DERWENT INDUSTRIES

Company Overview

Derwent Pipelines® - Derwent Foundry®
Derwent Clamps® - Derwent Couplings®

DERWENT INDUSTRIES PTY LTD

DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

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®TM - 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.

AUSTRALIAN MADE®

TABLE OF CONTENTS

	Page
Overview	
Derwent Industry Segment	2
Who We Are	3
Derwent Foundry	4
Derwent Pipelines	5
Product Summary	6
Product Data Sheets	
Ductile Iron Fittings	9
Flanged Bends Dimensions	10
Flanged Tee Dimensions	11
Flanged Fitting Installation	12
Derwent Product Code Breaker	15
PE Flanged Offtakes	16
PE Weep / Puddle Flanges	16
Thrust Connectors	17
Dertaps (Tapped Connectors)	18
Hydrant Risers (Spool Pieces)	19
Wye Junctions and Crosses	20
Witness Mark Instructions	21
Valves & Hydrants	
Spring Hydrant (Standard and SWAB)	22
UL/FM OS&Y Valves	23
Gear Boxes (Spur & Epicyclic)	24
Valves - Resilient Seated	25
Valve Codes & Data	26
Derwent Clamp & Coupling Information	28
Sewer OB & Flanged Offtake Code Breaker	31
Repair Clamps Code Breaker	32
Variable Couplings Codes & data	33
Stainless Steel Repair Clamps	34
Variable Couplings	35
Stainless Steel Sewer OB's	36
Stainless Steel Flanged Offtakes	37
Technical Information Charts	
See Table of Contents	38

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 (Late 2019)
- Poly Tail (Late 2019)

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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

TABLE OF CONTENTS

Page

Product Data Sheets

Ductile Iron Fittings 9
- Flanged Bends Dimensions 10
- Flanged Tee Dimensions 11
- Flanged Fitting Installation 12
- Derwent Product Code Breaker 15
- PE Flanged Offtakes 16
- PE Weep / Puddle Flanges 16
- Thrust Connectors 17
- Dertaps (Tapped Connectors) 18
- Hydrant Risers (Spool Pieces) 19
- Wye Junctions and Crosses 20
- Witness Mark Instructions 21

Valves & Hydrants
- Spring Hydrant (Standard and SWAB) 22
- UL/FM OS&Y Valves 23
- Gear Boxes (Spur & Epicyclic) 24
- Valves - Resilient Seated 25
- Valve Codes & Data 26

Derwent Clamp & Coupling Information 28
- Sewer OB & Flanged Offtake Code Breaker 31
- Repair Clamps Code Breaker 32
- Variable Couplings Codes & data 33
- Stainless Steel Repair Clamps 34
- Variable Couplings 35
- Stainless Steel Sewer OB's 36
- Stainless Steel Flanged Offtakes 37

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.

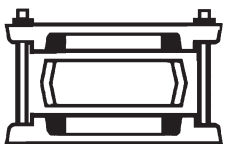
Material Specifications:

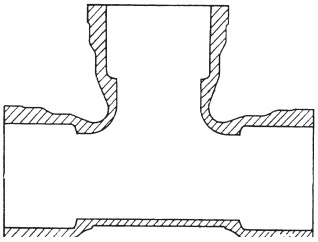
Size Range:	DN 80 - DN 750 (Larger by Request)
Coating:	Rilsan / Nylon 11, Plascoat, Fusion Bonded Epoxy (FBE)
Material:	Ductile Iron
Standard:	AS/NZS 2280 (where applicable)
Product License No.:	SMK1989 (where applicable)
Pressure Rating:	PN16, PN20, PN35, PN16 / 20 Light weight

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:

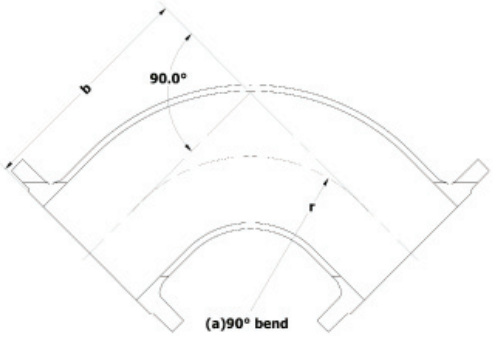
- Bends
- Gibaults
- Hydrants
- Bellmouth
- Washout Bends
- Tapers
- Risers
- Wye Junctions
- Connectors
- Tees
- Crosses
- Flanges
- Adaptors
- Scour Tees
- Caps & Plugs
- Collars



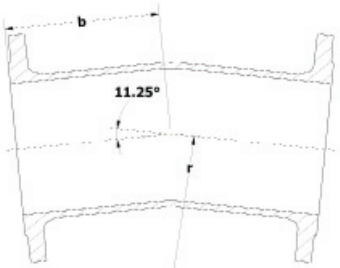


Flanged Bend Dimensions: As per AS/NZS 2280

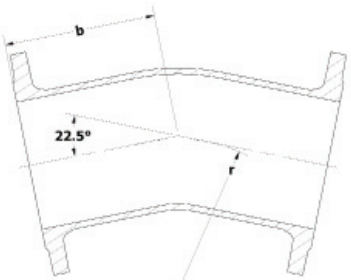
DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'



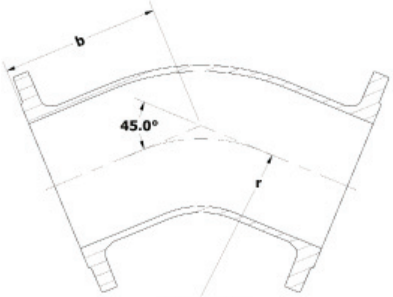
(a)90° bend



(d)11 ¼° bend



(c)22 ½° bend



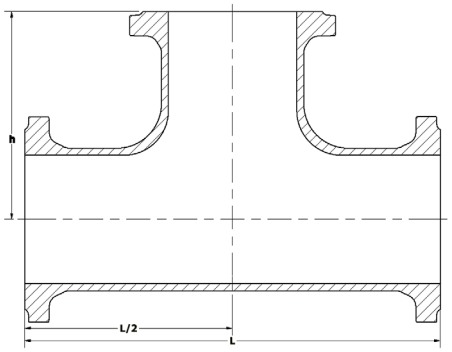
(b)45° bend

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

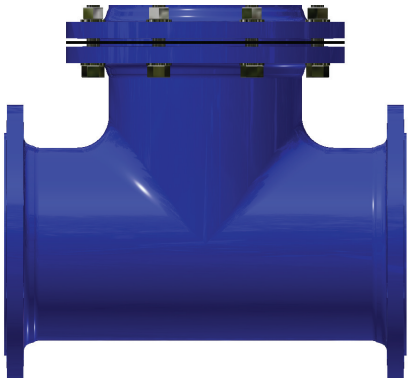
E&OE

Flanged Tees Dimensions: As per AS/NZS 2280



Derwent Code For PN 16	Nominal Size		PN 35 Wall Thickness mm	PN 35 Throat Thickness mm	h	L
	DN	dn			mm	mm
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

