

RETICULATION





CONTENTS

Introduction	2	Flanges to American standards	31
General Purpose Pipe	3	Dressing Sets	34
Fire Protection Pipe	5	Sealant and Flange Gaskets	35
Pipe Wall Thickness and Weights	6	Roll Groove Systems	36
Linepipe	7	Grooved Fittings	38
Shouldered Pipe	10	High Pressure Fittings	41
Boiler Tube	11	Mechanical Joints	44
Steel Fittings	12	Klamflex Dismantling Joints	44
Malleable Fittings	16	Shouldered Fittings	45
Riken Compression Couplings	18	Quick Clamps	46
Buttweld Fittings	19	Teekay – Pipe Couplings	49
Flanges	22	High Density Polyethylene Pipe (HDPE)	50
Pressure Stress Conversion Chart	27	Aquatherm	51
Studbolts	29		

INTRODUCTION

Steel & Tube is pleased to provide this *Reticulation Catalogue* for your use. We aim to carry all popular products and sizes on a continuous basis. We compliment this with an indent service providing specialist product from anywhere in the world.

We are constantly reviewing our range to ensure it is aligned with current requirements in all our main market sectors.

We also carry many products not featured in this publication. Please contact Steel & Tube for more information on our comprehensive range of product, or visit our website: www.steelandtube.co.nz

TELARC LIMITED/ISO 9001

Steel & Tube is committed to providing our customers with consistent and reliable service that meets their needs and promotes excellence in systems and a continuous improvement in quality. To demonstrate this commitment Steel & Tube is a Telarc registered supplier, certified to ISO 9001.

Telarc Limited (www.telarc.co.nz) is a national technical authority responsible for quality system certification through independent assessment, audit and testing of quality control procedures.

In practical terms, Telarc's role is to formally recognise all aspects of:

- quality in processing, distribution and service
- compliance with product or system specifications or standards
- technical competence of testing or inspecting
- quality of service performance and delivery

This role is to be carried out in a manner sufficient to provide consumers with confidence in the quality of products and services.



Quality
ISO 9001

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GENERAL PURPOSE PIPE

Pipe for general mechanical and low pressure reticulation applications.

APPLICATIONS

Reticulation
Agricultural
General Engineering
Mechanical Handling
Fencing
Frames
Stock Crates
Railings

SPECIFICATIONS

AS 1074
AS / NZS 1163 C250
AS / NZS 1163 C350
BS 1387

STANDARD LENGTHS

6.5 metres

SURFACE FINISHES

Black (Self Colour)
Painted (Red Primed)
Hot Dipped Galvanised

END FINISHES

Plain End
Screwed Ends
Screwed and Socketed Ends
Swaged

MECHANICAL PROPERTIES

	AS 1074 & AS/NZS 1163 C250	AS 1074 & AS/NZS 1163 C350
MIN. YIELD STRENGTH	250 Mpa	350 Mpa
MIN. TENSILE STRENGTH	320 Mpa	430 Mpa
MIN. ELONGATION	18 to 20 %	16 to 18 %

EXTRA LIGHT (XL)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE	
			BLACK	GALV
15	21.3	2.00		
20	26.9	2.00	1.22	1.28
25	33.7	2.00	1.56	1.62
32	42.4	2.00	1.99	2.07
40	48.3	2.30	2.61	2.70
50	60.3	2.30	3.29	3.40
65	76.1	2.30	4.19	4.33
80	88.9	2.60	5.53	5.70
100	114.3	3.05	8.77	8.98
125	139.7		10.10	11.80
150	165.1	3.40	12.00	12.30

LIGHT (L)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE	
			BLACK	GALV
15	21.3	2.00	0.95	1.00
20	26.9	2.30	1.39	1.44
25	33.7	2.60	1.99	2.05
32	42.4	2.60	2.54	2.63
40	48.3	2.90	3.24	3.33
50	60.3	2.90	4.09	4.21
65	76.1	3.20	5.74	5.89
80	88.9	3.20	6.75	6.92
100	114.3	3.60	9.81	10.00
125	139.7	3.50	11.80	12.00
150	165.1	3.50	13.90	14.30

MEDIUM (M)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE	
			BLACK	GALV
15	21.3	2.60	1.21	1.25
20	26.9	2.60	1.55	1.60
25	33.7	3.20	2.40	2.46
32	42.4	3.20	3.08	3.17
40	48.3	3.20	3.55	3.64
50	60.3	3.60	5.02	5.14
65	76.1	3.60	6.42	6.57
80	88.9	4.00	8.36	8.54
100	114.3	4.50	12.10	12.40
125	139.7	5.00	16.60	16.90
150	165.1	5.00	19.70	20.00

HEAVY (H)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE	
			BLACK	GALV
15	21.3	3.20	1.44	1.48
20	26.9	3.20	1.86	1.92
25	33.7	4.00	2.92	2.99
32	42.4	4.00	3.78	3.86
40	48.3	4.00	4.36	4.45
50	60.3	4.50	6.18	6.30
65	76.1	4.50	7.93	8.08
80	88.9	5.00	10.35	10.50
100	114.3	5.40	14.40	14.70
125	139.7	5.40	17.90	18.10
150	165.1	5.40	21.30	21.60

GENERAL PURPOSE PIPE (CONTINUED)

WORKING PRESSURES - THREADED JOINTS TAPER/PARALLEL THREAD

NOMINAL SIZE DN	TYPE OF SERVICE										
	WATER & INERT OIL		L.P.G.	FUEL OIL				OTHER APPLICATIONS (INCLUDING STEAM & COMPRESSED AIR)			
	MEDIUM	HEAVY		MEDIUM		HEAVY		MEDIUM		HEAVY	
			PRESS.	TEMP.	PRESS.	TEMP.	PRESS.	TEMP.	PRESS.	TEMP.	
MM	KPA	KPA	MED. & HEAVY KPA	KPA	OC	KPO	OC	KPA	OC	KPO	OC
15	2070	2410	140	1030	100	1210	192	1210	100	1210	192
20	2070	2410	140	1030	100	1210	192	1210	100	1210	192
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	–	–	–	–	–	–	–	–	–

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 DN 100 and 1030 kPa for AS 1074 pipe exceeding DN 100.

END PROCESSING OPTIONS

- Plain End
- Shouldered
- Roll Grooved
- Threaded

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 taper threaded sockets.

COMMERCIAL PIPE APPLICATION GUIDE - TYPICAL PIPING SYSTEM MAKEUP

COMMERCIAL BLACK PAINTED

PIPE GRADE	TYPICAL JOINTING METHODS	TYPICAL COMPLEMENTARY FITTINGS
Light & Extra Light	Buttweld, Flanged, Roll Grooved, Shouldered	Flanges, Roll Grooved or Shouldered Fittings
Medium	Buttweld, Flanged, Roll Grooved, Shouldered, Threaded	Buttweld Fittings, Flanges, Roll Grooved or Shouldered Fittings, Black or Galvanised Screwed Fittings (Malleable Iron or Steel)
Heavy	Buttweld, Flanged, Cut Grooved Shouldered, Threaded	Buttweld Fittings, Flanges, Roll Grooved or Shouldered Fittings, Black Steel Screwed Fittings
Extra Heavy	Buttweld, Flanged	Buttweld Fittings, Flanges, Socket-Weld Fittings

COMMERCIAL GALVANISED

PIPE GRADE	TYPICAL JOINTING METHODS	TYPICAL COMPLEMENTARY FITTINGS
Light & Extra Light	Roll Grooved, Shouldered, Allen Key	Roll Grooved or Shouldered Fittings, Quick Clamps, Elgate Fittings
Medium	Roll Grooved, Shouldered, Threaded, Allen Key	Roll Grooved or Shouldered Fittings Galvanised Malleable or Galvanised Steel Screwed Fittings, Screwed Flanges, Quick Clamps, Elgate Fittings
Heavy	Shouldered, Threaded, Allen Key	Shouldered Fittings, Galvanised Steel Screwed Fittings, Screwed Flanges

FIRE PROTECTION PIPE

APPLICATIONS

Fire Protection Installations

SPECIFICATIONS

ASTM A795
AS 1074

SURFACE FINISHES

Hot Dipped Galvanised (HDG)
Painted (Red Primed)

END FINISHES

Plain Ends
Grooved Ends

STANDARD LENGTHS

6.5 metres

LIGHT (L)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE		TEST PRESSURE MPA
			BLACK	GALV	
15	n/a	n/a	n/a	n/a	n/a
20	26.9	2.11	1.28	1.30	3.45
25	33.7	2.77	2.10	2.13	3.45
32	42.4	2.77	2.72	2.76	3.45
40	48.3	2.77	3.12	3.16	3.45
50	60.3	2.77	3.96	4.01	3.45
65	76.1	3.05	5.30	5.36	3.45
80	88.9	3.05	6.50	6.59	3.45
100	114.3	3.05	8.36	8.52	3.45
125	139.7	3.40	11.58	11.80	8.27
150	165.1	3.40	13.84	14.13	6.89

MEDIUM (M)

NOMINAL BORE MM	OUTSIDE DIAMETER MM	WALL THICKNESS MM	WEIGHT PER METRE	
			BLACK	GALV
15	21.3	2.60	1.21	1.25
20	26.9	2.60	1.56	1.62
25	33.7	3.20	2.41	2.49
32	42.4	3.20	3.10	3.20
40	48.3	3.20	3.57	3.68
50	60.3	3.60	5.03	5.18
65	76.1	3.60	6.43	6.60
80	88.9	4.00	8.37	8.58
100	114.3	4.50	12.20	12.40
125	139.7	5.00	16.60	16.90
150	165.1	5.00	19.70	20.10

