 15         | 6.80  | 176.37    | 80         | 36.29 | 319.67     | 145        | 65.77 | 992        | 450        | 204.12 | 1709        | 775        | 351.54 |
| 35.27   | 16         | 7.26  | 178.57    | 81         | 36.74 | 321.87     | 146        | 66.23 | 1003       | 455        | 206.39 | 1720        | 780        | 353.81 |
| 37.48   | 17         | 7.71  | 180.78    | 82         | 37.20 | 324.08     | 147        | 66.68 | 1014       | 460        | 208.66 | 1731        | 785        | 356.08 |
| 39.68   | 18         | 8.16  | 182.98    | 83         | 37.65 | 326.28     | 148        | 67.13 | 1025       | 465        | 210.92 | 1742        | 790        | 358.34 |
| 41.89   | 19         | 8.62  | 185.19    | 84         | 38.10 | 328.49     | 149        | 67.59 | 1036       | 470        | 213.19 | 1753        | 795        | 360.61 |
| 44.09   | 20         | 9.07  | 187.39    | 85         | 38.56 | 330.69     | 150        | 68.04 | 1047       | 475        | 215.46 | 1764        | 800        | 362.88 |
| 46.30   | 21         | 9.53  | 189.60    | 86         | 39.01 | 332.90     | 151        | 68.49 | 1058       | 480        | 217.73 | 1775        | 805        | 365.15 |
| 48.50   | 22         | 9.98  | 191.80    | 87         | 39.46 | 335.11     | 152        | 68.95 | 1069       | 485        | 220.00 | 1786        | 810        | 367.42 |
| 50.71   | 23         | 10.43 | 194.00    | 88         | 39.92 | 337.32     | 153        | 69.40 | 1080       | 490        | 222.26 | 1797        | 815        | 369.68 |
| 52.91   | 24         | 10.89 | 196.21    | 89         | 40.37 | 339.53     | 154        | 69.86 | 1091       | 495        | 224.53 | 1808        | 820        | 371.95 |
| 55.12   | 25         | 11.34 | 198.41    | 90         | 40.82 | 341.74     | 155        | 70.31 | 1102       | 500        | 226.80 | 1819        | 825        | 374.22 |
| 57.32   | 26         | 11.79 | 200.62    | 91         | 41.28 | 343.95     | 156        | 70.77 | 1113       | 505        | 229.07 | 1830        | 830        | 376.49 |
| 59.52   | 27         | 12.25 | 202.82    | 92         | 41.73 | 346.16     | 157        | 71.22 | 1124       | 510        | 231.34 | 1841        | 835        | 378.76 |
| 61.73   | 28         | 12.70 | 205.03    | 93         | 42.18 | 348.37     | 158        | 71.68 | 1135       | 515        | 233.60 | 1852        | 840        | 381.02 |
| 63.93   | 29         | 13.15 | 207.23    | 94         | 42.64 | 350.58     | 159        | 72.13 | 1146       | 520        | 235.87 | 1863        | 845        | 383.29 |
| 66.14   | 30         | 13.61 | 209.44    | 95         | 43.09 | 352.79     | 160        | 72.59 | 1157       | 525        | 238.14 | 1874        | 850        | 385.56 |
| 68.34   | 31         | 14.06 | 211.64    | 96         | 43.55 | 355.00     | 161        | 73.04 | 1168       | 530        | 240.41 | 1885        | 855        | 387.83 |
| 70.55   | 32         | 14.52 | 213.85    | 97         | 44.00 | 357.21     | 162        | 73.50 | 1179       | 535        | 242.68 | 1896        | 860        | 390.10 |
| 72.75   | 33         | 14.97 | 216.05    | 98         | 44.45 | 359.42     | 163        | 73.95 | 1190       | 540        | 244.94 | 1907        | 865        | 392.36 |
| 74.96   | 34         | 15.42 | 218.26    | 99         | 44.91 | 361.63     | 164        | 74.41 | 1202       | 545        | 247.21 | 1918        | 870        | 394.63 |
| 77.16   | 35         | 15.88 | 220.46    | 100        | 45.36 | 363.84     | 165        | 74.86 | 1213       | 550        | 249.48 | 1929        | 875        | 396.90 |
| 79.37   | 36         | 16.33 | 222.67    | 101        | 45.81 | 366.05     | 166        | 75.32 | 1224       | 555        | 251.75 | 1940        | 880        | 399.17 |
| 81.57   | 37         | 16.78 | 224.87    | 102        | 46.27 | 368.26     | 167        | 75.77 | 1235       | 560        | 254.02 | 1951        | 885        | 401.44 |
| 83.77   | 38         | 17.24 | 227.07    | 103        | 46.72 | 370.47     | 168        | 76.23 | 1246       | 565        | 256.28 | 1962        | 890        | 403.70 |
| 85.98   | 39         | 17.69 | 229.28    | 104        | 47.17 | 372.68     | 169        | 76.68 | 1257       | 570        | 258.55 | 1973        | 895        | 405.97 |
| 88.18   | 40         | 18.14 | 231.48    | 105        | 47.63 | 374.89     | 170        | 77.14 | 1268       | 575        | 260.82 | 1984        | 900        | 408.24 |
| 90.39   | 41         | 18.60 | 233.69    | 106        | 48.08 | 377.10     | 171        | 77.59 | 1279       | 580        | 263.09 | 1995        | 905        | 410.51 |
| 92.59   | 42         | 19.05 | 235.89    | 107        | 48.54 | 379.31     | 172        | 78.05 | 1290       | 585        | 265.36 | 2006        | 910        | 412.78 |
| 94.80   | 43         | 19.5  | 238.10    | 108        | 48.99 | 381.52     | 173        | 78.50 | 1301       | 590        | 267.62 | 2017        | 915        | 415.04 |
| 97.00   | 44         | 19.96 | 240.30    | 109        | 49.44 | 383.73     | 174        | 78.96 | 1312       | 595        | 269.89 | 2028        | 920        | 417.31 |
| 99.21   | 45         | 20.41 | 242.51    | 110        | 49.90 | 385.94     | 175        | 79.41 | 1323       | 600        | 272.16 | 2039        | 925        | 419.58 |
| 101.41  | 46         | 20.87 | 244.71    | 111        | 50.35 | 388.15     | 176        | 79.87 | 1334       | 605        | 274.43 | 2050        | 930        | 421.85 |
| 103.62  | 47         | 21.32 | 246.92    | 112        | 50.80 | 390.36     | 177        | 80.32 | 1345       | 610        | 276.70 | 2061        | 935        | 424.12 |
| 105.82  | 48         | 21.77 | 249.12    | 113        | 51.26 | 392.57     | 178        | 80.78 | 1356       | 615        | 278.96 | 2072        | 940        | 426.38 |
| 108.03  | 49         | 22.23 | 251.32    | 114        | 51.71 | 394.78     | 179        | 81.23 | 1367       | 620        | 281.23 | 2083        | 945        | 428.65 |
| 110.23  | 50         | 22.68 | 253.53    | 115        | 52.16 | 396.99     | 180        | 81.69 | 1378       | 625        | 283.50 | 2094        | 950        | 430.92 |
| 112.43  | 51         | 23.13 | 255.73    | 116        | 52.62 | 399.20     | 181        | 82.14 | 1389       | 630        | 285.77 | 2105        | 955        | 433.19 |
| 114.64  | 52         | 23.59 | 257.94    | 117        | 53.07 | 401.41     | 182        | 82.60 | 1400       | 635        | 288.04 | 2116        | 960        | 435.46 |
| 116.84  | 53         | 24.04 | 260.14    | 118        | 53.53 | 403.62     | 183        | 83.05 | 1411       | 640        | 290.30 | 2127        | 965        | 437.72 |
| 119.05  | 54         | 24.49 | 262.35    | 119        | 53.98 | 405.83     | 184        | 83.51 | 1422       | 645        | 292.57 | 2138        | 970        | 439.99 |
| 121.25  | 55         | 24.95 | 264.55    | 120        | 54.43 | 408.04     | 185        | 83.96 | 1433       | 650        | 294.84 | 2149        | 975        | 442.26 |
| 123.46  | 56         | 25.40 | 266.76    | 121        | 54.89 | 410.25     | 186        | 84.42 | 1444       | 655        | 297.11 | 2161        | 980        | 444.53 |
| 125.66  | 57         | 25.86 | 268.96    | 122        | 55.34 | 412.46     | 187        | 84.87 | 1455       | 660        | 299.38 | 2172        | 985        | 446.80 |
| 127.87  | 58         | 26.31 | 271.17    | 123        | 55.79 | 414.67     | 188        | 85.33 | 1466       | 665        | 301.64 | 2183        | 990        | 449.06 |
| 130.07  | 59         | 26.76 | 273.37    | 124        | 56.25 | 416.88     | 189        | 85.78 | 1477       | 670        | 303.91 | 2194        | 995        | 451.33 |
| 132.28  | 60         | 27.22 | 275.58    | 125        | 56.70 | 419.09     | 190        | 86.24 | 1488       | 675        | 306.18 | 2205        | 1000       | 453.60 |
| 134.48  | 61         | 27.67 | 277.78    | 126        | 57.15 | 421.30     | 191        | 86.69 | 1499       | 680        | 308.45 | 2216        | 1100       | 498.96 |
| 136.69  | 62         | 28.12 | 279.98    | 127        | 57.61 | 423.51     | 192        | 87.15 | 1510       | 685        | 310.72 | 2227        | 1200       | 544.32 |
| 138.89  | 63         | 28.58 | 282.19    | 128        | 58.06 | 425.72     | 193        | 87.60 | 1521       | 690        | 312.98 | 2238        | 1300       | 589.68 |
| 141.09  | 64         | 29.03 | 284.39    | 129        | 58.51 | 427.93     | 194        | 88.06 | 1532       | 695        | 315.25 | 2249        | 1400       | 635.04 |
| 143.3   | 65         | 29.48 | 286.60    | 130        | 58.97 | 430.14     | 195        | 88.51 | 1543       | 700        | 317.52 | 2260        | 1500       | 680.40 |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

**CONVERSION FACTORS**

**Degrees - Celsius to Fahrenheit**

$$(^{\circ}\text{C} \times \frac{9}{5}) + 32 = ^{\circ}\text{F}$$

**Degrees - Fahrenheit to Celsius**

$$(^{\circ}\text{F} - 32) \times \frac{5}{9} = ^{\circ}\text{C}$$

- (A) To Use: Locate "Given Temperature" in the "Given Temperature" Column whether  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$ .
- (B) If "given temperature" is in degrees Celsius ( $^{\circ}\text{C}$ ) read **degrees Fahrenheit ( $^{\circ}\text{F}$ )** in right hand column.
- (C) If "given temperature" is in degrees Fahrenheit ( $^{\circ}\text{F}$ ) read **degrees Celsius ( $^{\circ}\text{C}$ )** in left hand column.
- (D) Example:
  - a. Given temperature is  $35^{\circ}\text{C} = 95^{\circ}\text{F}$  from right hand column
  - b. Given temperature is  $35^{\circ}\text{F} = 1.7^{\circ}\text{C}$  from left hand column