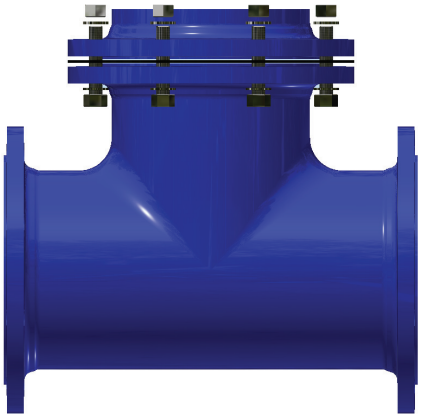


Flanged Fitting Correct Assembly

- 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 disuphide (Molybond).

Initial Step

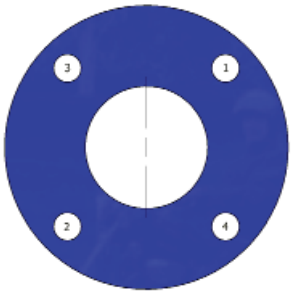
- Ensure Face of Flange is free of contaminants
- Place Approved Gasket onto the Flange
- Gasket should be aligned evenly with all holes
- If gasket does not align, check you have correct Table / Drilling configuration.



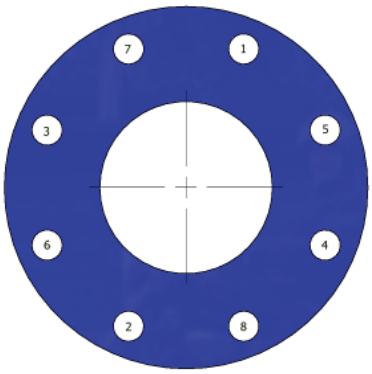
Step 2

- 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.

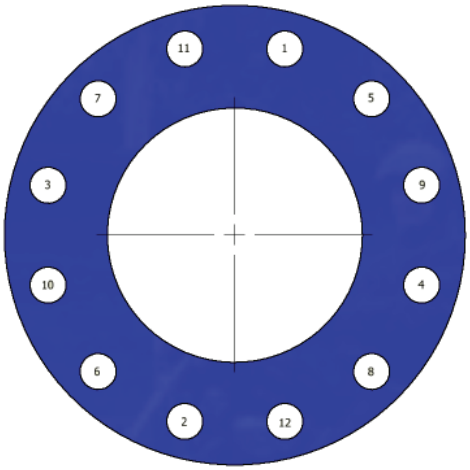
After bolts, nuts and washers are correctly inserted, refer to the following tensioning tables to correctly complete the joining of the two flanges. Tightening Sequence as follows:



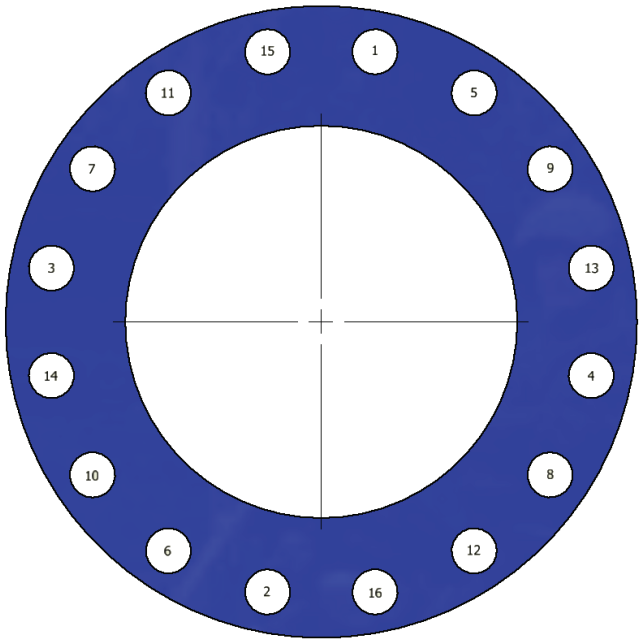
4 BOLT



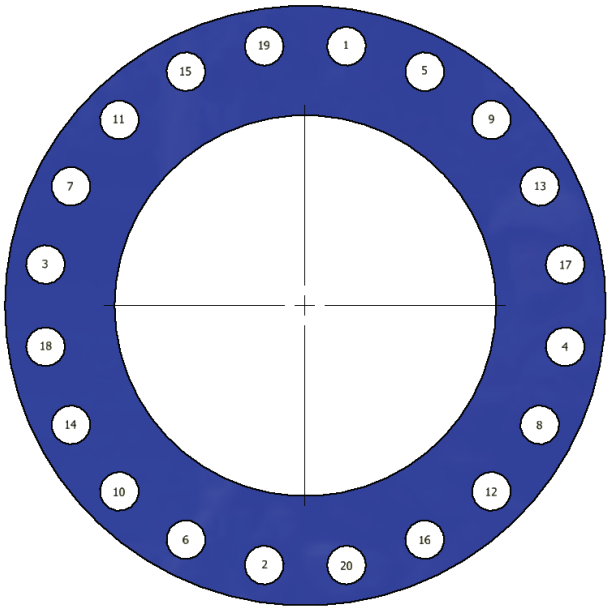
8 BOLT



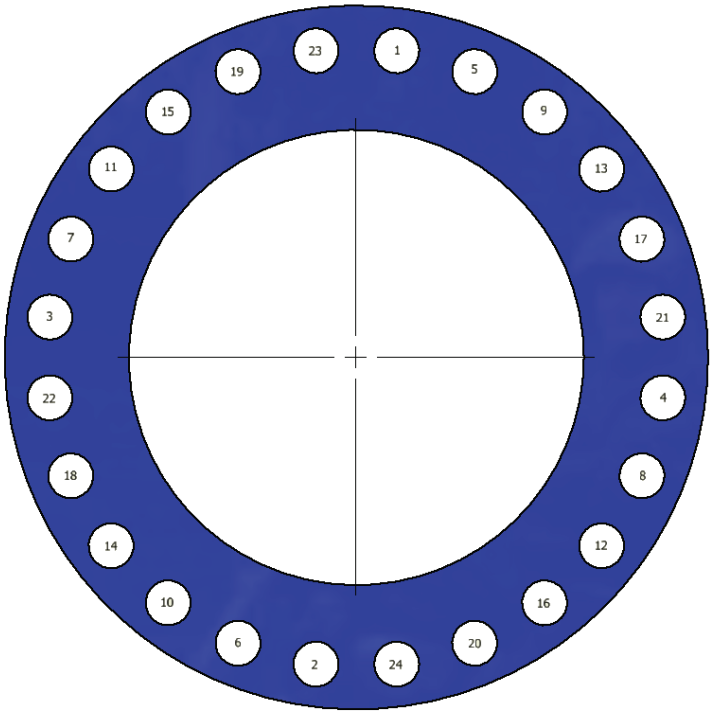
12 BOLT



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 molybdenenum 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 (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 FSO100915TC = 100 X 915 FL/SOC THRUST
FLANGE / FLANGE	= FF.....TC	EG:	FF100600TC = 100X600 FLANGED THRUST FF1001000TC = 100X1000 FLANGED THRUST

DERTAP CONNECTORS:

SOCKET / SOCKET	= DERTAP	EG:	DERTAP10020 = 100 X 20 DUAL TAP 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 WSAA 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.

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

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 tappings 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 DN	Available Length L 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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

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:

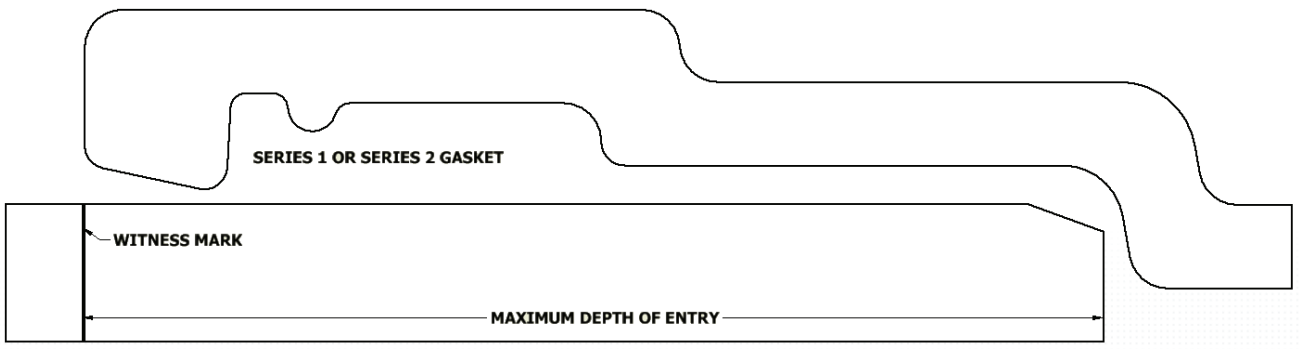
1. With an accurate ruler or tape measure (preferably rigid)
Insert ruler/Tape, till it hits the back of the socket.

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&YGate 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.

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

Gear Boxes - Spur and Epicyclic Gear

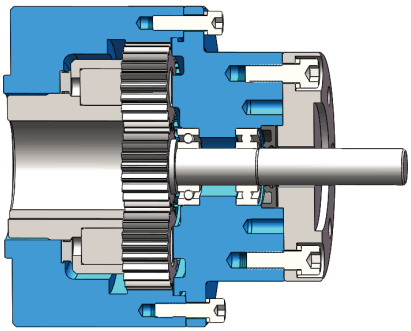
Derwent International Gear Boxes, made in conjunction with AFC. Connection to ISO5210 and manufactured to ISO9001:2008. The Gear Boxes are rated IP67 and reduce the required torque by approximately 75%.

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:

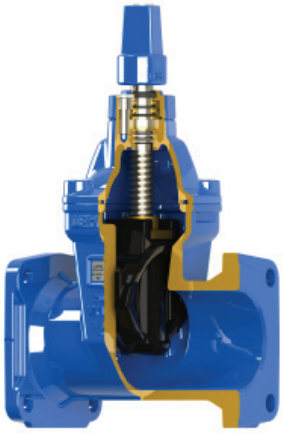
For drawings detailing the gear box and valve, please do not hesitate to contact us.

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.

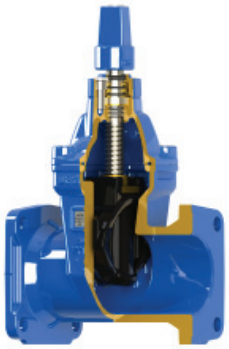
Technical Information:

Size range:	DN 80-DN 600 (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 (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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

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)

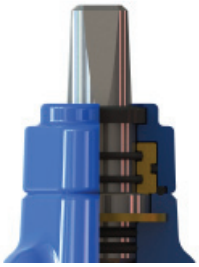


Size	Code ACC	Code CC	Description - Socket
80	VSOSO80ACC	VSOSO80CC	80MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC)
100	VSOSO100ACC	VSOSO100CC	100MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC)
150	VSOSO150ACC	VSOSO150CC	150MM SOC/SOC GATE VALVE (DIRECTION ACC OR CC)
200	VSOSO200ACC	VSOSO200CC	200MM SOC/SOC 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)

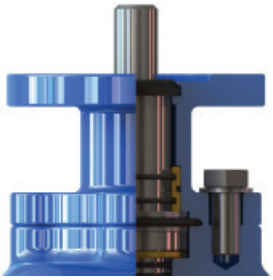
Size	Code ACC	Code CC	Description - Flange / Socket
100	VFSO100ACC	VFS0100CC	100MM FL/SOC GATE VALVE (DIRECTION ACC OR CC)
150	VFSO150ACC	VFSO150CC	150MM FL/SOC GATE VALVE (DIRECTION ACC OR CC)

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

AUSTRALIAN MADE

DERWENT INDUSTRIES - KAWANDAH®TM

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 tappings on existing mains, again reducing downtime by avoiding shutdown of the main due to cut in and again potential contamination.