PIPE WALL THICKNESS AND WEIGHTS (APPROX)

WALL = MM WEIGHT= KG/M	OUTSIDE DIA MM	AS 1074 / BS1387			ASTM A795		BOILER TUBE BS 3059		SUPAGAL			GALTUBE PLUS TS 27	SHOULDERED AS 4728
		LIGHT	MEDIUM	HEAVY	L	M	THIN	THICK	XL	L	M		
Wall	21.3	2.00	2.60	3.20									
Weight		0.952	1.220	3.200									
Wall	25.4						2.90	6.30					
Weight							1.610	2.970					
Wall	26.9	2.30	2.60	3.20					2.00	2.30	2.60	2.00	
Weight		1.400	1.580	1.900					1.230	1.400	1.560	1.230	
Wall	31.8						2.90	6.30					
Weight							2.070	3.900					
Wall	33.7	2.60	3.20	4.00		3.20			2.00	2.60	3.20	2.00	
Weight		2.010	2.440	2.970		2.410			1.560	2.010	2.410	1.560	
Wall	38.0						2.90	6.30					
Weight							2.510	4.930					
Wall	42.4	2.60	3.20	4.00		3.20			2.00	2.60	3.20	2.00	
Weight		2.580	3.090	3.840		3.090			1.990	2.550	3.090	1.990	
Wall	44.5						3.20	6.30					
Weight							3.260	5.940					
Wall	48.3	2.90	3.20	4.00		3.20			2.30	2.90	3.20	2.30	
Weight		3.250	3.610	4.470		3.570			2.610	3.250	3.560	2.610	
Wall	51.0						3.2	6.3					
Weight							3.770	6.940					
Wall	57.0						3.20	6.30					
Weight							4.247	7.880					
Wall	60.3	2.90	3.60	4.50		3.60			2.30	2.90	3.60	2.30	
Weight		4.110	5.100	6.170		5.030			3.290	4.110	5.030	3.290	
Wall	63.5						3.20	6.30					
Weight							4.760	8.890					
Wall	76.1		3.60	4.50		3.60			2.30	3.20	3.60	2.60	
Weight			6.510	7.900		6.440			4.190	5.750	6.440	4.710	
Wall	88.9		4.00	4.90		4.00			2.60	3.20	4.00		
Weight			8.470	10.100		8.380			5.530	6.760	8.380		
Wall	101.6						6.30	8.00					
Weight							14.806	18.500					
Wall	114.3		4.50	5.40		4.50			3.20	3.60	4.50	2.00	
Weight			12.100	14.500		12.200			8.770	9.830	12.200	5.539	
Wall	139.7		4.88	5.40									
Weight			16.200	17.000									
Wall	165.1		4.88	5.40		5.00						2.80	
Weight			19.200	21.300		19.740						11.206	

LINEPIPE

Linepipe is available welded or seamless and is used in a variety of applications, including gas reticulation (pressure) and structural. Steel & Tube stock a variety of specifications and sizes and also offer a full Indent service for project work.

ERW - API 5L GRADE B

LENGTHS

6 metres

12 metres

FINISHES

Black (Self Colour)

Hot Dipped Galvanised

SPECIFICATION

API 5L - Grade B

ASTM A53

API 5L is not suitable for structural applications.

Note:

A rust preventative laquer is externally applied to all black pipe.

Steel & Tube's stock profile is based on API 5L Grade B, PSL 1 but PSL 2 is available on request. A PSL 2 requirement is normal for gas transmission - the main difference being tighter tolerances in regards to chemistry, strength, hardness, repair welding and heat treatment.

TENSILE REQUIREMENTS- PSL 1

GRADE	YIELD STRENGTH MINIMUM		ULTIMATE TENSILE STRENGTH MINIMUM	
	PSI	MPA	PSI	MPA
A	30,000	207	48,000	331
B	35,000	241	60,000	414
X42	42,000	290	60,000	414
X46	46,000	317	63,000	434
X52	52,000	359	66,000	455
X56	56,000	386	71,000	490
X60	60,000	414	75,000	517
X65	65,000	448	77,000	531
X70	70,000	483	82,000	565

ERW - STRUCTURAL GRADE AS 1163 C350 LO / API 5L GRADE B

STOCKABLE RANGE - ERW LINEPIPE

Dual Grade AS 1163 C350 LO / API 5L Grade B is suitable for both structural and gas reticulation (pressure) applications.

NOMINAL BORE	SCHEDULE	WALL THICKNESS MM	API 5L		AS 1163/ C350
			BLACK	HDG	BLACK
50	40	3.91	Y		
65	40	5.16	Y		
80	40	5.49	Y		
100	40	6.02	Y		Y
125	40	6.55	Y		Y
150		4.78	Y		Y
150		6.35	Y		Y
150	40	7.11	Y		Y
200		4.78	Y	Y	Y
200	20	6.35	Y		Y
200	40	8.18	Y		Y
250		4.78	Y	Y	Y
250	20	6.35	Y		Y
Codes			xxEL	xxAGEL	xxELD

NOMINAL BORE	SCHEDULE	WALL THICKNESS MM	API 5L		AS 1163/ C350
			BLACK	HDG	BLACK
250	40	9.27	Y		Y
300	20	6.35	Y		Y
300	STD	9.52	Y		Y
350	STD	9.52	Y		
400	10	6.35	Y		
400	STD	9.52	Y		Y
450	10	6.35	Y		
450	STD	9.52	Y		Y
500	10	6.35	Y		
500	STD	9.52	Y		Y
600	10	6.35	Y		
600	STD	9.52	Y		
Codes			xxEL	xxAGEL	xxELD

LINEPIPE (CONTINUED)

SEAMLESS LINEPIPE

SPECIFICATIONS

ASTM A106
API 5LB

LENGTHS

6 metres

FINISH

Black (Self Colour - laquer transit protection)

SEAMLESS LINEPIPE - STOCK RANGE

NOMINAL BORE MM	SCH 40	SCH 80	SCH 160	XXS
15	Y	Y	Y	Y
20	Y	Y	Y	Y
25	Y	Y	Y	Y
32	Y	Y		
40	Y	Y	Y	Y
50	Y	Y	Y	Y
65	Y	Y		
80	Y	Y	Y	Y
90		Y		
100	Y	Y	Y	Y
125	Y	Y		
150	Y	Y	Y	Y
200	Y	Y		
250	Y	Y		
300	Y	Y		

Code = Sch 40 xxSL or xxSLS (Shell Approved)
 Sch 80 xxS80SL or xxS80SLS (Shell Approved)
 Sch 160 xxS160SL or xxS160SLS (Shell Approved)
 XXS xxXXSSL or xxXXSLS (Shell Approved)