| - 320 to 27        |             |                    | 28 to 77           |             |                    | 78 to 235          |             |                    | 240 to 485         |             |                    | 490 to 2400        |             |                    |
|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|--------------------|-------------|--------------------|
| $^{\circ}\text{C}$ | Given Temp. | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | Given Temp. | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | Given Temp. | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | Given Temp. | $^{\circ}\text{F}$ | $^{\circ}\text{C}$ | Given Temp. | $^{\circ}\text{F}$ |
| -196               | -320        |                    | -2.2               | 28          | 82.4               | 25.6               | 78          | 172.4              | 116                | 240         | 464                | 254                | 490         | 914                |
| -184               | -300        |                    | -1.7               | 29          | 84.2               | 26.1               | 79          | 174.2              | 118                | 245         | 473                | 257                | 495         | 923                |
| -173               | -280        |                    | -1.1               | 30          | 86.0               | 26.7               | 80          | 176                | 121                | 250         | 482                | 260                | 500         | 932                |
| -162               | -260        | -436               | -0.6               | 31          | 87.8               | 27.2               | 81          | 177.8              | 124                | 255         | 491                | 266                | 510         | 950                |
| -151               | -240        | -400               | 0.0                | 32          | 89.6               | 27.8               | 82          | 179.6              | 127                | 260         | 500                | 271                | 520         | 968                |
| -140               | -220        | -364               | 0.6                | 33          | 91.4               | 28.3               | 83          | 181.4              | 129                | 265         | 509                | 277                | 530         | 986                |
| -129               | -200        | -328               | 1.1                | 34          | 93.2               | 28.9               | 84          | 183.2              | 132                | 270         | 518                | 282                | 540         | 1004               |
| -115               | -175        | -283               | 1.7                | 35          | 95.0               | 29.4               | 85          | 185.0              | 135                | 275         | 527                | 288                | 550         | 1022               |
| -101               | -150        | -238               | 2.2                | 36          | 96.8               | 30.0               | 86          | 186.8              | 138                | 280         | 536                | 293                | 560         | 1040               |
| -90                | -130        | -202               | 2.8                | 37          | 98.6               | 30.6               | 87          | 188.6              | 141                | 285         | 545                | 299                | 570         | 1058               |
| -84                | -120        | -184               | 3.3                | 38          | 100.4              | 31.1               | 88          | 190.4              | 143                | 290         | 554                | 304                | 580         | 1076               |
| -79                | -110        | -166               | 3.9                | 39          | 102.2              | 31.7               | 89          | 192.2              | 146                | 295         | 563                | 310                | 590         | 1094               |
| -73                | -100        | -148               | 4.4                | 40          | 104.0              | 32.2               | 90          | 194.0              | 149                | 300         | 572                | 316                | 600         | 1112               |
| -68                | -90         | -130               | 5.0                | 41          | 105.8              | 32.8               | 91          | 195.8              | 152                | 305         | 581                | 321                | 610         | 1130               |
| -62                | -80         | -112               | 5.6                | 42          | 107.6              | 33.3               | 92          | 197.6              | 154                | 310         | 590                | 327                | 620         | 1148               |
| -57                | -70         | -94                | 6.1                | 43          | 109.4              | 33.9               | 93          | 199.4              | 157                | 315         | 599                | 332                | 630         | 1166               |
| -51                | -60         | -76                | 6.7                | 44          | 111.2              | 34.4               | 94          | 201.2              | 160                | 320         | 608                | 338                | 640         | 1184               |
| -46                | -50         | -58                | 7.2                | 45          | 113.0              | 35.0               | 95          | 203.0              | 163                | 325         | 617                | 343                | 650         | 1202               |
| -40                | -40         | -40                | 7.8                | 46          | 114.8              | 35.6               | 96          | 204.8              | 166                | 330         | 626                | 349                | 660         | 1220               |
| -34                | -30         | -22                | 8.3                | 47          | 116.6              | 36.1               | 97          | 206.6              | 168                | 335         | 635                | 354                | 670         | 1238               |
| -29                | -20         | -4                 | 8.9                | 48          | 118.4              | 36.7               | 98          | 208.4              | 171                | 340         | 644                | 360                | 680         | 1256               |
| -23                | -10         | 14                 | 9.4                | 49          | 120.2              | 37.2               | 99          | 210.2              | 174                | 345         | 653                | 366                | 690         | 1274               |
| -17.8              | 0           | 32                 | 10.0               | 50          | 122.0              | 37.8               | 100         | 212.0              | 177                | 350         | 662                | 371                | 700         | 1292               |
| -17.2              | 1           | 33.8               | 10.6               | 51          | 123.8              | 41                 | 105         | 221                | 179                | 355         | 671                | 377                | 710         | 1310               |
| -16.7              | 2           | 35.6               | 11.1               | 52          | 125.6              | 43                 | 110         | 230                | 182                | 360         | 680                | 382                | 720         | 1328               |
| -16.1              | 3           | 37.4               | 11.7               | 53          | 127.4              | 46                 | 115         | 239                | 185                | 365         | 689                | 388                | 730         | 1346               |
| -15.6              | 4           | 39.2               | 12.2               | 54          | 129.2              | 49                 | 120         | 248                | 188                | 370         | 698                | 393                | 740         | 1364               |
| -15.0              | 5           | 41.0               | 12.8               | 55          | 131.0              | 52                 | 125         | 257                | 191                | 375         | 707                | 399                | 750         | 1382               |
| -14.4              | 6           | 42.8               | 13.3               | 56          | 132.8              | 54                 | 130         | 266                | 193                | 380         | 716                | 404                | 760         | 1400               |
| -13.9              | 7           | 44.6               | 13.9               | 57          | 134.6              | 57                 | 135         | 275                | 196                | 385         | 725                | 410                | 770         | 1418               |
| -13.3              | 8           | 46.4               | 14.4               | 58          | 136.4              | 60                 | 140         | 284                | 199                | 390         | 734                | 416                | 780         | 1436               |
| -12.8              | 9           | 48.2               | 15.0               | 59          | 138.2              | 63                 | 145         | 293                | 202                | 395         | 743                | 421                | 790         | 1454               |
| -12.2              | 10          | 50.0               | 15.6               | 60          | 140.0              | 66                 | 150         | 302                | 204                | 400         | 752                | 427                | 800         | 1472               |
| -11.7              | 11          | 51.8               | 16.1               | 61          | 141.8              | 68                 | 155         | 311                | 207                | 405         | 761                | 432                | 810         | 1490               |
| -11.1              | 12          | 53.6               | 16.7               | 62          | 143.6              | 71                 | 160         | 320                | 210                | 410         | 770                | 438                | 820         | 1508               |
| -10.6              | 13          | 55.4               | 17.2               | 63          | 145.4              | 74                 | 165         | 329                | 213                | 415         | 779                | 443                | 830         | 1526               |
| -10.0              | 14          | 57.2               | 17.8               | 64          | 147.2              | 77                 | 170         | 338                | 216                | 420         | 788                | 449                | 840         | 1544               |
| -9.4               | 15          | 59.0               | 18.3               | 65          | 149.0              | 79                 | 175         | 347                | 218                | 425         | 797                | 454                | 850         | 1562               |
| -8.9               | 16          | 60.8               | 18.9               | 66          | 150.8              | 82                 | 180         | 356                | 221                | 430         | 806                | 459                | 860         | 1580               |
| -8.3               | 17          | 62.6               | 19.4               | 67          | 152.6              | 85                 | 185         | 365                | 224                | 435         | 815                | 464                | 870         | 1598               |
| -7.8               | 18          | 64.4               | 20.0               | 68          | 154.4              | 88                 | 190         | 374                | 227                | 440         | 824                | 469                | 880         | 1616               |
| -7.2               | 19          | 66.2               | 20.6               | 69          | 156.2              | 91                 | 195         | 383                | 229                | 445         | 833                | 474                | 890         | 1634               |
| -6.7               | 20          | 68.0               | 21.1               | 70          | 158.0              | 93                 | 200         | 392                | 232                | 450         | 842                | 479                | 900         | 1652               |
| -6.1               | 21          | 69.8               | 21.7               | 71          | 159.8              | 96                 | 205         | 401                | 235                | 455         | 851                | 484                | 910         | 1670               |
| -5.6               | 22          | 71.6               | 22.2               | 72          | 161.6              | 99                 | 210         | 410                | 238                | 460         | 860                | 489                | 920         | 1688               |
| -5.0               | 23          | 73.4               | 22.8               | 73          | 163.4              | 102                | 215         | 419                | 241                | 465         | 869                | 494                | 930         | 1706               |
| -4.4               | 24          | 75.2               | 23.3               | 74          | 165.2              | 104                | 220         | 428                | 243                | 470         | 878                | 499                | 940         | 1724               |
| -3.9               | 25          | 77.0               | 23.9               | 75          | 167.0              | 107                | 225         | 437                | 246                | 475         | 887                | 504                | 950         | 1742               |
| -3.3               | 26          | 78.8               | 24.4               | 76          | 168.8              | 110                | 230         | 446                | 249                | 480         | 896                | 509                | 960         | 1760               |
| -2.8               | 27          | 80.6               | 25.0               | 77          | 170.6              | 113                | 235         | 455                | 252                | 485         | 905                | 514                | 970         | 1778               |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 150              | 90              | 16        | 8     | 114              | 4               | M16       |      | 18        |
|  | C                  | 150              | 90              | 19        | 8     | 114              | 4               | M16       |      | 18        |
|  | D                  | 150              | 90              | 17        | 8     | 114              | 4               | M16       |      | 18        |
|  | E                  | 150              | 90              | 19        | 10    | 114              | 4               | M16       |      | 18        |
|  | F                  | 165              | 103             | 19        | 16    | 127              | 4               | M16       |      | 18        |
|  | H                  | 165              | 102             | 25        | 19    | 127              | 4               | M16       |      | 18        |
|  | J                  | 165              | 102             |           | 25    | 127              | 4               | M16       |      | 22        |
|  | K                  | 165              | 102             |           | 25    | 127              | 8               | M16       |      | 18        |
|  | R                  | 165              | 102             |           | 25    | 127              | 8               | M16       |      | 18        |
|  | S                  | 170              | 89              |           | 32    | 133              | 8               | M20       |      | 22        |
|  | T                  | 185              | 102             |           | 35    | 146              | 8               | M20       |      | 22        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 150              | 90              | 19        | 8     | 114              | 4               | M16       |      | 18        |
|  | 21/35              | 165              | 103             | 19        | 16    | 127              | 8               | M16       |      | 18        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 152              | 92              | 16        |       | 120.6            | 4               |           | 5/8  | 19        |
|  | 250                | 165.1            | 106             | 22.4      |       | 127              | 8               |           | 5/8  | 19.1      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 152.4            | 91.9            |           | 19.1  | 120.7            | 4               |           | 5/8  | 19.1      |
|  | 300                | 165.1            | 91.9            |           | 22.4  | 127              | 8               |           | 5/8  | 19.1      |
|  | 600                | 165.1            | 91.9            |           | 25.4  | 127              | 8               |           | 5/8  | 19.1      |
|  | 900                | 215.9            | 91.9            |           | 38.1  | 165.1            | 8               |           | 7/8  | 25.4      |
|  | 1500               | 215.9            | 91.9            |           | 38.1  | 165.1            | 8               |           | 7/8  | 25.4      |
|  | 2500               | 235              | 91.9            |           | 50.8  | 171.5            | 8               |           | 1    | 28.4      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 150              | 92              |           | 19.5  | 120.5            | 4               | M16       |      | 18        |
|  | PN50               | 165              | 92              |           | 22.5  | 127              | 8               | M16       |      | 18        |
|  | PN110              | 165              | 92              |           | 25.5  | 127              | 8               | M16       |      | 18        |
|  | PN150              | 215              | 92              |           | 38.5  | 165              | 8               | M24       |      | 26        |
|  | PN260              | 215              | 92              |           | 38.5  | 165              | 8               | M24       |      | 26        |
|  | PN420              | 235              | 92              |           | 51    | 171.5            | 8               | M27       |      | 29.5      |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 140              | 90              | 16        | 16    | 110              | 4               | M12       |      | 14        |
|  | PN10               | 165              | 102             | 20        | 18    | 125              | 4               | M16       |      | 18        |
|  | PN16               | 165              | 102             | 20        | 18    | 125              | 4               | M16       |      | 18        |
|  | PN25               | 165              | 102             | 22        | 20    | 125              | 4               | M16       |      | 18        |
|  | PN40               | 165              | 102             | 22        | 20    | 125              | 4               | M16       |      | 18        |
|  | PN64               | 180              | 102             |           | 26    | 135              | 4               | M20       |      | 22        |
|  | PN100              | 195              | 102             |           | 28    | 145              | 4               | M24       |      | 26        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 130              | 85              | 16        | 14    | 105              | 4               | M12       |      | 15        |
|  | PN10               | 155              | 96              | 20        | 16    | 120              | 4               | M16       |      | 19        |
|  | PN16               | 155              | 96              | 20        | 16    | 120              | 8               | M16       |      | 19        |
|  | PN20               | 155              | 96              | 22        | 18    | 120              | 8               | M16       |      | 19        |
|  | PN30               | 165              | 105             |           | 22    | 130              | 8               | M16       |      | 19        |
|  | PN40               | 165              | 105             |           | 26    | 130              | 8               | M16       |      | 19        |
|  | PN63               | 185              | 105             |           | 34    | 145              | 8               | M20       |      | 23        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 165              | 103             | 17        | 8     | 127              | 4               | M16       |      | 18        |
|  | C                  | 165              | 103             | 19        | 8     | 127              | 4               | M16       |      | 18        |
|  | D                  | 165              | 103             | 17        | 8     | 127              | 4               | M16       |      | 18        |
|  | E                  | 165              | 103             | 19        | 10    | 127              | 4               | M16       |      | 18        |
|  | F                  | 185              | 122             | 19        | 16    | 146              | 8               | M16       |      | 18        |
|  | H                  | 185              | 114             | 25        | 19    | 146              | 8               | M16       |      | 18        |
|  | J                  | 185              | 114             |           | 25    | 146              | 8               | M20       |      | 22        |
|  | K                  | 185              | 114             |           | 29    | 146              | 8               | M20       |      | 22        |
|  | R                  | 185              | 114             |           | 29    | 146              | 8               | M20       |      | 22        |
|  | S                  | 185              | 102             |           | 32    | 146              | 8               | M20       |      | 22        |
|  | T                  | 205              | 114             |           | 41    | 165              | 8               | M24       |      | 26        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 165              | 103             | 19        | 8     | 127              | 4               | M16       |      | 18        |
|  | 21/35              | 185              | 122             | 19        | 16    | 146              | 8               | M16       |      | 18        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 178              | 105             | 17.5      |       | 139.7            | 4               |           | 5/8  | 19        |
|  | 250                | 190.5            | 125.5           | 25.4      |       | 149.4            | 8               |           | 3/4  | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 177.8            | 104.6           |           | 22.4  | 139.7            | 4               |           | 5/8  | 19.1      |
|  | 300                | 190.5            | 104.6           |           | 25.4  | 149.4            | 8               |           | 3/4  | 22.4      |
|  | 600                | 190.5            | 104.6           |           | 28.4  | 149.4            | 8               |           | 3/4  | 22.4      |
|  | 900                | 244.3            | 104.6           |           | 41.1  | 190.5            | 8               |           | 1    | 28.4      |
|  | 1500               | 244.3            | 104.6           |           | 41.1  | 190.5            | 8               |           | 1    | 28.4      |
|  | 2500               | 266.7            | 104.6           |           | 57.2  | 196.9            | 8               |           | 11/8 | 31.8      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 180              | 105             |           | 22.5  | 139.5            | 4               | M16       |      | 18        |
|  | PN50               | 190              | 105             |           | 25.5  | 149              | 8               | M20       |      | 22        |
|  | PN110              | 190              | 105             |           | 29    | 149              | 8               | M20       |      | 22        |
|  | PN150              | 245              | 105             |           | 41.5  | 190.5            | 8               | M27       |      | 29.5      |
|  | PN260              | 245              | 105             |           | 41.5  | 190.5            | 8               | M27       |      | 29.5      |
|  | PN420              | 265              | 105             |           | 57.5  | 197              | 8               | M30       |      | 32.5      |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 160              | 110             | 16        | 16    | 130              | 4               | M12       |      | 14        |
|  | PN10               | 185              | 122             | 20        | 18    | 145              | 4               | M16       |      | 18        |
|  | PN16               | 185              | 122             | 20        | 18    | 145              | 4               | M16       |      | 18        |
|  | PN25               | 185              | 122             | 24        | 22    | 145              | 8               | M16       |      | 18        |
|  | PN40               | 185              | 122             | 24        | 22    | 145              | 8               | M16       |      | 18        |
|  | PN64               | 205              | 122             |           | 26    | 160              | 8               | M20       |      | 22        |
|  | PN100              | 220              | 122             |           | 30    | 170              | 8               | M24       |      | 26        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 155              | 110             | 18        | 14    | 130              | 4               | M12       |      | 15        |
|  | PN10               | 175              | 116             | 22        | 18    | 140              | 4               | M16       |      | 19        |
|  | PN16               | 175              | 116             | 22        | 18    | 140              | 8               | M16       |      | 19        |
|  | PN20               | 175              | 116             | 24        | 20    | 140              | 8               | M16       |      | 19        |
|  | PN30               | 200              | 130             |           | 26    | 160              | 8               | M20       |      | 23        |
|  | PN40               | 200              | 130             |           | 30    | 160              | 8               | M20       |      | 23        |
|  | PN63               | 220              | 130             |           | 38    | 175              | 8               | M22       |      | 25        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 185              | 122             | 17        | 10    | 146              | 4               | M16       |      | 18        |
|  | C                  | 185              | 122             | 19        | 10    | 146              | 4               | M16       |      | 18        |
|  | D                  | 185              | 122             | 19        | 10    | 146              | 4               | M16       |      | 18        |
|  | E                  | 185              | 122             | 19        | 11    | 146              | 4               | M16       |      | 18        |
|  | F                  | 205              | 141             | 19        | 16    | 165              | 8               | M16       |      | 18        |
|  | H                  | 205              | 127             | 29        | 22    | 165              | 8               | M16       |      | 18        |
|  | J                  | 205              | 127             |           | 32/32 | 165              | 8               | M20       |      | 22        |
|  | K                  | 205              | 127             |           | 32    | 165              | 8               | M20       |      | 22        |
|  | R                  | 205              | 127             |           | 32    | 165              | 8               | M20       |      | 22        |
|  | S                  | 205              | 114             |           | 35    | 165              | 8               | M24       |      | 26        |
|  | T                  | 235              | 127             |           | 48    | 191              | 8               | M27       |      | 30        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 185              | 122             | 19        | 10    | 146              | 4               | M16       |      | 18        |
|  | 21/35              | 205              | 141             | 19        | 16    | 165              | 8               | M16       |      | 18        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 190              | 127             | 19        |       | 152.4            | 4               |           | 5/8  | 19        |
|  | 250                | 209.6            | 145             | 28.4      |       | 168.1            | 8               |           | 3/4  | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 190.5            | 127             |           | 23.9  | 152.4            | 4               |           | 5/8  | 19.1      |
|  | 300                | 209.6            | 127             |           | 28.4  | 168.1            | 8               |           | 3/4  | 22.4      |
|  | 600                | 209.6            | 127             |           | 31.8  | 168.1            | 8               |           | 3/4  | 22.4      |
|  | 900                | 241.3            | 127             |           | 38.1  | 190.5            | 8               |           | 7/8  | 25.4      |
|  | 1500               | 266.7            | 127             |           | 47.8  | 203.2            | 8               |           | 11/8 | 31.8      |
|  | 2500               | 304.8            | 127             |           | 66.5  | 228.6            | 8               |           | 11/4 | 35.1      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 190              | 127             |           | 24    | 152.5            | 4               | M16       |      | 18        |
|  | PN50               | 210              | 127             |           | 29    | 168.5            | 8               | M20       |      | 22        |
|  | PN110              | 210              | 127             |           | 32    | 168.5            | 8               | M20       |      | 22        |
|  | PN150              | 240              | 127             |           | 38.5  | 190.5            | 8               | M24       |      | 26        |
|  | PN260              | 265              | 127             |           | 48    | 203              | 8               | M30       |      | 32.5      |
|  | PN420              | 305              | 127             |           | 67    | 228.5            | 8               | M33       |      | 35.5      |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 190              | 128             | 18        | 18    | 150              | 4               | M16       |      | 18        |
|  | PN10               | 200              | 138             | 22        | 20    | 160              | 8               | M16       |      | 18        |
|  | PN16               | 200              | 138             | 22        | 20    | 160              | 8               | M16       |      | 18        |
|  | PN25               | 200              | 138             | 26        | 24    | 160              | 8               | M16       |      | 18        |
|  | PN40               | 200              | 138             | 26        | 24    | 160              | 8               | M16       |      | 18        |
|  | PN64               | 215              | 138             |           | 30    | 170              | 8               | M20       |      | 22        |
|  | PN100              | 230              | 138             |           | 34    | 180              | 8               | M24       |      | 26        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 180              | 121             | 18        | 14    | 145              | 4               | M16       |      | 19        |
|  | PN10               | 185              | 126             | 22        | 18    | 150              | 8               | M16       |      | 19        |
|  | PN16               | 200              | 132             | 24        | 20    | 160              | 8               | M20       |      | 23        |
|  | PN20               | 200              | 132             | 26        | 22    | 160              | 8               | M20       |      | 23        |
|  | PN30               | 210              | 140             |           | 28    | 170              | 8               | M20       |      | 23        |
|  | PN40               | 210              | 140             |           | 32    | 170              | 8               | M20       |      | 23        |
|  | PN63               | 230              | 140             |           | 40    | 185              | 8               | M22       |      | 25        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