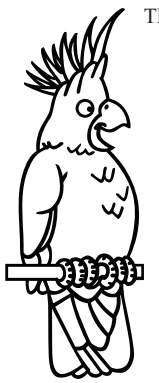
6. Derwent Clamps and Couplings are Australian made, manufactured in our plant located in NE Victoria.

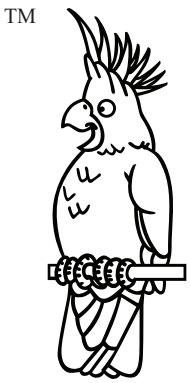
7. All Clamps are manufactured from 316 Stainless Steel as per the Australian Standard. The stud threads and nut are also protected with stud protectors.

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 pro cedures, 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.

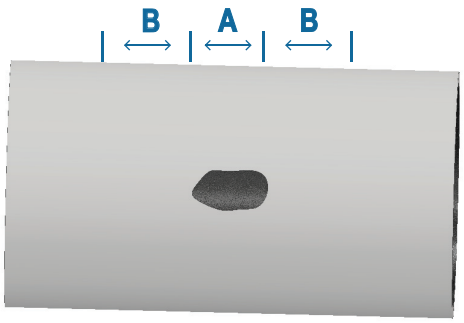
7. Re-tension after 15 minutes minimum to counter gasket rubber relaxation.

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 = 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

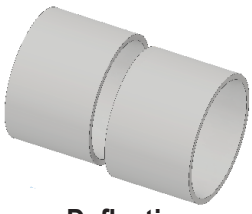
Note: It is recommended that the Clamp Length selected should not be less than the Nominal Pipe Diameter when installed on pipe diameter sizes upto 400mm.

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

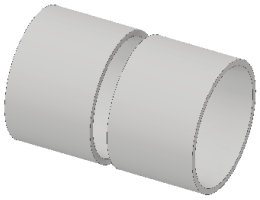
AUSTRALIAN MADE

PIPE DAMAGE

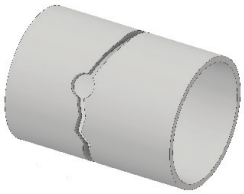
Types of pipe damage that maybe encountered that a clamp can solve.
(Note: Any repairs undertaken, must be in accordance with Water Authority guidelines)



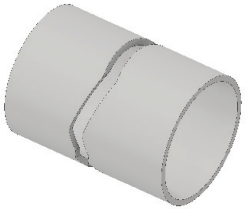
Deflection



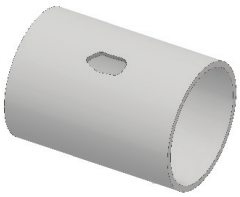
Plain End



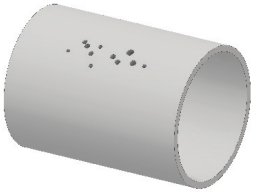
Full Break at Service



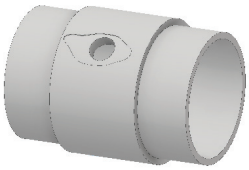
Full Break



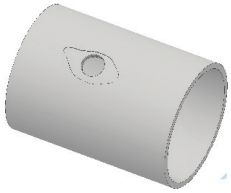
Hole



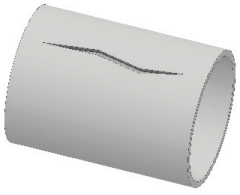
Pin Holes



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):

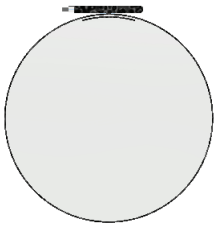
1. Clamps NB 80 - 600mm
   - 1.6 Mpa, PN 16

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

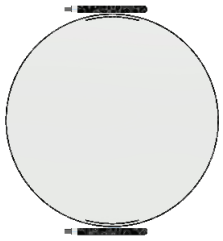
CORRECT CLAMP STYLE & SIZE

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)

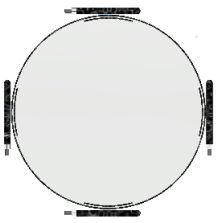


Single Part Clamps



Double 2 Part Clamps

Multi 3 Part Clamps



Multi 4 Part Clamps

AUSTRALIAN MADE

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
KCF-210F-410100AS16	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
KCS-206D-16011045	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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

AUSTRALIAN MADE

TM

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:

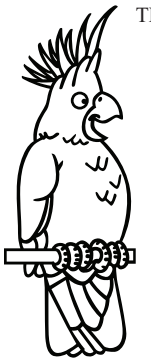
EXAMPLE 1. – REPAIR CLAMP

Clamp Code	Descriptor		Definition
KCR-102B-120	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
Joiner / Coupling	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
KJC-FCS-0109	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
SLEEVE	A	=	110L 316 SS
	B	=	135L 316 SS
	C	=	175L 316 SS
	D	=	215L 316 SS
	E	=	Reserved
	F	=	FBE DI
Bolt Material	G	=	Gal Bolt / Nut / Washers
	S	=	316SS Bolt / Nut / Washers

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

AUSTRALIAN MADE

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 (Larger sizea are available as specials)
Temperature Range:	-10°C to 60°C
Max. Operating Pressure:	1600 kPa (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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

AUSTRALIAN MADE

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 WSAA 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:

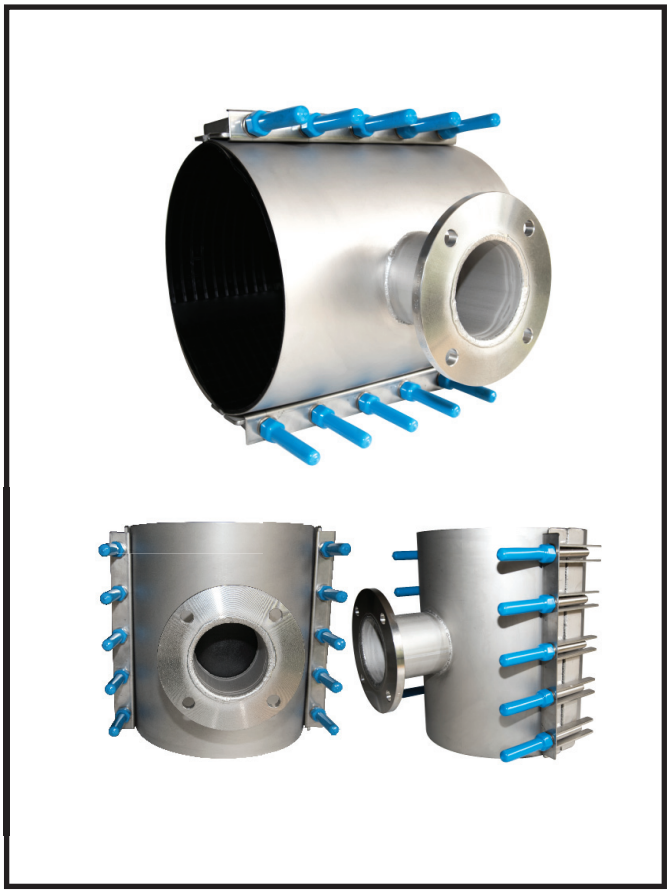
Size Range:	DN100 – DN 450
Offtake Sizes:	DN 100 / 150 / 225
	(Offtake size is dependent on host pipe)
Temperature Range:	-10°C to 60°C
Max. Operating Pressure:	100 kPa
Quality Assurance:	ISO9001:2015
Certificate Number:	QEC2004