LINE PIPE - THICKNESS AND WEIGHTS

NOMINAL PIPE SIZE MM	OD MM	5 S	10 S	10	20	30	STD	40 S	40	60	XS	80 S	80	100	120	140	160	XXS
6	10.3		1.24 0.28				1.73 0.37	1.73 0.36	1.73 0.37		2.41 0.47	2.41 0.48	2.41 0.47					
8	13.7		1.65 0.51				2.24 0.63	2.24 0.64	2.24 0.63		3.02 0.80	3.02 0.82	3.02 0.80					
10	17.1		1.65 0.64				2.31 0.84	2.31 0.86	2.31 0.84		3.20 1.10	3.20 1.12	3.20 1.10					
15	21.3	1.65 0.82	2.11 1.01				2.77 1.27	2.77 1.30	2.77 1.27		3.73 1.62	3.73 1.65	3.73 1.62				4.78 1.95	7.47 2.55
20	26.7	1.65 1.04	2.11 1.31				2.87 1.69	2.87 1.71	2.87 1.69		3.91 2.20	3.91 2.24	3.91 2.20				5.56 2.90	7.82 3.64
25	33.4	1.65 1.33	2.77 2.13				3.38 2.50	3.38 2.55	3.38 2.50		4.55 3.24	4.55 3.29	4.55 3.24				6.35 4.24	9.09 5.45
32	42.2	1.65 1.68	2.77 2.76				3.56 3.39	3.56 3.46	3.56 3.39		4.85 4.47	4.85 4.56	4.85 4.47				6.35 5.61	9.70 7.77
40	48.3	1.65 1.95	2.77 3.17				3.68 4.05	3.68 4.13	3.68 4.05		5.08 5.41	5.08 5.51	5.08 5.41				7.14 7.25	10.15 9.56
50	60.3	1.65 2.44	2.77 4.01				3.91 5.44	3.91 5.54	3.91 5.44		5.54 7.48	5.54 7.63	5.54 7.48				8.74 11.11	11.07 13.44
65	73.0	2.11 3.77	3.05 5.36				5.16 8.63	5.16 8.81	5.16 8.63		7.01 11.41	7.01 11.64	7.01 11.41				9.53 14.92	14.02 20.39
80	88.9	2.11 4.60	3.05 6.59				5.49 11.29	5.49 11.52	5.49 11.29		7.62 15.27	7.62 15.59	7.62 15.27				11.13 21.35	15.24 27.68
90	101.6	2.11 5.29	3.05 7.55				5.74 13.57	5.74 13.84	5.74 13.57		8.08 18.63	8.08 19.01	8.08 18.63					
100	114.3	2.11 5.96	3.05 8.52				6.02 16.07	6.02 16.40	6.02 16.07		8.56 22.32	8.56 22.77	8.56 22.32		11.13 28.32		13.49 33.54	17.12 41.03
125	141.3	2.77 9.67	3.40 11.82				6.55 21.77	6.55 22.20	6.55 21.77		9.53 30.97	9.53 31.59	9.53 30.97		12.70 40.28		15.88 49.11	19.05 57.43
150	168.3	2.77 11.55	3.40 14.13				7.11 28.26	7.11 28.83	7.11 28.26		10.97 42.56	10.97 43.42	10.97 42.56		14.27 54.20		18.26 67.56	21.95 79.22
200	219.1	2.77 15.09	3.76 20.37		6.35 33.31	7.04 36.81	8.18 42.55	8.18 43.39	8.18 42.55	10.31 53.08	12.70 64.64	12.70 65.95	12.70 64.64	15.09 75.92	18.26 90.44	20.62 100.92	23.01 111.27	22.23 101.92
250	273.1	3.40 23.08	4.19 28.34		6.35 41.77	7.80 51.03	9.27 60.31	9.27 61.52	9.27 60.31	12.70 81.55	12.70 81.55	12.70 83.19	15.09 96.01	18.26 114.75	21.44 133.06	25.40 155.15	28.58 172.33	25.40 155.15
300	323.9	3.96 31.89	4.57 36.73		6.35 49.73	8.38 65.20	9.53 73.88	9.52 75.32	10.31 79.73	14.27 108.96	12.70 97.46	12.70 99.43	17.48 132.08	21.44 159.91	25.40 186.97	28.58 208.14	33.32 238.76	25.40 186.97
350	355.6	3.96 35.06	4.78 42.14	6.35 54.69	7.92 67.90	9.53 81.33	9.53 81.33		11.13 94.55	15.09 126.71	12.70 107.39		19.05 158.10	23.83 194.96	27.79 224.65	31.75 253.56	35.71 281.70	
400	406.4	4.19 42.41	4.78 48.26	6.35 62.64	7.92 77.83	9.53 93.27	9.53 93.27		12.70 123.30	16.66 160.12	12.70 123.30		21.44 203.53	26.19 245.56	30.96 286.64	36.53 333.19	40.49 365.35	
450	457.2	4.19 47.77	4.78 54.36	6.35 70.57	7.92 87.71	9.53 122.38	9.53 105.16		14.27 155.80	19.05 205.74	12.70 139.15		23.88 254.55	29.36 309.62	34.93 363.56	39.67 408.26	45.24 459.37	
500	508.0	4.78 60.46	5.54 70.00	6.35 78.65	9.53 117.15	12.70 155.12	9.53 117.15		15.09 183.42	20.62 247.83	12.70 155.12		26.19 311.17	32.54 381.53	38.10 441.49	44.45 508.11	50.01 564.81	
550	558.8	4.78 66.57	5.54 77.06	6.35 86.54	9.53 129.13	12.70 171.09	9.53 129.13		22.23 294.25	22.23 171.09	12.70 171.09		28.58 373.83	34.93 451.42	41.28 527.02	47.63 600.63	53.98 672.26	
600	609.6	5.54 84.16	6.35 96.37	6.35 94.53	9.53 141.12	14.27 209.64	9.53 141.12		17.48 255.41	24.61 355.26	12.70 187.06		30.96 442.08	38.89 547.71	46.02 640.03	52.37 720.15	59.54 808.22	
650	660.4			7.92 127.36	12.70 202.72		9.53 152.87				12.70 202.72							
700	711.2			7.92 137.32	12.70 218.69	15.88 271.21	9.53 164.85				12.70 218.69							
750	762.0	6.35 120.72	7.92 150.36	7.92 147.28	12.70 234.67	15.88 292.18	9.53 176.84				12.70 234.67							
800	812.8			7.92 157.24	12.70 250.64	15.88 312.15	9.53 188.82		17.48 342.91		12.70 250.64							
850	863.6			7.92 167.20	12.70 266.61	15.88 332.12	9.53 200.31		17.48 364.90		12.70 266.61							
900	914.4			7.92 176.96	12.70 282.27	15.88 351.70	9.53 212.56		19.05 420.42		12.70 282.27							
950	965.2						9.53 224.54				12.70 298.24							
1000	1,016.0						9.53 236.53				12.70 314.22							
1050	1,068.8						9.53 248.52				12.70 330.19							
1100	1,117.6						9.53 260.50				12.70 346.16							
1150	1,168.4						9.53 272.25				12.70 351.82							
1200	1,219.2						9.53 284.24				12.70 377.79							

WALL THICKNESS = MM

WEIGHT = KG / M (PLAIN END MASS)

5S, 10S, 40S, 80S - ANSI B36.19

SHOULDERED PIPE

Shouldered Pipe is traditionally used in the mining industry where a "full bore" is required along with a jointing system which is quick and easy to assemble.

The pipe is Hot Dipped Galvanised (HDC) with a very light wall, with a steel ring welded externally onto the ends to form the shoulder for the mechanical coupling to tighten on to.

The shouldered flexible coupling and piping system is simple in design. It consists of a self-sealing rubber gasket embracing 2 pipe ends and a coupling which encloses the gasket while engaging the shoulders on the pipe ends.

The flexible coupling is leakproof under pressure or vacuum even when the pipeline is only partly full or under vibration.

The small space occupied by the flexible coupling, the ease with which it can be fitted into confined spaces, together with quick and easy coupling of pipe lengths make the flexible coupling and piping system uniquely versatile. The system provides for limited expansion and contraction and accomodates some longitudinal and angular movement.

SPECIFICATION

AS 4278 290 LO

SIZE RANGE

60.3mm OD x 2.3mm wall x 5.8 metres

114.3mm OD x 2.0mm wall x 5.8 metres

165.1mm OD x 2.8mm wall x 5.8 metres

COUPLINGS AND FITTINGS

A full range of Couplings and Fittings is stocked to compliment the Pipe range (refer Pipe Fittings / Shouldered).

BOILER TUBE

High Pressure Tube expressly designed for use in Boiler manufacture.

Steel & Tube stock a range of Boiler Tube generally to BS 3059.1.320 Hot Finished Seamless, or BS EN 10216-1, length 6 metres.

CHEMICAL COMPOSITION (LADLE ANALYSIS)

SPECIFICATION	C	MN		SI		P	S
	MAX.	MIN.	MAX.	MIN.	MAX.	MAX.	MAX.
	%	%	%	%	%	%	%
Steel Grade 320 - HFS	0.16	0.30	0.70	0.10	0.35	0.040	0.040
Steel Grade 320 - ERW	0.16*	0.30	0.70	-	0.35	0.040	0.040

* For rimmed or semi-killed steel the C max is 0.19%.

MECHANICAL PROPERTIES AT ROOM TEMPERATURE

SPECIFICATION	MIN YIELD STRENGTH ARE FOR TUBES WITH WALL THICKNESS UP TO AND INCLUDING 16MM	TENSILE RM STRENGTH		ELONGATION
	MIN. N/MM2	MIN. N/MM2	MAX. N/MM2	MIN
Steel Grade 320 - HFS	195	320	480	25%
Steel Grade 320 - ERW	195	320	480	25%

TOLERANCES

	O.D.	WALL
HFS	±1% with min. tolerance of ±0.50mm	±12.5%
ERW	±0.70 with min. tolerance of ±0.30mm	up to and incl. 3.2mm ±10% over 3.2mm ±7.5%

STOCK RANGE

25.4 OD x 2.9mm WT x 6m	Y	25429BT
25.4 OD x 3.25mm WT x 6m	Y	25463BT
25.4 OD x 6.3mm WT x 6m	Y	254325BT
31.8 OD x 2.9mm WT x 6m	Y	31863BT
31.8 OD x 6.3mm WT x 6m	Y	31829BT
38.0 OD x 2.9mm WT x 6m	Y	3863BT
38.0 OD x 6.3mm WT x 6m	Y	3829BT
44.5 OD x 3.2mm WT x 6m	Y	4532BT
44.5 OD x 6.3mm WT x 6m	Y	44563BT
51.0 OD x 3.2mm WT x 6m	Y	5163BT
51.0 OD x 6.3mm WT x 6m	Y	5132BT
54.0 OD x 3.2mm WT x 6m	Y	5432BT
57.0 OD x 6.3mm WT x 6m	Y	5763BT
63.5 OD x 3.2mm WT x 6m	Y	63532BT
63.5 OD x 6.3mm WT x 6m	Y	63563BT
76.1 OD x 6.3mm WT x 6m	Y	76163BT
76.1 OD x 8.0mm WT x 6m	Y	7618BT
101.6 OD x 8.0mm WT x 6m	Y	10168BT
101.6 OD x 6.3mm WT x 6m	Y	101663BT

Note:

Sizes outside this range are available on indent.

STEEL FITTINGS

Screwed Steel Fittings are designed for use with Medium and Heavy wall pipes to AS1074 (and equiv.).

These BS EN 10241 fittings are the recognised standard for medium pressure screwed pipework. Tubulars items in this range conform to AS 1074.

SPECIFICATION

BS EN 10241 Steel Threaded Pipe Fittings, Screwed BSP Thread.

Australian Standard 1074 "Steel Tubes and Tubulars Threaded or Suitable for Threading with Pipe Threads of Whitworth Form".

Australian Standard 1650 "Galvanised Coatings on Ferrous Articles".

MATERIAL

Tubulars - These are manufactured from tubing made in accordance with AS 1074 from steel with 0.06 max sulphur and 0.06 max phosphorous.

Machined Fittings - These are manufactured to dimensions in BS EN 10241:2000 and generally made from "Free Cutting Steel".

FINISH

Black : These are generally degreased and protected with a coating of light oil.