| Flange Type  | Flange Dimension   |              |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|--------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
|  | Class Rating Table | Outside Dia. | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |              |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 205          | 141             | 19        | 10    | 165              | 4               | M16       |      | 18        |
|  | C                  | 205          | 141             | 19        | 10    | 165              | 4               | M16       |      | 18        |
|  | D                  | 205          | 141             | 19        | 10    | 165              | 4               | M16       |      | 18        |
|  | E                  | 205          | 141             | 19        | 12    | 165              | 8               | M16       |      | 18        |
|  | F                  | 215          | 154             | 22        | 19    | 178              | 8               | M16       |      | 18        |
|  | H                  | 215          | 140             | 29        | 22    | 178              | 8               | M16       |      | 18        |
|  | J                  | 215          | 140             |           | 32    | 178              | 8               | M20       |      | 22        |
|  | K                  | 230          | 140             |           | 32    | 184              | 8               | M24       |      | 26        |
|  | R                  | 230          | 140             |           | 32    | 184              | 8               | M24       |      | 26        |
|  | S                  | 230          | 127             |           | 38    | 191              | 8               | M24       |      | 26        |
|  | T                  | 265          | 146             |           | 54    | 216              | 8               | M30       |      | 33        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 205          | 141             | 19        | 10    | 165              | 4               | M16       |      | 18        |
|  | 21/35              | 215          | 154             | 22        | 19    | 178              | 8               | M16       |      | 18        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 215.9        |                 | 20.6      |       | 177.8            | 8               |           | 5/8  | 19.1      |
|  | 250                | 228.6        |                 | 30.2      |       | 184.2            | 8               |           | 3/4  | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 215.9        | 139.7           |           | 23.9  | 177.8            | 8               |           | 5/8  | 19.1      |
|  | 300                | 228.6        | 139.7           |           | 30.2  | 184.2            | 8               |           | 3/4  | 22.4      |
|  | 600                | 228.6        | 139.7           |           | 35.1  | 184.2            | 8               |           | 7/8  | 25.4      |
|  | 900                |              |                 |           |       |                  |                 |           |      |           |
|  | 1500               |              |                 |           |       |                  |                 |           |      |           |
|  | 2500               |              |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               |              |                 |           |       |                  |                 |           |      |           |
|  | PN50               |              |                 |           |       |                  |                 |           |      |           |
|  | PN110              |              |                 |           |       |                  |                 |           |      |           |
|  | PN150              |              |                 |           |       |                  |                 |           |      |           |
|  | PN260              |              |                 |           |       |                  |                 |           |      |           |
|  | PN420              |              |                 |           |       |                  |                 |           |      |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                |              |                 |           |       |                  |                 |           |      |           |
|  | PN10               |              |                 |           |       |                  |                 |           |      |           |
|  | PN16               |              |                 |           |       |                  |                 |           |      |           |
|  | PN25               |              |                 |           |       |                  |                 |           |      |           |
|  | PN40               |              |                 |           |       |                  |                 |           |      |           |
|  | PN64               |              |                 |           |       |                  |                 |           |      |           |
|  | PN100              |              |                 |           |       |                  |                 |           |      |           |
| JIS B 2210:1984 (PN5-63)   | PN5                | 190          | 131             | 18        | 14    | 155              | 4               | M16       |      | 19        |
|  | PN10               | 195          | 136             | 22        | 18    | 160              | 8               | M16       |      | 19        |
|  | PN16               | 210          | 145             | 24        | 20    | 170              | 8               | M20       |      | 23        |
|  | PN20               | 210          | 145             | 28        | 24    | 170              | 8               | M20       |      | 23        |
|  | PN30               | 230          | 150             |           | 30    | 185              | 8               | M22       |      | 25        |
|  | PN40               | 230          | 150             |           | 34    | 185              | 8               | M22       |      | 25        |
|  | PN63               | 255          | 150             |           | 42    | 205              | 8               | M24       |      | 27        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 215              | 154             | 19        | 10    | 178              | 4               | M16       |      | 18        |
|  | C                  | 215              | 154             | 22        | 10    | 178              | 4               | M16       |      | 18        |
|  | D                  | 215              | 154             | 19        | 10    | 178              | 4               | M16       |      | 18        |
|  | E                  | 215              | 154             | 22        | 13    | 178              | 8               | M16       |      | 18        |
|  | F                  | 230              | 167             | 22        | 19    | 191              | 8               | M16       |      | 18        |
|  | H                  | 230              | 152             | 32        | 25    | 191              | 8               | M16       |      | 18        |
|  | J                  | 230              | 152             |           | 35    | 191              | 8               | M20       |      | 22        |
|  | K                  | 240              | 152             |           | 35    | 197              | 8               | M24       |      | 26        |
|  | R                  | 240              | 152             |           | 35    | 197              | 8               | M24       |      | 26        |
|  | S                  | 250              | 159             |           | 41    | 203              | 8               | M27       |      | 30        |
|  | T                  | 285              | 159             |           | 57    | 235              | 8               | M30       |      | 33        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 215              | 154             | 22        | 10    | 178              | 4               | M16       |      | 18        |
|  | 21/35              | 230              | 167             | 22        | 19    | 191              | 8               | M16       |      | 18        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 229              | 157             | 23.9      |       | 190.5            | 8               |           | 5/8  | 19.1      |
|  | 250                | 254              | 176             | 31.8      |       | 200.2            | 8               |           | 3/4  | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 228.6            | 157.2           |           | 23.9  | 190.5            | 8               |           | 5/8  | 19.1      |
|  | 300                | 254              | 157.2           |           | 31.75 | 200.2            | 8               |           | 3/4  | 22.4      |
|  | 600                | 273.1            | 157.2           |           | 38.1  | 215.9            | 8               |           | 7/8  | 25.4      |
|  | 900                | 292.1            | 157.2           |           | 44.5  | 235              | 8               |           | 11/8 | 31.8      |
|  | 1500               | 311.2            | 157.2           |           | 53.8  | 241.5            | 8               |           | 11/4 | 35.1      |
|  | 2500               | 355.6            | 157.2           |           | 76.2  | 273              | 8               |           | 11/2 | 41.1      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 230              | 157.5           |           | 24    | 190.5            | 8               | M16       |      | 18        |
|  | PN50               | 255              | 157.5           |           | 32    | 200              | 8               | M20       |      | 22        |
|  | PN110              | 275              | 157.5           |           | 38.5  | 216              | 8               | M24       |      | 26        |
|  | PN150              | 290              | 157.5           |           | 44.5  | 235              | 8               | M30       |      | 32.5      |
|  | PN260              | 310              | 157.5           |           | 54    | 241.5            | 8               | M33       |      | 35.5      |
|  | PN420              | 355              | 157.5           |           | 76.5  | 271              | 8               | M39       |      | 42        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 210              | 148             | 18        | 18    | 170              | 4               | M16       |      | 18        |
|  | PN10               | 220              | 158             | 24        | 20    | 180              | 8               | M16       |      | 18        |
|  | PN16               | 220              | 158             | 24        | 20    | 180              | 8               | M16       |      | 18        |
|  | PN25               | 235              | 162             | 28        | 26    | 190              | 8               | M20       |      | 22        |
|  | PN40               | 235              | 162             | 28        | 26    | 190              | 8               | M20       |      | 22        |
|  | PN64               | 250              | 162             |           | 32    | 200              | 8               | M24       |      | 26        |
|  | PN100              | 265              | 162             |           | 36    | 210              | 8               | M27       |      | 30        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 200              | 141             | 20        | 16    | 165              | 8               | M16       |      | 19        |
|  | PN10               | 210              | 151             | 24        | 18    | 175              | 8               | M16       |      | 19        |
|  | PN16               | 225              | 160             | 26        | 22    | 185              | 8               | M20       |      | 23        |
|  | PN20               | 225              | 160             | 28        | 24    | 185              | 8               | M20       |      | 23        |
|  | PN30               | 240              | 160             |           | 32    | 195              | 8               | M22       |      | 25        |
|  | PN40               | 250              | 165             |           | 36    | 205              | 8               | M22       |      | 25        |
|  | PN63               | 270              | 165             |           | 44    | 220              | 8               | M24       |      | 27        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 255              | 186             | 19        | 13    | 210              | 4               | M16       |       | 18        |
|  | C                  | 255              | 186             | 22        | 13    | 210              | 8               | M16       |       | 18        |
|  | D                  | 255              | 186             | 21        | 13    | 210              | 8               | M16       |       | 18        |
|  | E                  | 255              | 186             | 22        | 14    | 210              | 8               | M16       |       | 18        |
|  | F                  | 280              | 207             | 25        | 22    | 235              | 8               | M20       |       | 22        |
|  | H                  | 280              | 178             | 35        | 29    | 235              | 8               | M20       |       | 22        |
|  | J                  | 280              | 178             |           | 38    | 235              | 8               | M24       |       | 26        |
|  | K                  | 280              | 178             |           | 41    | 235              | 12              | M24       |       | 26        |
|  | R                  | 280              | 178             |           | 41    | 235              | 12              | M24       |       | 26        |
|  | S                  | 285              | 191             |           | 44    | 235              | 12              | M24       |       | 26        |
|  | T                  | 325              | 210             |           | 67    | 273              | 12              | M30       |       | 33        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 255              | 186             | 22        | 13    | 210              | 8               | M16       |       | 18        |
|  | 21/35              | 280              | 207             | 25        | 22    | 235              | 8               | M20       |       | 22        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 254              | 186             | 23.9      |       | 215.9            | 8               |           | 3/4   | 22.4      |
|  | 250                | 279.4            | 211             | 35        |       | 235              | 8               |           | 3/4   | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 254              | 185.7           |           | 23.9  | 215.9            | 8               |           | 3/4   | 22.4      |
|  | 300                | 279.4            | 185.7           |           | 35.1  | 235              | 8               |           | 3/4   | 22.4      |
|  | 600                | 330.2            | 185.7           |           | 44.5  | 266.7            | 8               |           | 1     | 28.4      |
|  | 900                | 349.3            | 185.7           |           | 50.8  | 279.4            | 8               |           | 1 1/4 | 35.1      |
|  | 1500               | 374.7            | 185.7           |           | 73.2  | 292.1            | 8               |           | 1 1/2 | 41.1      |
|  | 2500               | 419.1            | 185.7           |           | 91.9  | 323.9            | 8               |           | 1 3/4 | 47.8      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 255              | 186             |           | 24    | 216              | 8               | M20       |       | 22        |
|  | PN50               | 280              | 186             |           | 35    | 235              | 8               | M20       |       | 22        |
|  | PN110              | 330              | 186             |           | 44.5  | 267              | 8               | M27       |       | 29.5      |
|  | PN150              | 350              | 186             |           | 51    | 279.5            | 8               | M33       |       | 35.5      |
|  | PN260              | 375              | 186             |           | 73.5  | 292              | 8               | M33       |       | 42        |
|  | PN420              | 420              | 186             |           | 92.5  | 324              | 8               | M45       |       | 48        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 240              | 178             | 20        | 20    | 200              | 8               | M16       |       | 18        |
|  | PN10               | 250              | 188             | 26        | 22    | 210              | 8               | M16       |       | 18        |
|  | PN16               | 250              | 188             | 26        | 22    | 210              | 8               | M16       |       | 18        |
|  | PN25               | 270              | 188             | 30        | 28    | 220              | 8               | M24       |       | 26        |
|  | PN40               | 270              | 188             | 30        | 28    | 220              | 8               | M24       |       | 26        |
|  | PN64               | 295              | 188             |           | 34    | 240              | 8               | M27       |       | 30        |
|  | PN100              | 315              | 188             |           | 42    | 250              | 8               | M30       |       | 33        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 235              | 176             | 20        | 16    | 200              | 8               | M16       |       | 19        |
|  | PN10               | 250              | 182             | 24        | 20    | 210              | 8               | M20       |       | 23        |
|  | PN16               | 270              | 195             | 26        | 22    | 225              | 8               | M22       |       | 25        |
|  | PN20               | 270              | 195             | 30        | 26    | 225              | 8               | M22       |       | 25        |
|  | PN30               | 275              | 195             |           | 36    | 230              | 8               | M22       |       | 25        |
|  | PN40               | 300              | 200             |           | 40    | 250              | 8               | M24       |       | 27        |
|  | PN63               | 325              | 200             |           | 50    | 265              | 8               | M30       |       | 33        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 280              | 211             | 21        | 13    | 235              | 4               | M16       |      | 18        |
|  | C                  | 280              | 211             | 22        | 13    | 235              | 8               | M16       |      | 18        |
|  | D                  | 280              | 211             | 21        | 13    | 235              | 8               | M16       |      | 18        |
|  | E                  | 280305           | 207             | 22        | 17    | 235              | 8               | M20       |      | 22        |
|  | F                  | 305              | 232             | 25        | 22    | 260              | 12              | M20       |      | 22        |
|  | H                  | 305              | 210             | 35        | 29    | 260              | 12              | M20       |      | 22        |
|  | J                  | 305              | 210             |           | 38    | 260              | 12              | M24       |      | 26        |
|  | K                  | 305              | 210             |           | 41    | 260              | 12              | M24       |      | 26        |
|  | R                  | 305              | 210             |           | 44    | 260              | 12              | M24       |      | 26        |
|  | S                  | 325              | 210             |           | 51    | 273              | 12              | M27       |      | 30        |
|  | T                  | 375              | 229             |           | 73    | 318              | 12              | M33       |      | 36        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 280              | 211             | 22        | 13    | 235              | 8               | M16       |      | 18        |
|  | 21/35              | 305              | 232             | 25        | 22    | 260              | 12              | M20       |      | 22        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 279.4            | 216             | 25.4      |       | 241.3            | 8               |           | 3/4  | 22.4      |
|  | 250                | 317.5            | 246             | 36.6      |       | 269.7            | 12              |           | 3/4  | 22.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 279.4            | 215.9           |           | 25.4  | 241.3            | 8               |           | 3/4  | 22.4      |
|  | 300                | 317.5            | 215.9           |           | 36.6  | 269.7            | 12              |           | 3/4  | 22.4      |
|  | 600                | 355.6            | 215.9           |           | 47.8  | 292.1            | 12              |           | 1    | 28.4      |
|  | 900                | 381              | 215.9           |           | 55.6  | 317.5            | 12              |           | 11/8 | 31.8      |
|  | 1500               | 393.7            | 215.9           |           | 82.6  | 317.5            | 12              |           | 13/8 | 38.1      |
|  | 2500               | 482.6            | 215.9           |           | 108   | 368.3            | 8               |           | 2    | 53.8      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 280              | 216             |           | 25.5  | 241.5            | 8               | M20       |      | 22        |
|  | PN50               | 320              | 216             |           | 37    | 270              | 12              | M20       |      | 22        |
|  | PN110              | 355              | 216             |           | 48    | 292              | 12              | M27       |      | 29.5      |
|  | PN150              | 380              | 216             |           | 56    | 317.5            | 12              | M30       |      | 32.5      |
|  | PN260              | 395              | 216             |           | 83    | 317.5            | 12              | M36       |      | 39        |
|  | PN420              | 485              | 216             |           | 108   | 368.5            | 8               | M52       |      | 55        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 265              | 202             | 20        | 20    | 225              | 8               | M16       |      | 18        |
|  | PN10               | 285              | 212             | 26        | 22    | 240              | 8               | M20       |      | 22        |
|  | PN16               | 285              | 212             | 26        | 22    | 240              | 8               | M20       |      | 22        |
|  | PN25               | 300              | 218             | 34        | 30    | 250              | 8               | M24       |      | 26        |
|  | PN40               | 300              | 218             | 34        | 30    | 250              | 8               | M24       |      | 26        |
|  | PN64               | 345              | 218             |           | 36    | 280              | 8               | M30       |      | 33        |
|  | PN100              | 355              | 218             |           | 48    | 290              | 12              | M30       |      | 33        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 265              | 206             | 22        | 18    | 230              | 8               | M16       |      | 19        |
|  | PN10               | 280              | 212             | 26        | 22    | 240              | 8               | M20       |      | 23        |
|  | PN16               | 305              | 230             | 28        | 24    | 260              | 12              | M22       |      | 25        |
|  | PN20               | 305              | 230             | 32        | 28    | 260              | 12              | M22       |      | 25        |
|  | PN30               | 325              | 235             |           | 38    | 275              | 12              | M24       |      | 27        |
|  | PN40               | 355              | 240             |           | 44    | 295              | 12              | M30       |      | 33        |
|  | PN63               | 365              | 240             |           | 54    | 305              | 12              | M30       |      | 33        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  |                  |                 |           |       |                  |                 |           |      |           |
|  | C                  |                  |                 |           |       |                  |                 |           |      |           |
|  | D                  |                  |                 |           |       |                  |                 |           |      |           |
|  | E                  |                  |                 |           |       |                  |                 |           |      |           |
|  | F                  |                  |                 |           |       |                  |                 |           |      |           |
|  | H                  |                  |                 |           |       |                  |                 |           |      |           |
|  | J                  |                  |                 |           |       |                  |                 |           |      |           |
|  | K                  |                  |                 |           |       |                  |                 |           |      |           |
|  | R                  |                  |                 |           |       |                  |                 |           |      |           |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              |                  |                 |           |       |                  |                 |           |      |           |
|  | 21/35              |                  |                 |           |       |                  |                 |           |      |           |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                |                  |                 |           |       |                  |                 |           |      |           |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |
|  | 2500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN50               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN110              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN150              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN260              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                |                  |                 |           |       |                  |                 |           |      |           |
|  | PN10               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN25               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN64               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN100              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN5                | 300              | 232             | 22        | 18    | 260              | 8               | M20       |      | 23        |
| PN10   | 305                | 237              | 26              | 22        | 265   | 12               | M20             |           | 23   |           |
| JIS B 2210:1984 (PN5-63)   | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN20               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 335              | 268             | 22        | 13    | 292              | 8               | M16       |       | 18        |
|  | C                  | 335              | 268             | 25        | 13    | 292              | 8               | M16       |       | 18        |
|  | D                  | 335              | 268             | 22        | 13    | 292              | 8               | M16       |       | 18        |
|  | E                  | 335              | 264             | 25        | 19    | 292              | 8               | M20       |       | 22        |