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, interupting 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

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

TABLE OF CONTENTS

Page

Pipe Sizing Charts	39
Heavy & Medium Pipe to Australian Standards	40
Heavy & Medium Pipe to Australian Standards (Mass & Bundling Data)	41
Flange Dimension Table - AS2129 & AS4087 (AS Standard, AS High Pressure, Table E)	42
Flange Dimension Table (ISO 7005 PN16, ANSI B16.1 125 lb)	43
Steel Pipes to American Standard ANSI B36.10	44
Flange Dimension Table - Ductile Iron (AS4087 Table C, E & F + Bolt Sizing)	45
Bolt & Stud Dimensions for American Standard Flanges	46
Bolt & Stud Dimensions for American Standard Flanges - Temperature / Pressure ratings	47
Conversion Factors	48
Mass Conversion Chart	50
Temperature Conversion Chart	51
Flange Tables DN 50 - DN 750	52

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.

E&OE

Pressure Pipe

Nominal Diameter

Name	Material	Designation	Standard	50	65	80	100	125	150	175	200	225	250	300	350	375	400	450	500	525	600	675	750	900	1000	1100	1200
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	.	826	.	.	.	.
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	.	.	.	.	.	.
CICL	CICL	Class C	AS1544	.	.	96	122	149	177	203	232	259	286	345	.	426	.	507	560	.	667	.	.	.	.	.	.
AC	AC	Class AB	AS1711	.	.	96	122	.	177	.	232	259	286	334	.	413	.	492	.	572	650	.	.	.	.	.	.
AC	AC	Class CD	AS1711	.	.	96	122	.	177	.	232	259	286	345	.	426	.	507	.	587	667	747	826	.	.	.	.
uPVC	uPVC	CIOD (Blue)	AS1477	.	.	.	122	.	177	.	232	259	286	345	.	426	.	507	.	560	667						
uPVC	uPVC	Metric White	AS1477	60	75	89	114	140	160	200	225	250	280	315	355	400	450	500	560	.	630	.	.	.	.	.	.
STEEL	Steel	MSCL	AS1579	.	.	.	114	.	168	.	219	.	273	324	356	.	406	457	508	.	610	.	762	914 960	1016 1050 1067	.	1200 1283 1290
STEEL	Galv.	GWI	AS1074	60	76	89	114	140	165	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PE	PE	To Actual OD	AS4130	50	63	75 90	110	125	140 160	180	200	225	250	280 315	355		400	450	500	560	630		730 800	900	1000		1200
RC	RC	Class 2-12	AS4058	.	.	.	.	.	197	.	.	279	.	362	.	445	.	533	.	616	699	787	870	946	1029	1105 1194	1270 1354
CU	CU		AS3688	51	64	76	102	127	152	.	203	229	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Note: These charts should only be used as a guide. Figures are rounded to the closest decimal place - Use actaul 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.

Non-Pressure Pipe

Nominal Diameter

Pipe Material		Designation	Standard	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	485	535	.	635	710	.	.
FRC	FRC	Class X		.	.	.	124	.	179	.	.	261	.	345	.	426	.	510	.	594	679	.	.
AC	AC	Class 35	AS1712	.	.	.	120	.	177	.	230	257	283	336	.	419	.	497	.	576	657	.	.
AC	AC	Class 50	AS1712	.	.	.	122	.	183	.	236	262	289	344	.	425	.	505	.	585	664	.	.
CI	Cast Iron	Soil	AS1631	.	.	85	114	140	165	.	.	244	.	323	.	.	.	.	.	.	.	.	.
uPVC	uPVC	SWV	AS1260	59	69	83	110	.	160	.	.	.	.	.	.	.	.	.	.	.	.	.	.
uPVC	uPVC	Sewer	AS1260	.	.	.	110	.	160	.	.	250	.	316	.	401	.	.	.	.	.	.	.
Black Brute		Internal Diameter	DN16961	.	.	.	.	.	.	.	.	.	.	.	.	365	.	440	.	.	590	.	740

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.

E&OE

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES® DERWENT FOUNDRY®
DERWENT CLAMPS® DERWENT COUPLINGS®

Heavy & Medium Pipe to Australian Standards

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

DIMENSIONS				BUNDLING			MASS					
Designation			Nominal Size	Bundle Dimensions		Lengths per Bundle	Metres per Bundle	Nominal Mass				Mass Per Bundle
								kg/m		m/tonne		tonnes
do	t		DN	mm								
mm	mm		mm	W	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

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.

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).

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.

E&OE

WORKING PRESSURES - THREADED JOINTS TAPER/PARALLEL THREAD

TYPE OF SERVICE											
Nominal Size	Water & Inert Oil		LPG	Fuel Oil				Other Applications (including Steam & Compressed Air)			
DN	Med	Heavy	Med & Heavy	Medium		Heavy		Medium Press.	Temp.	Heavy Press.	Temp.
				Press.	Temp.	Press.	Temp				
(mm)	kPa	kPa	kPa	kPa	ºC	kPa	ºC	kPa	ºC	kPa	ºC
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 Tolerence	Australian
Dimension Tolerence	Standards
Standard Length	6.5m
Length Tolerance	+ 25mm /- 0mm

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.