Hot Dipped Galvanised : galvanising of fittings shall be performed before the thread cutting operation, by means of the Hot Dipped method.

THREADING

Threads for the screwed ends of fittings shall comply to the appropriate requirements of AS 1722 Part 1 Sealing Pipe Threads and also ISO 7-1.

Female Ends - Normally supplied with parallel threads.

Male Ends - Normally supplied with taper threads.

PERMISSIBLE WORKING PRESSURES

TABLE 1 - TAPER / PARALLEL THREAD NON-GAS APPLICATIONS

NOMINAL BORE OF PIPE	TYPE OF SERVICE										
	WATER & INERT OIL		LPG	FUEL OIL				OTHER APPLICATIONS (INCL STEAM & COMPRESSED AIR)			
	MEDIUM	HEAVY	MEDIUM & HEAVY	MEDIUM		HEAVY		MEDIUM		HEAVY	
				PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C
MM	KPA	KPA	KPA								
25 (*)	2,070	2,410	140	1,030	100	1,210	192	1,210	100	1,210	192
32	1,720	2,070	140	1,030	100	1,030	192	1,030	100	1,030	192
40	1,720	2,070	140	1,030	100	1,030	192	1,030	100	1,030	192
50	1,380	1,720	140	860	100	860	192	860	100	860	192
65	1,380	1,720		860	100	860	192	860	100	860	192
80	1,380	1,720		860	100	860	192	860	100	860	192
100	1,030	1,380		690	100	860	192	690	100	690	192
125	1,030	1,380									
150	860	1,030									

* Up to and including.

TABLE 2 - TAPER / TAPER THREAD NON-GAS APPLICATIONS

NOMINAL BORE OF PIPE	TYPE OF SERVICE										
	WATER & INERT OIL		LPG	FUEL OIL				OTHER APPLICATIONS (INCL STEAM & COMPRESSED AIR)			
	MEDIUM	HEAVY	MEDIUM & HEAVY	MEDIUM		HEAVY		MEDIUM		HEAVY	
				PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C	PRESS. KPA	TEMP. DEG C
MM	KPA	KPA	KPA								
25 (*)	3,450	4,140	340	1,030	100	1,210	192	1,210	100	1,210	192
32	2,760	3,450	340	1,030	100	1,210	192	1,210	100	1,210	192
40	2,760	3,450	340	1,030	100	1,210	192	1,210	100	1,210	192
50	2,410	3,100	340	1,030	100	1,210	192	1,210	100	1,210	192
65	2,410	3,100		1,030	100	1,210	192	1,210	100	1,210	192
80	2,070	2,760		1,030	100	1,210	192	1,210	100	1,210	192
100	1,720	2,070		1,030	100	1,030	192	1,030	100	1,210	192
125	1,720	2,070									
150	1,380	1,720									

* Up to and including.

STEEL FITTINGS (CONTINUED)

TABLE 3 - TAPER / TAPER THREAD GAS APPLICATIONS TO AS 1697

NOMINAL BORE OF PIPE	MEDIUM & HEAVY	NOMINAL BORE OF PIPE	MEDIUM & HEAVY
MM	KPA	MM	KPA
25 (*)	1030	50	1030
32	1030	65	1030
40	1030	80	1030
		100	1030

* Up to and including.

STOCK RANGE - GALVANISED

TYPE	CODE	6	8	10	15	20	25	32	40	50	65	80	100	125	150
Plug (Square Head)	xxGWPL				Y	Y	Y	Y	Y	Y					
Elbow F/F	xxGWE				Y	Y	Y	Y	Y	Y					
Elbow M/F	xxGWMFE				Y	Y	Y								
Tee	xxGWT				Y	Y	Y	Y	Y	Y					
Socket	xxGWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bend M/F	xxGWMFBE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Longscrew	xxGWLS				Y	Y	Y	Y	Y	Y	Y	Y			

STOCK RANGE - BLACK

TYPE	CODE	6	8	10	15	20	25	32	40	50	65	80	100	125	150
Plug (Square Head)	xxBWPL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Elbow F/F	xxBWE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
Elbow M/F	xxBWMFE		Y	Y	Y	Y	Y	Y	Y	Y					
Tee	xxBWT		Y	Y	Y	Y	Y	Y	Y	Y		Y			
Socket	xxBWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Half Socket	xxBWHS		Y	Y	Y	Y	Y	Y	Y	Y	Y				
Cap	xxBWC				Y	Y	Y	Y	Y	Y					
Bend M/F	xxBWMFBE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Bush	xxyyBWB			Y	Y	Y	Y	Y	Y	Y					
Navy Unions F/F	xxBWNU				Y	Y	Y	Y	Y	Y					



STEEL FITTINGS (CONTINUED)

STEEL UNIONS

Black Steel Unions are used in a wide range of make-and-break joints requiring periodic disconnection.

Available in:

- Steel-Steel
- Steel-Bronze
- Bronze-Bronze seats in
 - Female-Female
 - Male-Female types

These all purpose Unions are coated in black oxide to give protection to the fitting until assembled to piping.

Zinc-coated Unions are electro zinc plated. This process gives a complete coating both internally and externally which protects the Union and vital seat areas.

SEATING SPECIFICATIONS

STEEL - STEEL

This is a general purpose combination recommended where vibration is present. The seats are integral and therefore are the most economically priced. This Union will suit almost any application. Zinc coating improves the corrosion resistance of the joints to a marked degree where corrosion is present.

STEEL - BRONZE

A good seat combination where corrosion due to the fluid medium that is being used in the line or where condensation is present and where periodic disconnection is required.

Zinc coating improves the corrosion resistance of the joints to a marked degree where corrosion is present.

BRONZE - BRONZE

This seat combination is recommended when corrosion due to the fluid medium in the pipe line or condensation is a major factor and where constant disconnection is required.

This seat combination is ideally suited to steam lines.

Zinc coating improves the corrosion resistance of the joints to a marked degree where corrosion is present.

END CONNECTION THREADING

BSP Taper threads only.

WORKING PRESSURES

For standard screwed Unions 8 to 25mm up to 21,000 kPa Cold Working Pressure.

32mm to 100mm up to 14,000 kPa Cold Working Pressure.

For Steam Pressures and Temperatures refer to SAA Boiler Code.

BARREL NIPPLES

A comprehensive range of both Black and Hot Dipped Galvanised Barrel Nipples are stocked. Galvanised is manufactured from Medium pipe whilst Black is from Heavy.



STEEL FITTINGS (CONTINUED)

STOCKABLE RANGE

BARREL NIPPLES - GALVANISED

DIAMETER MM	30	40	50	60	70	80	90	100	110	120	130	140	150	200	250	300
6	Y	Y	Y	Y	Y											
8	Y	Y	Y	Y	Y	Y	Y	Y								
10	Y	Y	Y	Y	Y	Y	Y	Y					Y			
15	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
20	Y	Y	Y	Y	Y	Y	Y	Y					Y	Y	Y	Y
25		Y	Y	Y	Y	Y		Y		Y	Y		Y	Y	Y	Y
32		Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
40		Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
50		Y	Y	Y	Y	Y	Y	Y			Y		Y	Y	Y	Y
65				Y	Y	Y	Y	Y					Y	Y	Y	
80						Y	Y	Y					Y	Y		Y
100						Y	Y	Y					Y	Y		Y
150													Y			

BARREL NIPPLES - BLACK

DIAMETER MM	30	40	50	60	70	80	90	100	110	120	130	140	150	200	250	300
6	Y	Y	Y	Y	Y											
8	Y	Y	Y	Y	Y	Y	Y	Y								
10	Y	Y	Y	Y	Y	Y	Y	Y					Y			
15	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
20	Y	Y	Y	Y	Y	Y	Y	Y					Y	Y	Y	Y
25		Y	Y	Y	Y	Y		Y		Y	Y		Y	Y	Y	Y
32		Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
40		Y	Y	Y	Y	Y	Y	Y		Y			Y	Y	Y	Y
50		Y	Y	Y	Y	Y	Y	Y			Y		Y	Y	Y	Y
65				Y	Y	Y	Y	Y					Y	Y	Y	
80						Y	Y	Y					Y	Y		Y
100						Y	Y	Y					Y	Y		Y
150													Y			

Note:

Other sizes available upon request.



BARREL NIPPLES - GALVANISED



BARREL NIPPLES - BLACK

Codes:

Black xxyyBWBN

Galvanised xxyyGWBN

Where:

xx = dia

yy = length

MALLEABLE FITTINGS

APPLICATION

The fittings are adequate for the supply of water at recommended maximum working pressure of 1379 kPa and for steam, gas, air or oil at 1034 kPa.

Note:

Working pressures may be limited by relevant Pressure Piping Codes or Industry regulations.

SPECIFICATION

EN 10242 : 1995 (Plugs to BS 143 dimensions).

Material to ASTM A197.

THREADING

Threads to ISO 7-1.

BSP - Taper internal thread(RC), taper external thread (R).

TESTING

Fittings shall be subject to internal hydraulic pressure of 2,068 kPa without showing any sign of leakage or abnormality.






