|  | F                  | 370              | 296             | 29        | 25    | 324              | 12              | M20       |       | 22        |
|  | H                  | 370              | 260             | 38        | 32    | 324              | 12              | M20       |       | 22        |
|  | J                  | 370              | 260             |           | 41    | 324              | 12              | M24       |       | 26        |
|  | K                  | 370              | 260             |           | 48    | 318              | 12              | M27       |       | 30        |
|  | R                  | 370              | 260             |           | 51    | 324              | 12              | M27       |       | 30        |
|  | S                  | 415              | 273             |           | 64    | 356              | 12              | M33       |       | 36        |
|  | T                  | 475              | 298             |           | 89    | 406              | 12              | M39       |       | 42        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 335              | 268             | 25        | 13    | 292              | 8               | M16       |       | 18        |
|  | 21/35              | 370              | 296             | 29        | 25    | 324              | 12              | M20       |       | 22        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 342.9            | 270             | 28.4      |       | 298.5            | 8               |           | 3/4   | 22.4      |
|  | 250                | 381              | 303             | 41.1      |       | 330.2            | 12              |           | 7/8   | 25.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 342.9            | 269.7           |           | 28.4  | 298.5            | 8               |           | 3/4   | 22.4      |
|  | 300                | 381              | 269.7           |           | 41.1  | 330.2            | 12              |           | 7/8   | 25.4      |
|  | 600                | 419.1            | 269.7           |           | 55.6  | 349.3            | 12              |           | 1 1/8 | 31.8      |
|  | 900                | 469.9            | 269.7           |           | 63.5  | 393.7            | 12              |           | 1 3/8 | 38.1      |
|  | 1500               | 482.6            | 269.7           |           | 91.9  | 393.7            | 12              |           | 1 5/8 | 44.5      |
|  | 2500               | 552.5            | 269.7           |           | 127   | 438.2            | 12              |           | 2     | 53.8      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 345              | 270             |           | 29    | 298.5            | 8               | M20       |       | 22        |
|  | PN50               | 380              | 270             |           | 41.5  | 330              | 12              | M24       |       | 26        |
|  | PN110              | 420              | 270             |           | 55.5  | 349              | 12              | M30       |       | 32.5      |
|  | PN150              | 470              | 270             |           | 63.5  | 393.5            | 12              | M36       |       | 39        |
|  | PN260              | 485              | 270             |           | 92    | 393.5            | 12              | M42       |       | 45        |
|  | PN420              | 550              | 270             |           | 127   | 438              | 12              | M52       |       | 55        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 320              | 258             | 22        | 22    | 280              | 8               | M16       |       | 18        |
|  | PN10               | 340              | 268             | 26        | 24    | 295              | 8               | M20       |       | 22        |
|  | PN16               | 340              | 268             | 30        | 24    | 295              | 12              | M20       |       | 22        |
|  | PN25               | 360              | 278             | 34        | 28    | 310              | 12              | M24       |       | 26        |
|  | PN40               | 375              | 285             | 40        | 34    | 320              | 12              | M27       |       | 30        |
|  | PN64               | 415              | 285             |           | 46    | 345              | 12              | M33       |       | 36        |
|  | PN100              | 430              | 285             |           | 60    | 360              | 12              | M33       |       | 36        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 320              | 252             | 24        | 20    | 280              | 8               | M20       |       | 23        |
|  | PN10               | 330              | 262             | 26        | 22    | 290              | 12              | M20       |       | 23        |
|  | PN16               | 350              | 275             | 30        | 26    | 305              | 12              | M22       |       | 25        |
|  | PN20               | 350              | 275             | 34        | 30    | 305              | 12              | M22       |       | 25        |
|  | PN30               | 370              | 280             |           | 42    | 320              | 12              | M24       |       | 27        |
|  | PN40               | 405              | 290             |           | 50    | 345              | 12              | M30       |       | 33        |
|  | PN63               | 425              | 290             |           | 60    | 360              | 12              | M30       |       | 33        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:2000   | A                  |                  |                 |           |       |                  |                 |           |      |           |
|  | C                  |                  |                 |           |       |                  |                 |           |      |           |
|  | D                  |                  |                 |           |       |                  |                 |           |      |           |
|  | E                  |                  |                 |           |       |                  |                 |           |      |           |
|  | F                  |                  |                 |           |       |                  |                 |           |      |           |
|  | H                  |                  |                 |           |       |                  |                 |           |      |           |
|  | J                  |                  |                 |           |       |                  |                 |           |      |           |
|  | K                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:2004   | 14                 | 370              |                 | 25        |       | 324              | 8               | M16       |      | 18        |
|  | 16                 | 370              | 300             | 24        | 19    | 324              | 8               | M16       |      | 18        |
|  | 21                 | 405              | 324             | 29        | 30    | 356              | 12              | M24       |      | 26        |
|  | 35                 | 405              | 324             | 41        | 38    | 356              | 12              | M24       |      | 26        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                |                  |                 |           |       |                  |                 |           |      |           |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN50               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN110              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN150              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN260              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1 1992 (PN6-40)   | PN6                |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501 1972 (PN6-100)  | PN10               |                  |                 |           |       |                  |                 |           |      |           |
| EN 1092-2 1997 (PN6-40)  | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN25               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN100              |                  |                 |           |       |                  |                 |           |      |           |
| JIS B 2210:1984 (PN5-63)   | PN5                | 345              | 277             | 24        | 20    | 305              | 12              | M20       |      | 23        |
|  | PN10               | 350              | 282             | 28        | 22    | 310              | 12              | M20       |      | 23        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 405              | 328             | 24        | 16    | 356              | 8               | M20       |       | 22        |
|  | C                  | 405              | 328             | 25        | 16    | 356              | 8               | M20       |       | 22        |
|  | D                  | 405              | 328             | 25        | 16    | 356              | 8               | M20       |       | 22        |
|  | E                  | 405              | 328             | 25        | 22    | 356              | 12              | M20       |       | 22        |
|  | F                  | 430              | 349             | 29        | 29    | 381              | 12              | M24       |       | 26        |
|  | H                  | 430              | 311             | 41        | 35    | 381              | 12              | M24       |       | 26        |
|  | J                  | 430              | 311             |           | 48    | 381              | 12              | M27       |       | 30        |
|  | K                  | 430              | 311             |           | 51    | 381              | 16              | M27       |       | 30        |
|  | R                  | 430              | 311             |           | 60    | 387              | 16              | M27       |       | 30        |
|  | S                  | 485              | 330             |           | 79    | 425              | 16              | M33       |       | 36        |
|  | T                  | 560              | 356             |           | 108   | 489              | 16              | M39       |       | 42        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 405              | 328             | 25        | 16    | 356              | 8               | M20       |       | 22        |
|  | 21/35              | 430              | 349             | 29        | 29    | 381              | 12              | M24       |       | 26        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 406.4            | 324             | 30.2      |       | 362              | 12              |           | 7/8   | 25.4      |
|  | 250                | 444.5            | 357             | 47.8      |       | 387.4            | 16              |           | 1     | 28.4      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 406.4            | 323.9           |           | 30.2  | 362              | 12              |           | 7/8   | 25.4      |
|  | 300                | 444.5            | 323.9           |           | 47.8  | 387.4            | 16              |           | 1     | 28.4      |
|  | 600                | 508              | 323.9           |           | 63.5  | 431.8            | 16              |           | 1 1/4 | 35.1      |
|  | 900                | 546.1            | 323.9           |           | 69.9  | 469.9            | 16              |           | 1 3/8 | 38.1      |
|  | 1500               | 584.2            | 323.9           |           | 108   | 482.6            | 12              |           | 1 7/8 | 50.8      |
|  | 2500               | 673.1            | 323.9           |           | 165.1 | 539.8            | 12              |           | 2 1/2 | 66.5      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 405              | 324             |           | 30.5  | 362              | 12              | M24       |       | 26        |
|  | PN50               | 445              | 324             |           | 48    | 387.5            | 16              | M27       |       | 29.5      |
|  | PN110              | 510              | 324             |           | 63.5  | 432              | 16              | M33       |       | 35.5      |
|  | PN150              | 545              | 324             |           | 70    | 470              | 16              | M36       |       | 39        |
|  | PN260              | 585              | 324             |           | 108   | 482.5            | 12              | M48       |       | 51        |
|  | PN420              | 675              | 324             |           | 165.5 | 539.5            | 12              | M64       |       | 68        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 375              | 312             | 24        | 24    | 335              | 12              | M16       |       | 18        |
|  | PN10               | 395              | 320             | 28        | 26    | 350              | 12              | M20       |       | 25        |
|  | PN16               | 405              | 320             | 32        | 26    | 355              | 12              | M24       |       | 26        |
|  | PN25               | 425              | 335             | 36        | 32    | 370              | 12              | M27       |       | 30        |
|  | PN40               | 450              | 345             | 46        | 42    | 385              | 12              | M30       |       | 33        |
|  | PN64               | 470              | 345             |           | 54    | 400              | 12              | M33       |       | 36        |
|  | PN100              | 505              | 345             |           | 72    | 430              | 12              | M36       |       | 39        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 385              | 317             | 26        | 22    | 345              | 12              | M20       |       | 23        |
|  | PN10               | 400              | 324             | 30        | 24    | 355              | 12              | M22       |       | 25        |
|  | PN16               | 430              | 345             | 34        | 28    | 380              | 12              | M24       |       | 27        |
|  | PN20               | 430              | 345             | 38        | 34    | 380              | 12              | M24       |       | 28        |
|  | PN30               | 450              | 345             |           | 48    | 390              | 12              | M30       |       | 33        |
|  | PN40               | 475              | 355             |           | 56    | 410              | 12              | M30       |       | 33        |
|  | PN63               | 500              | 355             |           | 68    | 430              | 12              | M36       |       | 39        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 455              | 378             | 24        | 19    | 406              | 8               | M20       |       | 22        |
|  | C                  | 455              | 378             | 29        | 16    | 406              | 12              | M20       |       | 22        |
|  | D                  | 455              | 378             | 25        | 19    | 406              | 12              | M20       |       | 22        |
|  | E                  | 455              | 374             | 29        | 25    | 406              | 12              | M24       |       | 26        |
|  | F                  | 490              | 406             | 32        | 32    | 438              | 16              | M24       |       | 26        |
|  | H                  | 490              | 362             | 44        | 41    | 438              | 16              | M24       |       | 26        |
|  | J                  | 490              | 362             |           | 51    | 438              | 16              | M27       |       | 30        |
|  | K                  | 490              | 362             |           | 57    | 432              | 16              | M30       |       | 33        |
|  | R                  | 510              | 362             |           | 70    | 457              | 16              | M30       |       | 33        |
|  | S                  | 580              | 381             |           | 92    | 508              | 16              | M39       |       | 42        |
|  | T                  | 655              | 413             |           | 121   | 572              | 16              | M45       |       | 48        |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 455              | 378             | 29        | 16    | 406              | 12              | M20       |       | 22        |
|  | 21/35              | 490              | 406             | 32        | 32    | 438              | 16              | M24       |       | 26        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 482.6            | 381             | 31.8      |       | 431.8            | 12              |           | 7/8   | 25.4      |
|  | 250                | 520.7            | 418             | 50.8      |       | 450.9            | 16              |           | 1 1/8 | 31.8      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 482.6            | 381             |           | 31.75 | 431.8            | 12              |           | 7/8   | 25.4      |
|  | 300                | 520.7            | 381             |           | 50.8  | 450.9            | 16              |           | 1 1/8 | 31.8      |
|  | 600                | 558.8            | 381             |           | 66.5  | 489              | 20              |           | 1 1/4 | 35.1      |
|  | 900                | 609.6            | 381             |           | 79.2  | 533.4            | 20              |           | 1 3/8 | 38.1      |
|  | 1500               | 673.1            | 381             |           | 124   | 571.5            | 16              |           | 2     | 53.8      |
|  | 2500               | 762              | 381             |           | 184.2 | 619.3            | 12              |           | 2 3/4 | 73.2      |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 485              | 381             |           | 32    | 432              | 12              | M24       |       | 26        |
|  | PN50               | 520              | 381             |           | 51    | 451              | 16              | M30       |       | 32.5      |
|  | PN110              | 560              | 381             |           | 67    | 489              | 20              | M33       |       | 35.5      |
|  | PN150              | 610              | 381             |           | 79.5  | 533.5            | 20              | M36       |       | 39        |
|  | PN260              | 675              | 381             |           | 124   | 571.5            | 16              | M52       |       | 55        |
|  | PN420              | 760              | 381             |           | 184.5 | 619              | 12              | M70       |       | 74        |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 440              | 365             | 24        | 24    | 395              | 12              | M20       |       | 22        |
|  | PN10               | 445              | 370             | 28        | 26    | 400              | 12              | M20       |       | 22        |
|  | PN16               | 460              | 378             | 32        | 28    | 410              | 12              | M24       |       | 26        |
|  | PN25               | 485              | 395             | 40        | 38    | 430              | 16              | M27       |       | 30        |
|  | PN40               | 515              | 410             | 50        | 50    | 450              | 16              | M30       |       | 33        |
|  | PN64               | 530              | 410             |           | 62    | 460              | 16              | M33       |       | 36        |
|  | PN100              | 585              | 410             |           | 84    | 500              | 16              | M39       |       | 42        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 430              | 360             | 28        | 22    | 390              | 12              | M20       |       | 23        |
|  | PN10               | 445              | 368             | 32        | 24    | 400              | 16              | M22       |       | 25        |
|  | PN16               | 480              | 395             | 36        | 30    | 430              | 16              | M24       |       | 27        |
|  | PN20               | 480              | 395             | 40        | 36    | 430              | 16              | M24       |       | 27        |
|  | PN30               | 515              | 405             |           | 52    | 450              | 16              | M30       |       | 33        |
|  | PN40               | 540              | 410             |           | 60    | 470              | 16              | M36       |       | 39        |
|  | PN63               | 560              | 410             |           | 77    | 485              | 16              | M36       |       | 39        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 525              | 438             | 25        | 22    | 470              | 8               | M24       |      | 26        |
|  | C                  | 525              | 438             | 32        | 19    | 470              | 12              | M24       |      | 26        |
|  | D                  | 525              | 438             | 29        | 22    | 470              | 12              | M24       |      | 26        |
|  | E                  | 525              | 438             | 32        | 29    | 470              | 12              | M24       |      | 26        |
|  | F                  | 550              | 459             | 35        | 35    | 495              | 16              | M27       |      | 30        |
|  | H                  | 550              | 419             | 48        | 48    | 495              | 16              | M27       |      | 30        |
|  | J                  | 550              | 419             |           | 57    | 495              | 16              | M30       |      | 33        |
|  | K                  | 570              | 419             |           | 67    | 508              | 16              | M33       |      | 36        |
|  | R                  | 585              | 419             |           | 79    | 527              | 16              | M33       |      | 36        |
|  | S                  | 650              | 438             |           | 105   | 578              | 20              | M39       |      | 42        |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 525              | 438             | 32        | 19    | 470              | 12              | M24       |      | 26        |
|  | 21/35              | 550              | 459             | 35        | 35    | 495              | 16              | M27       |      | 30        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 533.4            | 413             | 35.1      |       | 476.3            | 12              |           | 1    | 28.4      |
|  | 250                | 584.2            | 481             | 53.8      |       | 514.4            | 20              |           | 11/8 | 31.8      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 533.4            | 412.8           |           | 35.1  | 476.3            | 12              |           | 1    | 28.4      |
|  | 300                | 584.2            | 412.8           |           | 53.8  | 514.4            | 20              |           | 11/8 | 31.8      |
|  | 600                | 603.3            | 412.8           |           | 69.9  | 527.1            | 20              |           | 13/8 | 38.1      |
|  | 900                | 641.4            | 412.8           |           | 85.9  | 558.8            | 20              |           | 11/2 | 41.1      |
|  | 1500               | 749.3            | 412.8           |           | 133.4 | 635              | 16              |           | 21/4 | 60.5      |
|  | 2500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 535              | 413             |           | 35    | 476              | 12              | M27       |      | 29.5      |
|  | PN50               | 585              | 413             |           | 54    | 514.5            | 20              | M30       |      | 32.5      |
|  | PN110              | 605              | 413             |           | 70    | 527              | 20              | M36       |      | 39        |
|  | PN150              | 640              | 413             |           | 86    | 559              | 20              | M39       |      | 42        |
|  | PN260              | 750              | 413             |           | 133.5 | 635              | 16              | M56       |      | 60        |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 490              | 415             | 26        | 26    | 445              | 12              | M20       |      | 22        |
|  | PN10               | 505              | 430             | 30        | 28    | 460              | 16              | M20       |      | 22        |
|  | PN16               | 520              | 438             | 36        | 32    | 470              | 16              | M24       |      | 26        |
|  | PN25               | 555              | 450             | 44        | 42    | 490              | 16              | M30       |      | 33        |
|  | PN40               | 580              | 465             | 54        | 56    | 510              | 16              | M33       |      | 36        |
|  | PN64               | 600              | 465             |           | 72    | 525              | 16              | M36       |      | 39        |
|  | PN100              | 655              | 465             |           | 95    | 560              | 16              | M45       |      | 48        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 480              | 403             | 30        | 24    | 435              | 12              | M22       |      | 25        |
|  | PN10               | 490              | 413             | 34        | 26    | 445              | 16              | M22       |      | 25        |
|  | PN16               | 540              | 440             | 38        | 34    | 480              | 16              | M30       |      | 33        |
|  | PN20               | 540              | 440             | 44        | 40    | 480              | 16              | M30       |      | 33        |
|  | PN30               | 560              | 450             |           | 54    | 495              | 16              | M30       |      | 33        |
|  | PN40               | 585              | 455             |           | 64    | 515              | 16              | M36       |      | 39        |
|  | PN63               | 615              | 455             |           | 81    | 530              | 16              | M42       |      | 46        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:2000   | A                  |                  |                 |           |       |                  |                 |           |      |           |
|  | C                  |                  |                 |           |       |                  |                 |           |      |           |
|  | D                  |                  |                 |           |       |                  |                 |           |      |           |
|  | E                  |                  |                 |           |       |                  |                 |           |      |           |
|  | F                  |                  |                 |           |       |                  |                 |           |      |           |
|  | H                  |                  |                 |           |       |                  |                 |           |      |           |
|  | J                  |                  |                 |           |       |                  |                 |           |      |           |
|  | K                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:2004   | 14                 | 550              |                 | 32        |       | 495              | 12              | M24       |      | 26        |
|  | 16                 | 550              | 463             | 33        | 30    | 495              | 12              | M24       |      | 26        |
|  | 21                 | 580              | 485             | 35        | 38    | 521              | 16              | M27       |      | 30        |