E&OE

FLANGE DIMENSIONS	NOMINAL SIZE	50	65	80	100	125	150	175	200	225	250	300	350	375	400	450	500	525	600	700	750
AS Standard Pressure — AS 4087 & AS 2129 Drilling Compatible with Table C & D — AS Standard Pressure	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	30	30	33
	Bolt Diameter	16	16	16	16	16	16		16	16	20	20	24	24	24	24	24	24	27	27	30
Flange Thickness																					
Class 16	Ductile Iron			18	20		23		23	24	24	30		33		33	35		42		47
Class 14	Cast Iron			19	22	22	22		25	25	25	29	32	32	32	35	38	38	41	44	48
Class 14	Steel	11	11	11	11	13	15		19	19	19	23	30	30	30	30	38	41		48	
AS High Pressure — AS 4087 & AS 2129 Drilling Compatible with Table F & H — AS High Pressure	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	30	30	30	33		33
Flange Thickness																					
Class 35	Ductile Iron			22	22		27		31	34	34	38		42		46	49		54		59
Class 21	Cast Iron			19	22		25		29	29	32	32	35	35	35	38	41	41	44		51
Class 35	Cast Iron			29	32		35		41	41	44	44	48	51	51	54	57	60	64		
Class 21	Steel	15	15	15	19		24		24	30	30	30	30	38	38	38	48	51	58		58
Class 35	Steel	19	19	24	24		31		31	38	38	38	48	48	48	58	58	70	68		
Table E — AS 2129 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	16	16	16	16	20	20
	Dia. of Holes	18	18	18	18	18	22		22	22	22	26	26	26	26	26	26	30	33	33	36
	Bolt Diameter	16	16	16	16	16	20		20	20	20	24	24	24	24	24	24	27	30	30	33
Flange Thickness																					
Class 14	Cast Iron	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.

E&OE

FLANGE DIMENSIONS	NOMINAL SIZE	50	65	80	100	125	150	175	200	225	250	300	350	375	400	450	500	525	600	700	750
ISO 7005 PN 16	Outside Dia.	165	185	200	220	250	285	315	340		405	460	520		580	640	715		840	910	
ISO 7005 PN 16 Drilling Compatible with BS 4504 PN16 & DIN 2533 PN 16	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	
	Flange Thickness																				
	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	

FLANGE DIMENSIONS	NOMINAL SIZE	50	65	80	100	125	150	175	200	225	250	300	350	375	400	450	500	525	600	700	750
ANSI B16.1 125 lb	Outside Dia.	152	178	191	229	255	280		343		405	483	533		597	635	699		813		984
ANSI B16.1 125 lb Drilling Compatible with ANSI B16.1 150 lb	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	
	Flange Thickness																				
	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.

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

Steel Pipes to American Standard ANSI B36.10

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

Nominal Size		Outside Diam	NOMINAL WALL THICKNESS FOR WELDED AND SEAMLESS STEEL PIPE ANSI B36.10 All dimensions are shown in millimetres												
DN	NPS	mm	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

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

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.

E&OE

Standard Pressure Flange (AS 4087) - Table C or E driling - maximum working pressure 1.6 Mpa.								
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

High Pressure Flange (AS 4087) - Table F drilling - maximum working pressure 3.5 Mpa.					
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

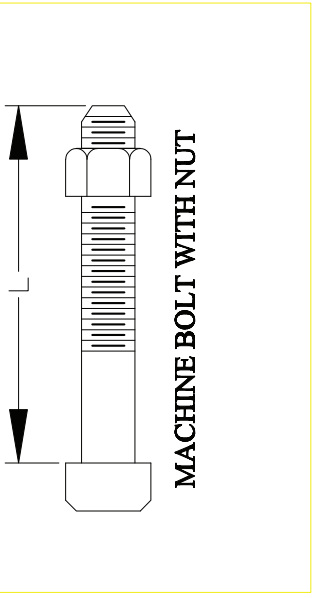
Note: The tables may contain rounding or conversion variations, the table is only a guide and no guarantee is provided as to the accuracy of the data provided. Please directly refer to the standard to confirm any information provided.

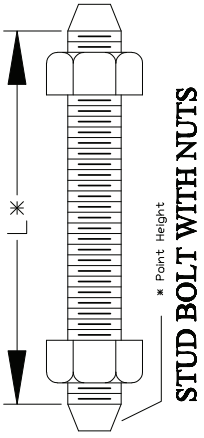
DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES' DERWENT FOUNDRY'
DERWENT CLAMPS' DERWENT COUPLINGS'

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	
				L			L				L			L			L			L			
mm.	ins	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	½	4	½	60	45	4	½	65	55	4	½	80	Use Class 1500 dimensions in these sizes			4	¾	105	4	¾	125	15	½
20	¾	4	½	65	50	4	⅝	75	60	4	⅝	90				4	¾	115	4	¾	125	20	¾
25	1	4	½	65	55	4	⅝	80	65	4	⅝	90				4	⅞	125	4	⅞	140	25	1
32	1¼	4	½	70	55	4	⅝	80	65	4	⅝	100				4	⅞	125	4	1	150	32	1¼
40	1½	4	½	70	60	4	⅝	90	75	4	⅝	105				4	1	140	4	1⅛	170	40	1½
50	2	4	⅝	80	65	8	⅝	90	75	8	¾	105				8	⅞	145	8	1	175	50	2
65	2½	4	⅝	90	75	8	¾	100	85	8	¾	120				8	1	160	8	1⅛	195	65	2½
80	3	4	⅝	90	75	8	¾	110	90	8	¾	125	8	⅞	145	8	1⅛	180	8	1¼	220	80	3
90	3½	8	⅝	90	75	8	¾	110	95	8	⅞	140										90	3½
100	4	8	⅝	90	75	8	¾	110	95	8	⅞	145	8	1⅛	170	8	1¼	195	8	1½	255	100	4
125	5	8	¾	90	80	8	¾	120	100	8	1	165	8	1¼	190	8	1½	250	8	1¾	300	125	5
150	6	8	¾	100	85	12	¾	125	105	12	1	170	12	1⅛	195	12	1⅜	260	8	2	345	150	6
200	8	8	¾	110	90	12	⅞	140	110	12	1⅛	195	12	1⅜	220	12	1⅝	290	12	2	380	200	8
250	10	12	⅞	115	95	16	1	155	130	16	1¼	215	16	1⅜	235	12	1⅞	335	12	2½	485	250	10
300	12	12	⅞	120	100	16	1⅛	170	145	20	1¼	220	20	1⅜	255	16	2	375	12	2¾	540	300	12
350	14	12	1	130	110	20	1⅛	175	150	20	1⅜	235	20	1½	275	16	2¼	405				350	14
400	16	16	1	135	115	20	1¼	190	160	20	1½	255	20	1⅝	285	16	2½	445				400	16
450	18	16	1⅛	150	125	24	1¼	195	170	20	1⅝	275	20	1⅞	325	16	2¾	495				450	18
500	20	20	1⅛	160	135	24	1¼	205	180	24	1⅝	290	20	2	345	16	3	540				500	20
600	24	20	1¼	175	145	24	1½	230	195	24	1⅞	330	20	2½	435	16	3½	615				600	24
750	30	28	1¼	190	160	28	1¾	290	250	28	2	355	CLASS 900, 1500 & 2500 - Not listed in BS. 3293									750	30
900	36	32	1½	215	180	32	2	325	280	28	2½	400										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).