STOCK RANGE - GALVANISED

TYPE	CODE	6	8	10	15	20	25	32	40	50	65	80	100	125	150
Hex Nipple	xxGHN		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Hex Red. Nipp	xxyyGHN			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Plug	xxGPL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Locknut	xxGL		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		
Elbow F/F	xxGE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Elbow M/F	xxGMFE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Elbow F/F Red.	xxyyGE				Y	Y	Y	Y	Y	Y	Y	Y			
Elbow F/F 45 deg	xxGE45				Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Elbow M/F 45 deg	xxGMFE45					Y	Y	Y	Y	Y	Y				
Tee	xxGT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Tee Red.	xxyyGT				Y	Y	Y	Y	Y	Y	Y	Y	Y		
Cross	xxGC				Y	Y	Y	Y	Y	Y	Y	Y	Y		
Socket	xxGS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Socket M/F	xxGMFS				Y	Y									
Socket Red.	xxyyGS			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Union - Conical	xxGCU				Y	Y	Y	Y	Y	Y					
Union - Self Aligning	xxGMU				Y	Y	Y	Y	Y	Y					
Cap	xxGC		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Bend 90 M/F	xxGMFBE		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		
Bend 90 F/F	xxGBE				Y	Y	Y	Y	Y	Y	Y	Y	Y		
Flange	xxGF				Y	Y	Y	Y	Y	Y	Y	Y	Y		
Flange TD	xxGFD				Y	Y	Y	Y		Y	Y	Y	Y		
Red Bush	xxyyGB				Y	Y	Y	Y	Y	Y	Y	Y	Y		Y

STOCK RANGE - BLACK

TYPE	CODE	6	8	10	15	20	25	32	40	50	65	80	100	125	150
Hex Nipple	xxBHN				Y			Y		Y					
Elbow F/F	xxBE				Y	Y	Y	Y	Y	Y					
Elbow M/F	xxBMFE						Y	Y	Y	Y					
Tee	xxBT				Y	Y	Y	Y	Y						
Union - Conical	xxBCU				Y	Y	Y	Y	Y	Y					
Union - Self Aligning	xxBMU				Y	Y	Y	Y	Y	Y					
Red. Bush	xxyyBB				Y	Y	Y	Y	Y	Y					

MALLEABLE FITTINGS (CONTINUED)

			
ELBOW	ELBOW 45	ELBOW RED	TEE
Code: xxGE	Code: xxGE45	Code: xxyyGE	Code: xxGT
			
TEE RED	M&F ELBOW	CROSS	PLUG
Code: xxyyGT	Code: xxGMFE	Code: xxGX	Code: xxGPL
			
CAP	SOCKET	SOCKET RED	BUSH
Code: xxGC	Code: xxGS	Code: xxyyGS	Code: xxyyGB
			
HEX NIPPLE	LOCK NUT	UNION	SHORT COUPLING
Code: xxGHN	Code: xxGL	Code: xxGMU	Code: xxGSC
			
LONG COUPLING	BEND 90° F/F	SOCKET M/F	BEND 90° M/F
Code: xxHPCP	Code: xxGBE	Code: xxGMFS	Code: xxGMFBE
			
FLANGE	FLANGE T/D		
Code: xxGF	Code: xxGFD		

RIKEN COMPRESSION COUPLINGS

Made from malleable iron, Riken Compression Couplings consist of a body, rubber packings, washers and nuts. With this type of coupling the sealing effect on the fluid can be obtained by tightening the nut as this causes the highly elastic rubber packing to be pressed tightly against the surface of the pipe.

Since the rubber packing exerts a large reaction force and frictional force on the internal face of the nut, the nut is held fast, so that it will not loosen.

Pipes should be fixed.

APPLICATIONS

For general use, water supply, gas supply and hot water piping as well as other piping which endures some expansion and contraction.

STOCK RANGE

TYPE	NB CODE	15	20	25	32	40	50
Coupling with Grip Ring (HI-LA-SSS)	xxRGRCP	Y	Y	Y	Y	Y	Y
Male / Female Adaptor (HI-LA-AP)	xxGRRRA	Y	Y	Y	Y	Y	Y
Tee BSP (HI-LA-T)	xxROT	Y	Y	Y		Y	



COUPLING

Code: xxRGRCP



ADAPTOR M/F

Code: xxGRRRA



TEE

Code: xxROT

BUTTWELD FITTINGS

Buttweld Fittings are the recognised standard for leak-proof pipe fabrication in medium and high pressure systems and in pipelines handling corrosive and hazardous fluids.

Steel & Tube carry both a premium quality range of Buttweld covered by major international oil and petrochemical company approvals as well as an alternative range for non Oil and Gas applications.

All products comply fully with the material and manufacturing standards detailed here, with the added advantage of 0.23% maximum carbon content for optimum weld-joint integrity.

Steel & Tube also carry a range of lightweight buttweld fittings to JIS B2311.

SPECIFICATIONS

ASME B16.9 - covers dimensions and tolerance for fittings between 15mm to 600mm.

ASME B16.25 - covers the preparation and design details of all buttweld ends for all components of buttweld pipe systems.

MSS SP-48 - covers dimensions and tolerance of long radius elbows, tees and reducers in sizes 650mm to 900mm.

MATERIAL SPECIFICATIONS

Seamless Carbon Steel - Buttweld fittings are made to the material specifications of ASTM A234, grades WPA, WPB or WPC, which correspond exactly to the material specifications of seamless carbon steel pipes to ASTM A106 grades A, B, or C. (Steel & Tube stock to WPB).

Low Temperature Fittings - For low temperature applications, a wide range of fittings in ASTM A420 can be offered.

High Yield Fittings - on a indent basis we offer a range of fittings having a high yield strength suitable for use with the various grades of API 5LX linepipe.

Ferretic Alloy Steel Fittings - for high temperatures - Steel & Tube can offer a range of alloy fittings to ASTM A335.

WORKING PRESSURES

Buttweld fittings are designed and manufactured to standards which demand a bursting strength equal to or greater than that of Seamless Pipe of the same material specification, nominal diameter and wall thickness, and their allowable working pressures are equal to those shown for pipe on the following page. Maximum allowable working pressures for:

Carbon Steel Fittings: equal to seamless pipes to ASTM A106, (Grade B unless otherwise specified).

High Temperature (Ferretic Alloy): Fittings (Grades WP5, WP11 etc) are equal to seamless pipes to ASTM A335 of similar grade (P5, P11 etc).

Low Temperature: Fittings (ASTM A420 - WPL6) are equal to seamless pipes to ASTM A333 - Grade 6 for temperatures below -29°C - available on request.

Stainless Steel: Fittings (Grade 304 and 316, also 304L and 316L) are equal to stainless steel pipes to ASTM A312 of equal grade and schedule.

Note:

Stainless Steel fittings in Schedule 10S and 5S are not designed for applications where pressure is a prime consideration, and the relevant standard, MSS SP43 establishes the working pressures substantially lower than those yielded by the application of the basic formula.

CERTIFICATION

Full test certification is available on demand, to EN 10204.



BUTTWELD FITTINGS (CONTINUED)

PRESSURE/TEMPERATURE RATINGS

SEAMLESS CARBON STEEL PIPE - GRADE B

NOMINAL SIZE DN MM	WALL THICKNESS			TEMP °C FROM - 29 TO:							
				38	205	260	350	370	400	430	450
		SCH.	MM	MAXIMUM ALLOWABLE PRESSURE / TEMPERATURE RATING IN KPMM (TO ANSI / ASME B31.3A)							
15	STD	40	2.77	34,416	34,416	32,528	29,255	28,910	22,372	18,589	14,972
	XS	80	3.73	48,092	48,092	45,446	40,878	40,396	31,260	25,969	20,918
20	STD	40	2.87	28,070	28,070	26,526	23,860	23,578	18,245	15,158	12,209
	XS	80	3.91	39,418	39,418	37,247	33,506	33,106	25,617	21,283	17,142
25	STD	40	3.38	26,251	26,251	24,804	22,310	22,048	17,060	14,173	11,417
	XS	80	4.55	36,283	36,283	34,285	38,040	30,474	23,584	19,595	15,785
32	STD	40	3.56	21,614	21,614	20,421	18,369	18,155	14,049	11,672	9,404
	XS	80	4.85	30,178	30,178	28,518	25,651	25,348	19,616	16,295	13,125
40	STD	40	3.68	19,444	19,444	18,375	16,529	16,329	12,636	10,500	8,454
	XS	80	5.08	27,402	27,402	25,900	23,295	23,019	17,811	14,800	11,919
50	STD	40	3.91	16,378	16,378	15,468	13,925	13,759	10,645	8,847	7,124
	XS	80	5.54	23,653	23,653	22,351	20,105	19,871	15,378	12,774	10,287
65	STD	40	5.16	17,914	17,914	16,929	15,227	15,048	11,644	9,674	7,793
	XS	80	7.01	24,818	24,818	23,447	21,097	20,849	16,129	13,401	10,797
80	STD	40	5.49	15,558	15,558	14,696	13,222	13,063	10,108	8,399	6,766
	XS	80	7.62	21,986	21,986	20,780	18,693	18,472	14,290	11,871	9,563
100	STD	40	6.02	13,187	13,187	12,464	11,210	11,079	8,571	7,124	5,739
	XS	80	8.56	19,058	19,058	18,010	16,198	16,012	12,388	12,094	8,289
125	STD	40	6.55	11,561	11,561	10,921	9,825	9,708	7,517	6,243	5,038
	XS	80	9.53	17,060	17,060	16,122	14,503	14,331	11,093	9,212	7,421
150	STD	40	7.11	10,500	10,500	9,928	8,924	8,819	6,828	5,670	4,568
	XS	80	10.97	16,474	16,474	15,571	14,007	13,842	10,707	8,895	7,165
200	STD	40	8.18	9,246	9,246	8,737	7,855	7,765	6,008	4,995	4,024
	XS	80	12.70	14,572	14,572	13,766	12,388	12,237	9,474	7,868	6,338
250	STD	40	9.27	8,385	8,385	7,923	7,131	7,048	5,450	4,527	3,652
	XS		12.70	11,596	11,596	10,955	9,853	9,736	7,538	6,263	5,043
300	STD		9.53	7,241	7,241	6,842	6,153	6,084	4,706	3,914	3,149
	XS		12.70	9,722	9,722	9,191	8,268	8,165	6,318	5,250	4,230
350	STD	30	9.53	6,580	6,580	6,222	5,595	5,533	4,279	3,555	2,866
	XS		12.70	8,833	8,833	8,351	7,510	7,421	5,739	4,768	3,845
400	STD	30	9.53	5,746	5,746	5,429	4,885	4,830	3,734	3,100	2,501
	XS	40	12.70	7,703	7,703	7,283	6,545	6,470	5,009	4,162	3,349
450	STD		9.53	5,099	5,099	4,816	4,334	4,286	3,314	2,756	2,219
	XS		12.70	6,835	6,835	6,456	5,808	5,739	4,437	3,686	2,969
500	STD	20	9.53	4,582	4,582	4,327	3,893	3,852	2,976	2,474	1,991
	XS	30	12.70	6,139	6,139	5,801	5,216	5,154	3,989	3,314	2,666
600	STD	20	9.53	3,810	3,810	3,603	3,238	3,197	2,474	2,060	1,660
	XS		12.70	5,097	5,097	4,816	4,334	4,286	3,314	2,756	2,219