|  | 35                 | 580              | 485             | 48        | 48    | 521              | 16              | M27       |      | 30        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250)        | 125                |                  |                 |           |       |                  |                 |           |      |           |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN50               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN110              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN150              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN260              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN6-40)   | PN6                |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501-1972 (PN6-100)  | PN10               |                  |                 |           |       |                  |                 |           |      |           |
| EN 1092-2:1997 (PN6-40)  | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN25               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
| JIS B 2238:1996<br>JIS B 2239:2004   | PN5                |                  |                 |           |       |                  |                 |           |      |           |
|  | PN10               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN20               |                  |                 |           |       |                  |                 |           |      |           |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 580              | 489             | 27        | 22    | 521              | 12              | M24       |       | 26        |
|  | C                  | 580              | 489             | 32        | 19    | 521              | 12              | M24       |       | 26        |
|  | D                  | 580              | 489             | 29        | 22    | 521              | 12              | M24       |       | 26        |
|  | E                  | 580              | 489             | 32        | 32    | 521              | 12              | M24       |       | 26        |
|  | F                  | 610              | 516             | 35        | 41    | 552              | 20              | M27       |       | 30        |
|  | H                  | 610              | 483             | 51        | 54    | 552              | 20              | M27       |       | 30        |
|  | J                  | 610              | 483             |           | 64    | 552              | 20              | M30       |       | 33        |
|  | K                  | 630              | 483             |           | 76    | 565              | 20              | M33       |       | 36        |
|  | R                  | 640              | 483             |           | 89    | 584              | 20              | M33       |       | 36        |
|  | S                  | 745              | 495             |           | 117   | 660              | 20              | M45       |       | 48        |
|  | T                  |                  |                 |           |       |                  |                 |           |       |           |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 580              | 489             | 32        | 19    | 521              | 12              | M24       |       | 26        |
|  | 21/35              | 610              | 516             | 35        | 41    | 552              | 20              | M27       |       | 30        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 596.9            | 470             | 36.6      |       | 539.8            | 16              |           | 1     | 28.4      |
|  | 250                | 647.7            | 535             | 57.2      |       | 571.5            | 20              |           | 1 1/4 | 35.1      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 596.9            | 469.9           |           | 36.6  | 539.8            | 16              |           | 1     | 28.4      |
|  | 300                | 647.7            | 469.9           |           | 57.2  | 571.5            | 20              |           | 1 1/4 | 35.1      |
|  | 600                | 685.8            | 469.9           |           | 76.2  | 603.3            | 20              |           | 1 1/2 | 41.1      |
|  | 900                | 704.9            | 469.9           |           | 88.9  | 616              | 20              |           | 1 5/8 | 44.5      |
|  | 1500               | 825.5            | 469.9           |           | 146.1 | 704.9            | 16              |           | 2 1/2 | 66.5      |
|  | 2500               |                  |                 |           |       |                  |                 |           |       |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 600              | 470             |           | 37    | 540              | 16              | M27       |       | 29.5      |
|  | PN50               | 650              | 470             |           | 57.5  | 571.5            | 20              | M33       |       | 35.5      |
|  | PN110              | 685              | 470             |           | 76.5  | 603              | 20              | M39       |       | 42        |
|  | PN150              | 705              | 470             |           | 89    | 616              | 20              | M42       |       | 45        |
|  | PN260              | 825              | 470             |           | 146.5 | 705              | 16              | M64       |       | 68        |
|  | PN420              |                  |                 |           |       |                  |                 |           |       |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 540              | 465             | 28        | 28    | 495              | 16              | M20       |       | 22        |
|  | PN10               | 565              | 482             | 32        | 32    | 515              | 16              | M24       |       | 26        |
|  | PN16               | 580              | 490             | 38        | 36    | 525              | 16              | M27       |       | 30        |
|  | PN25               | 620              | 505             | 48        | 46    | 550              | 16              | M33       |       | 36        |
|  | PN40               | 660              | 535             | 62        | 64    | 585              | 16              | M36       |       | 39        |
|  | PN64               | 670              | 535             |           | 78    | 585              | 16              | M39       |       | 42        |
|  | PN100              | 715              | 535             |           | 106   | 620              | 16              | M45       |       | 48        |
| JIS B 2210:1984 (PN5-63)   | PN5                | 540              | 463             | 30        | 24    | 495              | 16              | M22       |       | 25        |
|  | PN10               | 560              | 475             | 36        | 28    | 510              | 16              | M24       |       | 27        |
|  | PN16               | 605              | 495             | 42        | 38    | 540              | 16              | M30       |       | 33        |
|  | PN20               | 605              | 495             | 50        | 46    | 540              | 16              | M30       |       | 33        |
|  | PN30               | 630              | 510             |           | 60    | 560              | 16              | M36       |       | 39        |
|  | PN40               | 645              | 515             |           | 70    | 570              | 16              | M36       |       | 39        |
|  | PN63               | 680              | 515             |           | 89    | 590              | 16              | M42       |       | 46        |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 640              | 552             | 27        | 22    | 584              | 12              | M24       |      | 26        |
|  | C                  | 640              | 552             | 35        | 22    | 584              | 12              | M24       |      | 26        |
|  | D                  | 640              | 532             | 32        | 25    | 584              | 12              | M24       |      | 26        |
|  | E                  | 640              | 552             | 35        | 35    | 584              | 16              | M24       |      | 26        |
|  | F                  | 675              | 571             | 38        | 44    | 610              | 20              | M30       |      | 33        |
|  | H                  | 675              | 533             | 54        | 60    | 610              | 20              | M30       |      | 33        |
|  | J                  | 675              | 533             |           | 70    | 610              | 20              | M33       |      | 36        |
|  | K                  | 720              | 572             |           | 89    | 654              | 20              | M36       |      | 39        |
|  | R                  | 735              | 572             |           | 98    | 673              | 20              | M36       |      | 39        |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 640              | 552             | 35        | 22    | 584              | 12              | M24       |      | 26        |
|  | 21/35              | 675              | 571             | 38        | 44    | 610              | 20              | M30       |      | 33        |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 635              | 533             | 39.6      |       | 577.9            | 16              |           | 11/8 | 31.8      |
|  | 250                | 711.2            | 592             | 60.5      |       | 628.7            | 24              |           | 11/4 | 35.1      |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 635              | 533.4           |           | 39.6  | 577.9            | 16              |           | 11/8 | 31.8      |
|  | 300                | 711.2            | 533.4           |           | 60.5  | 628.7            | 24              |           | 11/4 | 35.1      |
|  | 600                | 743              | 533.4           |           | 82.6  | 654.1            | 20              |           | 15/8 | 44.5      |
|  | 900                | 787.4            | 533.4           |           | 101.6 | 685.8            | 20              |           | 17/8 | 50.8      |
|  | 1500               | 914.4            | 533.4           |           | 162   | 774.7            | 16              |           | 23/4 | 73.2      |
|  | 2500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 635              | 533.5           |           | 40    | 578              | 16              | M30       |      | 32.5      |
|  | PN50               | 710              | 533.5           |           | 60.5  | 628.5            | 24              | M33       |      | 35.5      |
|  | PN110              | 745              | 533.5           |           | 83    | 654              | 20              | M42       |      | 45        |
|  | PN150              | 785              | 533.5           |           | 102   | 686              | 20              | M48       |      | 51        |
|  | PN260              | 915              | 533.5           |           | 162   | 774.5            | 16              | M70       |      | 74        |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 595              | 520             | 30        | 30    | 550              | 16              | M20       |      | 22        |
|  | PN10               | 615              | 532             | 32        | 36    | 565              | 20              | M24       |      | 26        |
|  | PN16               | 640              | 550             | 50        | 40    | 585              | 20              | M27       |      | 30        |
|  | PN25               | 670              | 550             | 50        | 52    | 600              | 20              | M33       |      | 35.5      |
|  | PN40               | 685              | 560             |           | 58    | 610              | 20              | M36       |      | 39        |
|  | PN64               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN100              |                  |                 |           |       |                  |                 |           |      |           |
| JIS B 2210:1984 (PN5-63)   | PN5                | 605              | 523             | 30        | 24    | 555              | 16              | M22       |      | 25        |
|  | PN10               | 620              | 530             | 38        | 30    | 565              | 20              | M24       |      | 27        |
|  | PN16               | 675              | 560             | 46        | 40    | 605              | 20              | M30       |      | 33        |
|  | PN20               | 675              | 560             | 54        | 48    | 605              | 20              | M30       |      | 33        |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |  |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|--|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |  |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |  |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 705              | 609             | 29        | 25    | 641              | 12              | M24       |      | 26        |  |
|  | C                  | 705              | 609             | 38        | 25    | 641              | 16              | M24       |      | 26        |  |
|  | D                  | 705              | 609             | 32        | 29    | 641              | 16              | M24       |      | 26        |  |
|  | E                  | 705              | 609             | 38        | 38    | 641              | 16              | M24       |      | 26        |  |
|  | F                  | 735              | 634             | 41        | 51    | 673              | 24              | M30       |      | 33        |  |
|  | H                  | 735              | 597             | 57        | 67    | 673              | 24              | M30       |      | 33        |  |
|  | J                  | 735              | 597             |           | 79    | 673              | 24              | M33       |      | 36        |  |
|  | K                  | 785              | 622             |           | 98    | 711              | 20              | M39       |      | 42        |  |
|  | R                  | 805              | 622             |           | 105   | 730              | 20              | M39       |      | 42        |  |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |  |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 705              | 609             | 38        | 25    | 641              | 16              | M24       |      | 26        |  |
|  | 21/35              | 735              | 634             | 41        | 51    | 673              | 24              | M30       |      | 33        |  |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 698.5            | 584             | 42.9      |       | 635              | 20              |           | 11/8 | 31.8      |  |
|  | 250                | 774.7            | 649             | 63.5      |       | 685.8            | 24              |           | 11/4 | 35.1      |  |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 698.5            | 584.2           |           | 42.9  | 635              | 20              |           | 11/8 | 31.8      |  |
|  | 300                | 774.7            | 584.2           |           | 63.5  | 685.8            | 24              |           | 11/4 | 35.1      |  |
|  | 600                | 812.8            | 584.2           |           | 88.9  | 723.9            | 24              |           | 15/8 | 44.5      |  |
|  | 900                | 857.3            | 584.2           |           | 108   | 749.3            | 20              |           | 2    | 53.8      |  |
|  | 1500               | 984.3            | 584.2           |           | 177.8 | 831.9            | 16              |           | 3    | 79.2      |  |
|  | 2500               |                  |                 |           |       |                  |                 |           |      |           |  |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 700              | 584.5           |           | 43    | 635              | 20              | M30       |      | 32.5      |  |
|  | PN50               | 775              | 584.5           |           | 63.5  | 686              | 24              | M33       |      | 35.5      |  |
|  | PN110              | 815              | 584.5           |           | 89    | 724              | 24              | M42       |      | 45        |  |
|  | PN150              | 855              | 584.5           |           | 108   | 749.5            | 20              | M52       |      | 55        |  |
|  | PN260              | 985              | 584.5           |           | 178   | 832              | 16              | M76       |      | 80        |  |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |  |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 645              | 570             | 30        | 30    | 600              | 20              | M20       |      | 22        |  |
|  | PN10               | 670              | 585             | 34        | 38    | 620              | 20              | M24       |      | 26        |  |
|  | PN16               | 715              | 610             | 42        | 44    | 650              | 20              | M30       |      | 33        |  |
|  | PN25               | 730              | 615             | 52        | 58    | 660              | 20              | M33       |      | 36        |  |
|  | PN40               | 755              | 615             |           |       | 670              | 20              | M39       |      | 42        |  |
|  | PN64               | 800              | 615             |           |       | 705              | 20              | M45       |      | 48        |  |
|  | PN100              | 870              | 615             |           |       | 760              | 20              | M52       |      | 56        |  |
| JIS B 2210:1984 (PN5-63)   | PN5                | 655              | 573             | 32        | 24    | 605              | 20              | M22       |      | 25        |  |
|  | PN10               | 675              | 585             | 40        | 30    | 620              | 20              | M24       |      | 27        |  |
|  | PN16               | 730              | 615             | 50        | 42    | 660              | 20              | M30       |      | 33        |  |
|  | PN20               | 730              | 615             | 58        | 50    | 660              | 20              | M30       |      | 33        |  |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |  |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |  |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|--|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |  |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |  |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 760              | 663             | 30        | 25    | 699              | 12              | M27       |      | 30        |  |
|  | C                  | 760              | 663             | 38        | 25    | 699              | 16              | M27       |      | 30        |  |
|  | D                  | 760              | 637             | 35        | 29    | 699              | 16              | M27       |      | 30        |  |
|  | E                  | 760              | 663             | 38        | 44    | 699              | 16              | M27       |      | 30        |  |
|  | F                  | 785              | 685             | 41        | 54    | 724              | 24              | M30       |      | 33        |  |
|  | H                  | 785              | 648             | 60        | 70    | 724              | 24              | M30       |      | 33        |  |
|  | J                  | 785              | 648             |           | 86    | 724              | 24              | M33       |      | 36        |  |
|  | K                  | 870              | 673             |           | 105   | 781              | 20              | M52       |      | 55        |  |
|  | R                  | 895              | 673             |           | 114   | 806              | 20              | M52       |      | 55        |  |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |  |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 21/35              |                  |                 |           |       |                  |                 |           |      |           |  |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |  |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |  |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 750              | 641             |           | 46    | 692              | 20              | M33       |      | 35.5      |  |
|  | PN50               | 840              | 641             |           | 66.5  | 743              | 24              | M39       |      | 42        |  |
|  | PN110              | 870              | 641             |           | 95    | 778              | 24              | M45       |      | 48        |  |
|  | PN150              |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN260              |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |  |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN10               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN16               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN25               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN64               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN100              |                  |                 |           |       |                  |                 |           |      |           |  |
| JIS B 2210:1984 (PN5-63)   | PN5                | 720              | 630             | 32        | 26    | 665              | 20              | M24       |      | 27        |  |
|  | PN10               | 745              | 640             | 42        | 32    | 680              | 20              | M30       |      | 33        |  |
|  | PN16               | 795              | 670             | 54        | 44    | 720              | 20              | M36       |      | 39        |  |
|  | PN20               | 795              | 670             | 62        | 52    | 720              | 20              | M36       |      | 39        |  |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |  |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |  |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|--|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |  |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |  |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 825              | 720             | 30        | 25    | 756              | 12              | M27       |       | 30        |  |
|  | C                  | 825              | 720             | 41        | 29    | 756              | 16              | M27       |       | 30        |  |
|  | D                  | 825              | 720             | 35        | 32    | 756              | 16              | M27       |       | 30        |  |
|  | E                  | 825              | 717             | 41        | 48    | 756              | 16              | M30       |       | 33        |  |
|  | F                  | 850              | 739             | 44        | 57    | 781              | 24              | M33       |       | 36        |  |
|  | H                  | 850              | 699             | 64        | 76    | 781              | 24              | M33       |       | 36.39     |  |
|  | J                  | 850              | 699             |           | 92    | 781              | 24              | M36       |       |           |  |
|  | K                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | R                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | S                  |                  |                 |           |       |                  |                 |           |       |           |  |
| T  |                    |                  |                 |           |       |                  |                 |           |       |           |  |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 825              | 720             | 41        | 29    | 756              | 16              | M27       |       | 30        |  |
|  | 21/35              | 850              | 739             | 44        | 57    | 781              | 24              | M33       |       | 36        |  |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 812.8            | 692             | 47.8      |       | 749.3            | 20              |           | 1 1/4 | 35.1      |  |
|  | 250                | 914.4            | 770             | 69.9      |       | 812.8            | 24              |           | 1 1/2 | 50.8      |  |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                | 812.8            | 692.2           |           | 47.8  | 749.3            | 20              |           | 1 1/4 | 35.1      |  |
|  | 300                | 914.4            | 692.2           |           | 69.9  | 812.8            | 24              |           | 1 1/2 | 41.2      |  |
|  | 600                | 934.8            | 692.2           |           | 101.6 | 838.2            | 24              |           | 1 7/8 | 50.8      |  |
|  | 900                | 1041.4           | 692.2           |           | 139.7 | 901.7            | 20              |           | 2 1/2 | 66.6      |  |
|  | 1500               | 1168.4           | 692.2           |           | 203.2 | 990.6            | 16              |           | 3 1/2 | 91.9      |  |
|  | 2500               |                  |                 |           |       |                  |                 |           |       |           |  |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 815              | 692.5           |           | 48    | 749.5            | 20              | M33       |       | 35.5      |  |
|  | PN50               | 915              | 692.5           |           | 70    | 813              | 24              | M39       |       | 42        |  |
|  | PN110              | 940              | 692.5           |           | 102   | 838              | 24              | M48       |       | 51        |  |
|  | PN150              | 1040             | 692.5           |           | 140   | 901.5            | 20              | M64       |       | 68        |  |
|  | PN260              | 1170             | 692.5           |           | 203.5 | 990.5            | 16              | M90       |       | 94        |  |
|  | PN420              |                  |                 |           |       |                  |                 |           |       |           |  |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 755              | 670             | 30        | 32    | 705              | 20              | M24       |       | 26        |  |
|  | PN10               | 780              | 685             | 36        | 42    | 725              | 20              | M27       |       | 30        |  |
|  | PN16               | 840              | 725             | 48        | 52    | 770              | 20              | M33       |       | 36        |  |
|  | PN25               | 845              | 720             | 56        | 66    | 770              | 20              | M36       |       | 39        |  |
|  | PN40               | 890              | 735             |           |       | 795              | 20              | M45       |       | 48        |  |
|  | PN64               | 930              | 735             |           |       | 820              | 20              | M52       |       | 56        |  |
|  | PN100              | 990              | 735             |           |       | 875              | 20              | M56       |       | 62        |  |
| JIS B 2210:1984 (PN5-63)   | PN5                | 770              | 680             | 32        | 26    | 715              | 20              | M24       |       | 27        |  |
|  | PN10               | 765              | 690             | 44        | 32    | 730              | 24              | M30       |       | 33        |  |
|  | PN16               | 845              | 845             | 58        | 46    | 770              | 24              | M36       |       | 39        |  |
|  | PN20               | 845              | 845             | 66        | 54    | 770              | 24              | M36       |       | 39        |  |
|  | PN30               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN63               |                  |                 |           |       |                  |                 |           |       |           |  |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.



| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 845              | 745             | 32        | 25    | 781              | 16              | M27       |      | 30        |
|  | C                  | 875              | 777             | 44        |       | 813              | 20              | M27       |      | 30        |
|  | D                  |                  |                 |           |       |                  |                 |           |      |           |
|  | E                  |                  |                 |           |       |                  |                 |           |      |           |
|  | F                  |                  |                 |           |       |                  |                 |           |      |           |
|  | H                  |                  |                 |           |       |                  |                 |           |      |           |
|  | J                  |                  |                 |           |       |                  |                 |           |      |           |
|  | K                  |                  |                 |           |       |                  |                 |           |      |           |
|  | R                  |                  |                 |           |       |                  |                 |           |      |           |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              |                  |                 |           |       |                  |                 |           |      |           |
|  | 21/35              |                  |                 |           |       |                  |                 |           |      |           |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                |                  |                 |           |       |                  |                 |           |      |           |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 870              | 749             |           | 68.5  | 806              | 24              | M33       |      | 35.5      |
|  | PN50               | 970              | 749             |           | 79.5  | 876              | 28              | M42       |      | 45        |
|  | PN110              | 1015             | 749             |           | 108   | 914              | 28              | M48       |      | 51        |
|  | PN150              | 1085             | 749             |           | 140   | 952              | 20              | M70       |      | 74        |
|  | PN260              |                  |                 |           |       |                  |                 |           |      |           |
|  | PN420              |                  |                 |           |       |                  |                 |           |      |           |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                |                  |                 |           |       |                  |                 |           |      |           |
|  | PN10               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN16               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN25               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN64               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN100              |                  |                 |           |       |                  |                 |           |      |           |
| JIS B 2210:1984 (PN5-63)   | PN5                | 825              | 735             | 34        | 26    | 770              | 24              | M24       |      | 27        |
|  | PN10               | 845              | 740             | 46        | 34    | 780              | 24              | M30       |      | 33        |
|  | PN16               | 895              | 770             |           | 48    | 820              | 24              | M36       |      | 39        |
|  | PN20               | 945              | 790             |           | 60    | 850              | 24              | M45       |      | 48        |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |

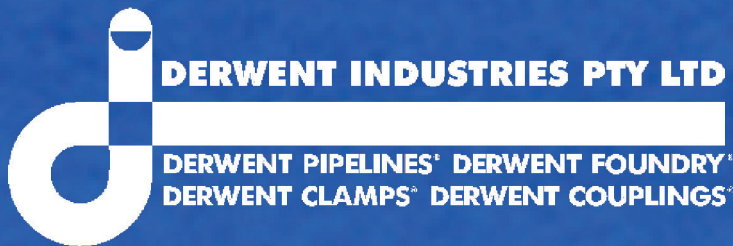
Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |      |           |  |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|------|-----------|--|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |      | Hole Size |  |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch |           |  |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 870              | 770             | 32        | 25    | 806              | 16              | M27       |      | 30        |  |
|  | C                  | 910              | 809             | 44        |       | 845              | 20              | M27       |      | 30        |  |
|  | D                  | 910              | 809             | 38        | 35    | 845              | 20              | M27       |      | 30        |  |
|  | E                  | 910              | 806             | 44        | 51    | 845              | 20              | M30       |      | 33        |  |
|  | F                  | 935              | 815             | 48        | 60    | 857              | 24              | M33       |      | 36        |  |
|  | H                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | J                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | K                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | R                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | S                  |                  |                 |           |       |                  |                 |           |      |           |  |
|  | T                  |                  |                 |           |       |                  |                 |           |      |           |  |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 910              | 809             | 44        |       | 845              | 20              | M27       |      | 30        |  |
|  | 21/35              | 935              | 815             | 48        | 60    | 857              | 24              | M33       |      | 36        |  |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 250                |                  |                 |           |       |                  |                 |           |      |           |  |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 300                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 600                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 900                |                  |                 |           |       |                  |                 |           |      |           |  |
|  | 1500               |                  |                 |           |       |                  |                 |           |      |           |  |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 925              | 800             |           | 71.5  | 863              | 28              | M33       |      | 35.5      |  |
|  | PN50               | 1035             | 800             |           | 85.5  | 940              | 28              | M42       |      | 45        |  |
|  | PN110              | 1075             | 800             |           | 111   | 965              | 28              | M52       |      | 55        |  |
|  | PN150              | 1165             | 800             |           | 143   | 1022             | 20              | M76       |      | 80        |  |
|  | PN260              |                  | 800             |           |       |                  |                 |           |      |           |  |
|  | PN420              |                  | 800             |           |       |                  |                 |           |      |           |  |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                | 860              | 775             | 32        | 34    | 810              | 24              | M24       |      | 26        |  |
|  | PN10               | 895              | 800             | 40        | 46    | 840              | 24              | M27       |      | 30        |  |
|  | PN16               | 910              | 795             | 54        | 58    | 840              | 24              | M33       |      | 36        |  |
|  | PN25               | 960              | 820             |           |       | 875              | 24              | M39       |      | 42        |  |
|  | PN40               | 995              | 840             |           |       | 900              | 24              | M45       |      | 48        |  |
|  | PN64               | 1045             | 840             |           |       | 935              | 24              | M52       |      | 56        |  |
|  | PN100              | 1145             | 840             |           |       | 1020             | 24              | M64       |      | 70        |  |
| JIS B 2210:1984 (PN5-63)   | PN5                | 875              | 785             | 34        | 26    | 820              | 24              | M24       |      | 27        |  |
|  | PN10               | 905              | 800             | 48        | 34    | 840              | 24              | M30       |      | 33        |  |
|  | PN16               | 960              | 820             |           | 50    | 875              | 24              | M39       |      | 42        |  |
|  | PN20               | 995              | 840             |           | 64    | 900              | 24              | M45       |      | 48        |  |
|  | PN30               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |      |           |  |
|  | PN63               |                  |                 |           |       |                  |                 |           |      |           |  |

Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

| Flange Type  |                    | Flange Dimension |                 |           |       | Bolt Information |                 |           |       |           |  |
|--|--------------------|------------------|-----------------|-----------|-------|------------------|-----------------|-----------|-------|-----------|--|
| Standard   | Class Rating Table | Outside Dia.     | Raised Face Dia | Thickness |       | Bolt Circle Dia. | Number of Bolts | Bolt Size |       | Hole Size |  |
|  |                    |                  |                 | Iron      | Steel |                  |                 | Metric    | Inch  |           |  |
| AS 2129:1994<br>(Class Rating Table A to T)  | A                  | 945              | 847             | 32        | 25    | 883              | 20              | M27       |       | 30        |  |
|  | C                  | 995              | 888             | 48        |       | 927              | 20              | M30       |       | 33        |  |
|  | D                  | 995              | 888             | 41        | 41    | 927              | 20              | M30       |       | 33        |  |
|  | E                  | 995              | 885             | 48        | 54    | 927              | 20              | M33       |       | 36        |  |
|  | F                  | 1015             | 898             | 51        | 67    | 940              | 28              | M33       |       | 36        |  |
|  | H                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | J                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | K                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | R                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | S                  |                  |                 |           |       |                  |                 |           |       |           |  |
|  | T                  |                  |                 |           |       |                  |                 |           |       |           |  |
| AS 4087:1993<br>(Class 14,16,21,35)  | 14/16              | 995              | 888             | 48        |       | 927              | 20              | M30       |       | 33        |  |
|  | 21/35              | 1015             | 898             | 51        | 67    | 940              | 28              | M33       |       | 36        |  |
| ASME/ANSI B 16.5:1998<br>(Class 125,250)<br>BS 1560-Section 3.1:1989<br>(Class 125,250))       | 125                | 984.3            |                 | 53.8      |       | 914.4            | 28              |           | 1 1/4 | 35.1      |  |
|  | 250                | 109.2            | 944.6           | 76.2      |       | 997              | 28              |           | 1 3/4 | 50.8      |  |
| ASME ASME/ANSI B 16.5:1998<br>(Class 150-2500)<br>BS 1560-Section 3.1:1989<br>(Class 150-2500) | 150                |                  |                 |           |       |                  |                 |           |       |           |  |
|  | 300                |                  |                 |           |       |                  |                 |           |       |           |  |
|  | 600                |                  |                 |           |       |                  |                 |           |       |           |  |
|  | 900                |                  |                 |           |       |                  |                 |           |       |           |  |
|  | 1500               |                  |                 |           |       |                  |                 |           |       |           |  |
| ISO 7005-1:1992 (PN20-420)   | PN20               | 985              | 857             |           | 74.5  | 914              | 28              | M33       |       | 35.5      |  |
|  | PN50               | 1090             | 857             |           | 92    | 997              | 28              | M45       |       | 48        |  |
|  | PN110              | 1130             | 857             |           | 114   | 1022             | 28              | M52       |       | 55        |  |
|  | PN150              | 1230             | 857             |           | 149   | 1086             | 20              | M76       |       | 80        |  |
|  | PN260              |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN420              |                  |                 |           |       |                  |                 |           |       |           |  |
| DIN 2501-Part 1 (PN6-100)<br>ISO 7005-1:1992 (PN6-40)<br>BS 4504-Section 3.2:1989 (PN6-40)     | PN6                |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN10               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN16               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN25               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN64               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN100              |                  |                 |           |       |                  |                 |           |       |           |  |
| JIS B 2210:1984 (PN5-63)   | PN5                | 945              | 840             | 36        | 28    | 880              | 24              | M30       |       | 33        |  |
|  | PN10               | 970              | 855             | 50        | 36    | 900              | 24              | M30       |       | 33        |  |
|  | PN16               | 1020             | 880             |           | 52    | 935              | 24              | M39       |       | 42        |  |
|  | PN20               | 1080             | 900             |           | 68    | 970              | 24              | M52       |       | 56        |  |
|  | PN30               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN40               |                  |                 |           |       |                  |                 |           |       |           |  |
|  | PN63               |                  |                 |           |       |                  |                 |           |       |           |  |

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**Derwent Industries Pty Ltd**

ACN 096 997 152 ABN 48 096 997 152

**Derwent Pipelines - Derwent Foundry  
Derwent Clamps - Derwent Couplings**

**Melbourne:**

**17 Metcalf Drive**

**Dandenong South, Vic 3175**

**Ph: 61 - 3 - 9792 1509**

**Sydney:**

**2 Ross Place**

**Wetherill Park, NSW 2164**

**Ph: 61 - 2 - 9136 0466**

**Tasmania:**

**102 - 104 Sunderland St**

**Derwent Park, Tas, 7009**

**Ph: 61 - 3 - 6273 0729**

**Wodonga:**

**Ph: 61 - 2 - 6014 0100**

**Email: [sales@derwentindustries.com.au](mailto:sales@derwentindustries.com.au)**

**Web: [www.derwentindustries.com.au](http://www.derwentindustries.com.au)**