Diameter of Bolts - is shown in inches. For nominal diameters 1 inch and smaller, threads are U.N.C., nominal diameters 1-1/8 inch and larger threads are 8 U.N. (8 T.P.I.)

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.

E&OE

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 °C	MAXIMUM WORKING PRESSURE IN kPa BY CLASSES (For the approximate P.S.I. divide by 7)					
	PN 20 150	PN 50 300	PN 100 600	PN 150 900	PN 250 1500	PN 420 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
½	M14
⅝	M18
¾	M20
⅞	M24
1"	M27
1⅛	M30
1¼	M33
1⅜	M36
1½	M39
1⅝	M42
1¾	M45
1⅞	M48
2"	M52
2¼	M56
2½	M64
2¾	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 cm²	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 N	Kg Force kgf	Pound Force lbf	Poundal 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 Nm	Kilogramme Force Metre kgf m	Pound Force Foot lbf ft	Pound Force Inch 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.

E&OE

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	100ºC, or 212ºF
Water Freezes at	0ºC, or 32ºF

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 Eqivalents

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.

E&OE

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 70lbs = 31.75kg

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	341.71	155	70.31	1058	480	217.73	1775	805	365.15
48.50	22	9.98	191.80	87	39.46	352.74	160	72.58	1069	485	220.00	1786	810	367.42
50.71	23	10.43	194.00	88	39.92	363.76	165	74.84	1080	490	222.26	1797	815	369.68
52.91	24	10.89	196.21	89	40.37	374.78	170	77.11	1091	495	224.53	1808	820	371.95
55.12	25	11.34	198.41	90	40.82	385.80	175	79.38	1102	500	226.80	1819	825	374.22
57.32	26	11.79	200.62	91	41.28	396.83	180	81.65	1113	505	229.07	1830	830	376.49
59.52	27	12.25	202.82	92	41.73	407.85	185	83.92	1124	510	231.34	1841	835	378.76
61.73	28	12.70	205.03	93	42.18	418.87	190	86.18	1135	515	233.60	1852	840	381.02
63.93	29	13.15	207.23	94	42.64	429.90	195	88.45	1146	520	235.87	1863	845	383.29
66.14	30	13.61	209.44	95	43.09	440.92	200	90.72	1157	525	238.14	1874	850	385.56
68.34	31	14.06	211.64	96	43.55	451.94	205	92.99	1168	530	240.41	1885	855	387.83
70.55	32	14.52	213.85	97	44.00	462.97	210	95.26	1179	535	242.68	1896	860	390.10
72.75	33	14.97	216.05	98	44.45	473.99	215	97.52	1190	540	244.94	1907	865	392.36
74.96	34	15.42	218.26	99	44.91	485.01	220	99.79	1202	545	247.21	1918	870	394.63
77.16	35	15.88	220.46	100	45.36	496.04	225	102.06	1213	550	249.48	1929	875	396.90
79.37	36	16.33	222.67	101	45.81	507.06	230	104.33	1224	555	251.75	1940	880	399.17
81.57	37	16.78	224.87	102	46.28	518.08	235	106.60	1235	560	254.02	1951	885	401.44
83.77	38	17.24	227.07	103	46.72	529.10	240	108.86	1246	565	256.28	1962	890	403.70
85.98	39	17.69	229.28	104	47.17	540.13	245	111.13	1257	570	258.55	1973	895	405.97
88.18	40	18.14	231.48	105	47.63	551.15	250	113.40	1268	575	260.82	1984	900	408.24
90.39	41	18.60	233.69	106	48.08	562.17	255	115.67	1279	580	263.09	1995	905	410.51
92.59	42	19.05	235.89	107	48.54	573.2	260	117.94	1290	585	265.36	2006	910	412.78
94.80	43	19.5	238.10	108	48.99	584.22	265	120.20	1301	590	267.62	2017	915	415.04
97.00	44	19.96	240.30	109	49.44	595.24	270	122.47	1312	595	269.89	2028	920	417.31
99.21	45	20.41	242.51	110	49.90	606.27	275	124.74	1323	600	272.16	2039	925	419.58
101.41	46	20.87	244.71	111	50.35	617.30	280	127.01	1334	605	274.43	2050	930	421.85
103.62	47	21.32	246.92	112	50.80	628.31	285	129.28	1345	610	276.70	2061	935	424.12
105.82	48	21.77	249.12	113	51.26	639.33	290	131.54	1356	615	278.96	2072	940	426.38
108.03	49	22.23	251.32	114	51.71	650.36	295	133.81	1367	620	281.23	2083	945	428.65
110.23	50	22.68	253.53	115	52.16	661.38	300	136.08	1378	625	283.50	2094	950	430.92
112.43	51	23.13	255.73	116	52.62	672.4	305	138.35	1389	630	285.77	2105	955	433.19
114.64	52	23.59	257.94	117	53.07	683.43	310	140.62	1400	635	288.04	2116	960	435.46
116.84	53	24.04	260.14	118	53.53	694.45	315	142.88	1411	640	290.30	2127	965	437.72
119.05	54	24.49	262.35	119	53.98	705.47	320	145.15	1422	645	292.57	2138	970	439.99
121.25	55	24.95	264.55	120	54.43	716.50	325	147.42	1433	650	294.84	2149	975	442.26
123.46	56	25.40	266.76	121	54.89	727.52	330	149.69	1444	655	297.11	2161	980	444.53
125.66	57	25.86	268.96	122	55.34	738.54	335	151.96	1455	660	299.38	2172	985	446.8
127.87	58	26.31	271.17	123	55.79	749.56	340	154.22	1466	665	301.64	2183	990	449.06
130.07	59	26.76	273.37	124	56.25	760.59	345	156.49	1477	670	303.91	2194	995	451.33
132.28	60	27.22	275.58	125	56.70	771.61	350	158.76	1488	675	306.18	2205	1000	453.60
134.48	61	27.67	277.78	126	57.15	782.62	355	161.03	1499	680	308.45	2425	1100	498.96
136.69	62	28.12	279.98	127	57.61	793.66	360	163.30	1510	685	310.72	2646	1200	544.32
138.89	63	28.58	282.19	128	58.06	804.68	365	165.56	1521	690	312.98	2866	1300	589.68
141.09	64	29.03	284.39	129	58.51	815.70	370	167.83	1532	695	315.25	3086	1400	635.04
143.3	65	29.48	286.60	130	58.97	826.73	375	170.10	1543	700	317.52	3307	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