BUTTWELD FITTINGS (CONTINUED)

STOCK RANGE - BLACK

TYPE	NB	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
SCH 40 (STD WEIGHT 300NB AND ABOVE)																				
Elbow LR 90 deg	xxWE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Elbow SR 90 deg	xxWES			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y			
Elbow LR 180 deg	xxWE180	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y								
Elbow SR 180 deg	xxSWE180																			
Elbow LR 45 deg	xxWE45	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Tee	xxWT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tee Reducing	xyyWT		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
Cap	xxWC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Concentric Reducer	xyyWCR		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Eccentric Reducer	xyyWER		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
SCH 80																				
Elbow LR 90 deg	xxS80WE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
Elbow LR 45 deg	xxS80WE45			Y		Y	Y	Y	Y	Y			Y							
Elbow SR 90 deg	xxS80SWE						Y	Y	Y	Y										
Tee	xxS80WT	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y					
Tee Reducing	xyyS80WT			Y					Y	Y		Y								
Cap	xxS80WC			Y	Y	Y	Y			Y		Y								
Concentric Reducer	xyyS80WCR			Y	Y	Y	Y	Y	Y	Y		Y	Y							
SCH 160																				
Elbow LR 90 deg	xxS160WES			Y		Y	Y													
Tee	xxS160WTS						Y													
XXS (DOUBLE EXTRA STRONG)																				
Elbow LR 90 deg	xxXXSWES			Y			Y		Y	Y		Y								
Elbow LR 45 deg	xxXXSWE45S						Y			Y										
Tee	xxXXSWTS						Y		Y	Y		Y								
Concentric Reducer	xyyXXSWCRS						Y		Y	Y		Y								
LIGHTWEIGHT (JIS B2311)																				
Elbow LR 90 deg	xxLWE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y	
Elbow SR 90 deg	xxLSWE				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y			
Elbow LR 45 deg	xxLWE45						Y	Y	Y	Y	Y	Y	Y							
Tee	xxLWT		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y							
Tee Reducing	xyyLWT			Y	Y	Y	Y	Y	Y	Y		Y	Y							
Concentric Reducer	xyyLWCR			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
Eccentric Reducer	xyyLWER		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					

FLANGES

Flanges are a mechanical joint usually welded to the pipe. Two flanges are bolted together with a gasket in between to create the seal.

Flanges are easier to install than threaded connections on bores larger than 2" where it would be difficult to turn the pipe.

Steel & Tube carry an array of flanges covering a wide variety of International Standards:

AUSTRALIAN STANDARD 'TABLE' FLANGES

Table A to H

AS 2129

EUROPEAN STANDARD DIN STANDARDS

PN 5 to PN 40

BS EN 1092

AMERICAN STANDARDS

ANSI 150 to 2500

API 5000 to 10000

ASTM A105

OTHER INTERNATIONAL STANDARDS

Steel & Tube are also able to supply through local manufacture and Indent Services other standards and sizes we may not usually stock e.g Japanese Standards (JIS) Please acontact your local branch to discuss your requirements.

QUALITY POLICY

A Flange is a critical potential leak point in a pipe line as such it plays an important part of ensuring line integrity. Steel & Tube recognise this and only purchase from quality mills which are pre-inspected by Steel & Tube's representatives, and for high pressure flanges we also choose only mills which are approved by international Oil Majors.

Flanges come in a variety of formats as follows:

WELD NECK

Weld Neck flanges are distinguished from other types by their long tapered hub and gentle transition of thickness in the region of the butt weld joining them to pipe.

The long tapered hub provides an important reinforcement of the flange proper from the standpoint of strength and resistance of dishing.

The smooth transition from flange thickness to pipe wall thickness effected by the taper is extremely beneficial under conditions or repeated bending, caused by line expansion or other variable forces, and produces an endurance strength of weld neck flanged assemblies equivalent to that of a butt welded pipe.

This type of flange is preferred for severe service condition, whether this results from high pressure, sub-zero or elevated temperatures. This also includes whether loading conditions are substantially constant or fluctuate between wide limits.

Weld neck flanges are particularly recommended for handling explosive, flammable or costly liquids where loss of tightness, or local failure may be accompanied by disastrous consequences.

SLIP ON

Continue to be preferred to welding neck flanges by many users on account of their initially lower cost, and the reduced accuracy required in cutting the pipe to length, and the somewhat greater ease of alignment of the assembly.

Their calculated strength under internal pressure is approximately two-thirds that of welding neck flanges, and their life under fatigue is about one-third.



FLANGES (CONTINUED)

THREADED / SCREWED

These are made of steel and are confined to special applications. They can be assembled without welding which explains their use in extremely high-pressure services, particularly at or near atmospheric temperature, where alloy steel is essential for strength and where necessary post-weld heat treatment is impractical.

Note:

Screwed flanges are unsuited for conditions involving temperature or bending stresses of any magnitude, particularly under cyclic conditions, where leakage through the threads may occur.

SOCKET WELD

Similar to the slip on flange in use, however, the internal pocket of a socket weld flange allows for a smooth bore and better fluid flow. When provided with an internal weld, the static strength of this flange is equal to slip-on flange, but the fatigue strength is 50% greater than double welding slip-on flanges. Smooth bore conditions in such a flange can easily be attained without having to bevel the flange face and, after welding, to reface the socket weld flange as would be required with slip-on flanges. For this reason, the internally welded flange is popular in chemical process piping.

BLIND/BLANK

These are used to blank off the ends of piping, valves and pressure vessel openings.

From the standpoint of internal pressure and bolt loading, blind flanges, particularly in the larger sizes, are the most highly stressed of all American Standard flange types.

However, since the maximum stresses in a blind flange are bending stresses at the centre, they can be safely permitted to be higher than in other types of flanges.

Where temperature is a service factor or repeated severe water hammer, consideration should be given to closures made of welding neck flanges and caps.

OTHER TYPES

Other Flange types available from stock or special order are as follows:

- Lap Joint.
- Paddle Blind.
- Spectacle Blind.
- Orifice Flanges.
- Compact Flanges.
- Puddle Flange.



FLANGES - STOCK RANGE

AS 2129, AS 4087, PN 16

NOMINAL BORE MM	PLATE - SLIPON				BOSSED - SLIPON			BOSSED - BLIND			SCREWED BSP		WELDNECK
	TD	TD SWP	TE	TH	TD	TE	TH	TD	TE	TH	BLACK	GALV	TE
15						Y			Y			Y	
20	Y		Y			Y	Y		Y		Y	Y	
25	Y		Y			Y	Y		Y	Y	Y	Y	
32	Y		Y			Y	Y		Y		Y	Y	
40	Y		Y			Y	Y		Y	Y	Y	Y	
50	Y		Y			Y	Y		Y	Y	Y	Y	
65	Y		Y			Y	Y		Y	Y	Y	Y	
80	Y		Y			Y	Y		Y		Y	Y	
100	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y
125	Y		Y		Y		Y		Y			Y	
150	Y	Y	Y	Y		Y	Y		Y			Y	
200	Y	Y	Y			Y	Y		Y				Y
250	Y	Y	Y			Y		Y	Y				
300	Y	Y	Y			Y			Y				
350	Y		Y						Y				
375		Y							Y				
400	Y		Y						Y				
450	Y		Y						Y				
500	Y		Y						Y				
600	Y		Y						Y				

EN 1092

NOMINAL BORE MM	PLATE - SLIPON			BOSSED - SLIPON				BOSSED -SO	WELDNECK
	PN6	PN10	PN16	PN6	PN10	PN16	PN40	BSP	SCH 40
15						Y		Y	
20						Y		Y	
25						Y	Y	Y	
32						Y		Y	
40						Y	Y	Y	
50						Y	Y	Y	Y
65						Y	Y	Y	Y
80	Y					Y	Y		Y
100	Y		Y			Y	Y		Y
125						Y			
150			Y			Y	Y		Y
200		Y	Y		Y	Y			
250	Y	Y	Y						
300	Y	Y	Y						
350			Y						
375									
400			Y						
450			Y						
500									
600									

FLANGES - STOCK RANGE (CONTINUED)

NOMINAL BORE MM	ANSI 150						ANSI 300				
	SLIP ON	WELDNECK				BLIND	SLIP ON	WELDNECK			BLIND
		SCH 40/STD	SCH 80	SCH 160	XXS			SCH 40/STD	SCH 80	SCH 160	
15	Y	Y	Y	Y		Y	Y		Y		Y
20	Y	Y	Y	Y		Y	Y	Y	Y		Y
25	Y	Y	Y	Y	Y	Y	Y		Y		Y
32	Y	Y				Y	Y		Y		Y
40	Y	Y	Y	Y		Y	Y	Y	Y		Y
50	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y
65	Y	Y				Y	Y	Y	Y		Y
80	Y	Y	Y			Y	Y	Y	Y		Y
100	Y	Y	Y			Y	Y	Y	Y		Y
125	Y	Y				Y					Y
150	Y	Y	Y			Y	Y	Y	Y		Y
200	Y	Y	Y			Y	Y	Y	Y		Y
250	Y	Y	Y			Y	Y	Y	Y		Y
300	Y	Y				Y	Y	Y			Y
350	Y					Y					
400	Y					Y					
450	Y					Y					
500	Y					Y					
600	Y										

NOMINAL BORE MM	ANSI 600						ANSI 900		ANSI 1500				ANSI 2500	
	SLIP ON	WELDNECK				BLIND	WELD-NECK XXS	BLIND	WELD-NECK XXS	WELD-NECK XXS RTJ	BLIND	BLIND RTJ	WELD-NECK XXS	WELD-NECK XXS RTJ
		STD	SCH 80	SCH 160	XXS									
15														
20														
25			Y			Y								
32			Y		Y	Y								
40			Y	Y	Y	Y		Y	Y		Y	Y	Y	
50														
65			Y	Y		Y		Y				Y		
80	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	
100														
125		Y	Y			Y	Y	Y	Y		Y		Y	
150		Y	Y			Y		Y	Y	Y	Y	Y	Y	
200														
250			Y			Y		Y	Y	Y	Y	Y	Y	
300			Y			Y								
350														
400						Y								
450														
500														
600														

FLANGES - STOCK RANGE (CONTINUED)

NOMINAL BORE MM	ANSI 1500				ANSI 2500	
	WELDNECK	WELDNECK	BLIND	BLIND	WELDNECK	WELDNECK
	XXS	XXS RTJ		RTJ	XXS	XXS RTJ
15						
20						
25	Y	Y		Y	Y	Y
32						
40	Y				Y	
50	Y	Y	Y	Y	Y	Y
65						
80	Y	Y		Y		Y
100	Y	Y	Y	Y	Y	Y
125						
150	Y	Y	Y	Y	Y	Y
200						
250						
300						
350						
400						
450						
500						
600						

PRESSURE STRESS CONVERSION CHART

The SI unit of pressure and stress is the NEWTON PER SQUARE METRE which has been given the special name PASCAL – Symbol Pa.

The pascal is too small for most normal uses and suitable multiple units preferred in New Zealand are:

kilopascal: Symbol – kPa (= 1000 Pa) megapascal: Symbol – MPa (= 1,000,000 Pa)
 (1 N/m² = 0.000145 lbf/in² = 1Pa) (1 N/mm² = 145 lbf/in² = 1MPa)

PSI (LBF/IN²) TO KPA • PRESSURE – STRESS CONVERSION CHART

- (A) To use, locate “given pressure” in “given pressure” column (coloured GREY) whether lbf/in² or kPa.
- (B) If “given pressure” is in pounds force per square inch (lbf/in²), read kilopascals (kPa) in right hand column.
- (C) If “given pressure” is in kilopascals (kPa), read pounds force per square inch (lbf/in²) in left hand column.
- (D) Example: (i) Given pressure is 100 lbf/in² = 689 kPa from right hand column.
 (ii) Given pressure is 100kPa = 14.50 lbf/in² from left hand column.

1 TO 35			36 TO 70			71 TO 125			130 TO 80,000				
LBF/IN ²	GIVEN PRESSURE	KPA	LBF/IN ²	GIVEN PRESSURE	KPA	LBF/IN ²	GIVEN PRESSURE	KPA	LBF/IN ²	GIVEN PRESSURE	KPA	=	MPA
0.15	1	6.89	5.22	36	248.21	10.30	71	490	18.85	130	896	=	0.90
0.29	2	13.79	5.37	37	255.11	10.44	72	496	19.58	135	931	=	0.93
0.44	3	20.68	5.51	38	262.00	10.59	73	503	20.31	140	965	=	0.97
0.58	4	27.58	5.66	39	268.90	10.73	74	510	21.03	145	1000	=	1.00
0.73	5	34.47	5.80	40	275.79	10.88	75	517	21.76	150	1034	=	1.03
0.87	6	41.37	5.95	41	282.69	11.02	76	524	22.48	155	1069	=	1.07
1.02	7	48.26	6.09	42	289.58	11.17	77	531	23.21	160	1103	=	1.10
1.16	8	55.16	6.24	43	296.48	11.31	78	538	23.93	165	1138	=	1.14
1.31	9	62.05	6.38	44	303.37	11.46	79	545	24.61	170	1172	=	1.17
1.45	10	68.95	6.53	45	310.26	11.60	80	552	25.38	175	1207	=	1.21
1.60	11	75.84	6.67	46	317.16	11.75	81	558	26.11	180	1241	=	1.24
1.74	12	82.74	6.82	47	324.05	11.89	82	565	26.83	185	1276	=	1.28
1.89	13	89.63	6.96	48	330.95	12.04	83	572	27.56	190	1310	=	1.31
2.03	14	96.53	7.11	49	337.84	12.18	84	579	28.28	195	1344	=	1.34
2.18	15	103.42	7.25	50	344.74	12.33	85	586	29.01	200	1379	=	1.38
2.32	16	110.32	7.40	51	351.63	12.47	86	593	36.26	250	1724	=	1.73
2.47	17	117.21	7.54	52	358.53	12.62	87	600	43.51	300	2068	=	2.07
2.61	18	124.11	7.69	53	365.42	12.70	88	607	58.02	400	2758	=	2.76
2.76	19	131.00	7.83	54	372.32	12.91	89	614	72.52	500	3447	=	3.45
2.90	20	137.90	7.98	55	379.21	13.05	90	621	108.78	750	5171	=	5.17
3.05	21	144.79	8.12	56	386.11	13.20	91	627	145.04	1000	6894	=	6.89
3.19	22	151.69	8.27	57	393.00	13.34	92	634	217.56	1500	10,342	=	10.34
3.34	23	158.58	8.41	58	399.90	13.49	93	641	290.08	2000	13,790	=	13.79
3.48	24	165.47	8.56	59	406.79	13.63	94	648	435.11	3000	20,684	=	20.68
3.63	25	172.37	8.70	60	413.69	13.78	95	655	580.15	4000	27,579	=	27.58
3.77	26	179.26	8.85	61	420.58	13.92	96	662	725.19	5000	34,473	=	34.47
3.92	27	186.16	8.99	62	427.48	14.07	97	669	1,450.38	10,000	68,948	=	68.95
4.06	28	193.05	9.14	63	434.37	14.21	98	676	2,175.57	15,000	103,421	=	103.4
4.21	29	199.95	9.28	64	441.26	14.34	99	683	2,900.76	20,000	137,895	=	137.9
4.35	30	206.84	9.43	65	448.16	14.50	100	689	4,351.14	30,000	206,843	=	206.8
4.50	31	213.74	9.57	66	455.05	15.23	105	724	5,801.52	40,000	275,790	=	275.8
4.64	32	220.63	9.72	67	461.95	15.95	110	758	7,251.90	50,000	344,738	=	344.7
4.79	33	227.53	9.86	68	468.84	16.68	115	793	8,702.28	60,000	413,686	=	413.7
4.93	34	234.42	10.01	69	475.74	17.40	120	827	10,152.7	70,000	482,633	=	482.6
5.08	35	241.32	10.15	70	482.63	18.13	125	862	11,603.0	80,000	551,581	=	551.6

Note: It is usual for pressures in excess of 1000 kpa to be expressed in megapascals – mpa
 1 megapascal (MPa) = 1000 kilopascals (kPa) = 1 newton per mm² (N/mm²) = 145 lbf/in².

USEFUL CONVERSION FACTORS

MULTIPLY	BY	TO OBTAIN
TO OBTAIN	BY	DIVIDE
bars	1.0197	kg f/cm ²
	100.0	kPa
	14.504	lbf/in ²
	0.1	MPa
kg f/cm ²	14.223	lbf/in ²
	98.07	kPa
	0.09807	MPa
kg f/mm ²	1422.33	lbf/in ²
	9.807	MPa
	0.635	ton f/in ²

MULTIPLY	BY	TO OBTAIN
TO OBTAIN	BY	DIVIDE
lbf/in ² (PSI)	6.895	kPa
	0.00689	MPa
ton f/in ²	15.444	MPa

APPROXIMATE EQUIVALENTS		
1 Atmosphere (atm)	=	14.696 lbf/in ²
1 bar	=	14.50 lbf/in ²
1 kg f/cm ²	=	14.22 lbf/in ²
100 kPa (1 bar)	=	14.50 lbf/in ²

Note: lbf/in² (pounds force per square inch) is often expressed as PSI (pounds per square inch).

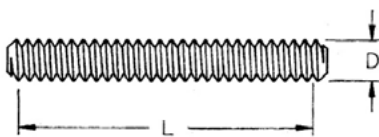
BOLTING FOR ANSI FLANGES

To suit Raised Face Flange sizes DN 15 to 600 to ANSI B16.5 and, DN 750 and 900 to BS 3293.