$$(\text{ºC} \times \frac{9}{5}) + 32 = \text{ºF}$$

Degrees - Fahrenheit to Celsius

$$(\text{ºF} - 32) \times \frac{5}{9} = \text{ºC}$$

(A) To Use: Locate "Given Temperature" in the "Given Temperature" Column whether ºC or ºF.
(B) If "given temperature" is in degrees Celsius (ºC) read **degrees Fahrenheit (ºF)** in right hand column.
(C) If "given temperature" is in degrees Fahrenheit (ºF) read **degrees Celsius (ºC)** in left hand column.
(D) Example: a. Given temperature is **35ºC= 95ºF** from right hand column
b. Given temperature is **35ºF = 1.7ºC** from left hand column

- 320 to 27			28 to 77			78 to 235			240 to 485			490 to 2400		
ºC	Given Temp.	ºF	ºC	Given Temp	ºF	ºC	Given Temp.	ºF	ºC	Given Temp	ºF	ºC	Given Temp	ºF
-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	454	850	1562
-9.4	15	59.0	18.3	65	149.0	79	175	347	218	425	797	468	875	1607
-8.9	16	60.8	18.9	66	150.8	82	180	356	221	430	806	482	900	1652
-8.3	17	62.6	19.4	67	152.6	85	185	365	224	435	815	510	950	1742
-7.8	18	64.4	20.0	68	154.4	88	190	374	227	440	824	538	1000	1832
-7.2	19	66.2	20.6	69	156.2	91	195	383	229	445	833	566	1050	1922
-6.7	20	68.0	21.1	70	158.0	93	200	392	232	450	842	593	1100	2012
-6.1	21	69.8	21.7	71	159.8	96	205	401	235	455	851	621	1150	2102
-5.6	22	71.6	22.2	72	161.6	99	210	410	238	460	860	649	1200	2192
-5.0	23	73.4	22.8	73	163.4	102	215	419	241	465	869	704	1300	2372
-4.4	24	75.2	23.3	74	165.2	104	220	428	243	470	878	760	1400	2552
-3.9	25	77.0	23.9	75	167.0	107	225	437	246	475	887	816	1500	2732
-3.3	26	78.8	24.4	76	168.8	110	230	446	249	480	896	1093	2000	3632
-2.8	27	80.6	25.0	77	170.6	113	235	455	252	485	905	1316	2400	4352

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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		3232	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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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				
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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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		11/4	35.1
	1500	374.7	185.7		73.2	292.1	8		11/2	41.1
	2500	419.1	185.7		91.9	323.9	8		13/4	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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (Class Rating Table A to T)	A									
	C									
	D									
	E									
	F									
	H									
	J									
	K									
	R									
	S									
	T									
AS 4087:1993 (Class 14,16,21,35)	14/16									
	21/35									
ASME/ANSI B 16.5:1998 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) BS 4504-Section 3.2:1989 (PN6-40)	PN6									
	PN10									
	PN16									
	PN25									
	PN40									
	PN64									
	PN100									
JIS B 2210:1984 (PN5-63)	PN5	300	232	22	18	260	8	M20		23
	PN10	305	237	26	22	265	12	M20		23
	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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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		11/8	31.8
	900	469.9	269.7		63.5	393.7	12		13/8	38.1
	1500	482.6	269.7		91.9	393.7	12		15/8	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) ISO 7005-1:1992 (PN6-40) 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 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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		11/4	35.1
	900	546.1	323.9		69.9	469.9	16		13/8	38.1
	1500	584.2	323.9		108	482.6	12		17/8	50.8
	2500	673.1	323.9		165.1	539.8	12		21/2	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) ISO 7005-1:1992 (PN6-40) 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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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		11/8	31.8
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (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		11/8	31.8
	600	558.8	381		66.5	489	20		11/4	35.1
	900	609.6	381		79.2	533.4	20		13/8	38.1
	1500	673.1	381		124	571.5	16		2	53.8
	2500	762	381		184.2	619.3	12		23/4	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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250)	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125	596.9	470	36.6		539.8	16		1	28.4
	250	647.7	535	57.2		571.5	20		11/4	35.1
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (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		11/4	35.1
	600	685.8	469.9		76.2	603.3	20		11/2	41.1
	900	704.9	469.9		88.9	616	20		15/8	44.5
	1500	825.5	469.9		146.1	704.9	16		21/2	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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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 (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 (Class 14,16,21,35)	14/16									
	21/35									
ASME/ANSI B 16.5:1998 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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) ISO 7005-1:1992 (PN6-40) 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 (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		3639
	J	850	699		92	781	24	M36		
	K									
	R									
	S									
	T									
AS 4087:1993 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (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) ISO 7005-1:1992 (PN6-40) 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 (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 (Class 14,16,21,35)	14/16									
	21/35									
ASME/ANSI B 16.5:1998 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

DERWENT INDUSTRIES PTY LTD
DERWENT PIPELINES DERWENT FOUNDRY
DERWENT CLAMPS DERWENT COUPLINGS

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (Class 125,250))	125									
	250									
ASME ASME/ANSI B 16.5:1998 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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) ISO 7005-1:1992 (PN6-40) 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.

E&OE

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 (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 (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 (Class 125,250) BS 1560-Section 3.1:1989 (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 (Class 150-2500) BS 1560-Section 3.1:1989 (Class 150-2500)	150									
	300									
	600									
	900									
	1500									
	2500									
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) ISO 7005-1:1992 (PN6-40) 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									

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 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

Web: www.derwentindustries.com.au

Derwent0319