FLANGE SIZE	CLASS 150 PN20			CLASS 300 PN50			CLASS 600 PN100			CLASS 900 PN150			CLASS 1500 PN250			CLASS 2500 PN420		
	NB	SIZE		NO. BOLT	SIZE		NO. BOLT	SIZE		NO. BOLT	SIZE		NO. BOLT	SIZE		NO. BOLT	SIZE	
		NO. BOLT	INCH		MM	INCH		MM	INCH		MM	INCH		MM	INCH		MM	INCH
15	4	1/2	60	4	1/2	65	4	1/2	80	4	3/4	105	4	3/4	105	4	3/4	125
20	4	1/2	65	4	5/8	75	4	5/8	90	4	3/4	115	4	3/4	115	4	3/4	125
25	4	1/2	65	4	5/8	80	4	5/8	90	4	7/8	125	4	7/8	125	4	7/8	140
32	4	1/2	70	4	5/8	80	4	5/8	100	4	7/8	125	4	7/8	125	4	1	150
40	4	1/2	70	4	3/4	90	4	3/4	105	4	1	140	4	1	140	4	11/8	170
50	4	5/8	80	8	5/8	90	8	5/8	105	8	7/8	145	8	7/8	145	8	1	175
65	4	5/8	90	8	3/4	100	8	3/4	120	8	1	160	8	1	160	8	11/8	195
80	4	5/8	90	8	3/4	110	8	3/4	125	8	7/8	145	8	11/8	180	8	11/4	220
100	8	5/8	90	8	3/4	110	8	7/8	145	8	11/8	170	8	11/4	195	8	11/2	255
125	8	3/4	90	8	3/4	120	8	1	165	8	11/4	190	8	11/2	250	8	13/4	300
150	8	3/4	100	12	3/4	125	12	1	170	12	11/8	195	12	13/8	260	8	2	345
200	8	3/4	110	12	7/8	140	12	11/8	195	12	13/8	220	12	15/8	290	12	2	380
250	12	7/8	115	16	1	155	16	11/4	215	16	13/8	235	12	17/8	335	12	21/2	485
300	12	7/8	120	16	11/8	170	20	11/4	220	20	13/8	255	16	2	375	12	2 3/4	540
350	12	1	130	20	11/8	175	20	13/8	235	20	11/2	275	16	21/4	405			
400	16	1	135	20	11/4	190	20	11/2	255	20	15/8	285	16	21/2	445			
450	16	1	150	24	11/4	195	20	15/8	275	20	17/8	275	16	2 3/4	495			
500	20	11/8	160	24	11/4	205	24	15/8	290	20	2	345	16	3	540			
600	20	11/4	175	24	11/2	230	24	15/8	330	20	2 1/2	435	16	3 1/2	615			
750	28	11/4	190	28	1 3/4	290	28	2	355									
900	32	1 1/2	215	32	2	325	28	2 1/2	400									

Raised Face height of 2mm for Class 150 and 300 and 7mm for Class 600, 900, 1500 and 2500 is included in dimension length.



Diameter of Bolts is shown in inches. For nominal diameters 1" and smaller, threads are UNC.; nominal diameters 1-1/8" and larger threads are UN8.

Lengths of Bolts is shown in millimetres rounded to the nearest 5 mm. Studbolt lengths do not include the height of point. The length shown includes the height of the Raised Face in all cases.

STUDBOLTS

Steel & Tube provide an extensive range of Studbolts designed to withstand harsh conditions and provide outstanding temperature, chemical, abrasion and corrosion resistance.

GRADES

- B7 Studbolts c/w 2H Nuts, Carbon and Alloy Steel Bolt and Nut materials for service temperature of -30°C to 400°C.
- L7 Studbolts c/w Gr.4 Nuts, Carbon and Alloy Steel Bolt and Nut materials for service temperature of -100°C to -30°C.
- B8M Class 2 Studbolts c/w 8M Nuts, Stainless Steel Bolt and Nut materials for service temperature of -150°C to 575°C.
- B16 Studbolts c/w Gr.4 Nuts, Carbon and Alloy Steel Bolt and Nut materials for service temperature of 0°C to 525°C.

Note:

Other grades available upon request.

FINISHES

- Black, which is an uncoated finish with light oil.
- Gold Passivated (Trivalent), also commonly referred to as Yellow or Zinc plated. Steel and Tubes stock of Gold Passivated Studbolts are coated to a minimum of 25 microns thick (Fe/Zn 25).
- Hot Dipped Galvanised. Coating thickness is generally in the order of 50 microns. It is primarily used to protect Studbolts from the effects of weather and industrial atmospheres.
- SermaGard 1105/1280 is aluminium filled basecoat/topcoat system designed to provide outstanding salt corrosion protection and UV resistance for Studbolts exposed to offshore atmospheric and sub sea environments.
- Xylan1014 is a resin-bonded PTFE, thermoset, dry-film lubricant. It is primarily used on Studbolts to prevent corrosion and facilitate make-up torque.

STUDBOLTS (CONTINUED)

ASTM A193 B7 STUDBOLTS C/W ASTM A194 2H NUTS

Carbon and Alloy Steel Bolt and Nut Materials for Service Temperature of -30°C to 400°C.

ASTM A320 L7 STUDBOLTS C/W ASTM A194 GR.4 NUTS

Carbon and Alloy Steel Bolt and Nut Materials for Service Temperature of -100°C to -30°C.

ASTM A320 L7M STUDBOLTS C/W ASTM A194 7M NUTS

Carbon and Alloy Steel Bolt and Nut Materials for Service Temperature of -100°C to -30°C.

ASTM A193 B8M STUDBOLTS C/W ASTM A194 8M NUTS

Stainless Steel Bolt and Nut Materials for Service Temperature of -150°C to 575°C.

ASTM A193 B16 STUDBOLTS C/W ASTM A194 GR.4 NUTS

Carbon and Alloy Steel Bolt and Nut Materials for Service Temperature of 0°C to 525°C.

STOCK RANGE

ASTM A193 B7 STUDBOLTS C/W A194 2H NUTS - GOLD PASSIVATED

	1/2"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"	1-5/8"
50	X									
60	X									
70	X									
75	X	X								
80	X	X								
90	X	X	X							
100	X	X	X	X						
110	X	X	X	X						
115		X	X	X						
120		X	X	X	X					
125		X	X	X	X					
130		X	X	X	X					
140		X	X	X	X					
150		X	X	X	X					
160		X	X	X	X	X				
165		X	X	X	X	X				
170		X	X	X	X	X				
180		X	X	X	X	X				
190			X	X	X	X	X			
200			X	X	X	X	X			
205			X	X	X	X	X			
210			X	X	X	X	X			
215			X	X	X	X	X			
220				X	X	X	X	X		
230				X	X	X	X	X	X	
240				X	X	X	X	X	X	
280					X	X	X	X	X	
330					X	X	X	X	X	X
380										X

STUDBAR (2000MM LENGTHS)

	A193 B7	A320 L7	A193 B8M	A193 B16
1/2"	X	X	X	X
5/8"	X	X	X	X
3/4"	X	X	X	X
7/8"	X	X	X	X
1"	X	X	X	X
1-1/8"	X			
1-1/4"	X			
1-3/8"	X			
1-1/2"	X			
1-5/8"	X			

HEAVY HEX NUTS

	A194 2H	A194 GR.4	A194 8M
1/2"	X	X	X
5/8"	X	X	X
3/4"	X	X	X
7/8"	X	X	X
1"	X	X	X
1-1/8"	X		
1-1/4"	X		
1-3/8"	X		
1-1/2"	X		
1-5/8"	X		

FLANGES TO AMERICAN STANDARDS

DN 15 to 600 are to ASME B16.5 (BS 1560). DN 750 and 900 are to BS 3293 for Slip-On and Weldneck only.



NOM. SIZE DN	PN20 (CLASS 150)							PN50 (CLASS 300)							PN100 (CLASS 600)						
	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(1)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(1)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(1)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS
			THRD. SLIP-ON SOC/WELD Y(1)*	WELD NECK Y(1)*						THRD. SLIP-ON SOC/WELD Y(1)*	WELD NECK Y(1)*						THRD. SLIP-ON SOC/WELD Y(1)*	WELD NECK Y(1)*			
15	90	11.5	16	48	60.5	16	4	95	14.5	22	52	66.5	16	4	95	14.5	22	52	66.5	16	4
20	100	13	16	52	70	16	4	120	16	25	57	82.5	20	4	120	16	25	57	82.5	20	4
25	110	14.5	17	56	79.5	16	4	125	17.5	27	62	89	20	4	125	17.5	27	62	89	20	4
32	120	16	21	57	89	16	4	135	19.5	27	65	98.5	20	4	135	21	29	67	98.5	20	4
40	130	17.5	22	62	89.5	16	4	155	21	30	68	114.5	22	4	155	22.5	32	70	114.5	22	4
50	150	19.5	25	64	120.5	20	4	165	22.5	33	70	127	20	8	165	26.5	37	73	127	20	8
65	180	22.5	29	70	139.5	20	4	190	25.5	38	76	149	22	8	190	29	41	79	149	22	8
80	190	24	30	70	152.5	20	4	210	29	43	79	168.5	22	8	210	32	46	83	168.5	22	8
90	215	24	32	71	178	20	8	230	30.5	44	81	184	22	8	230	35	49	86	184	26	8
100	230	24	33	76	190.5	20	8	255	32	48	86	200	22	8	275	38.5	54	102	216	26	8
125	255	24	36	89	216	22	8	280	35	51	98	235	22	8	330	44.5	60	114	267	30	8
150	280	25.5	40	89	241.5	22	8	320	37	52	98	270	22	12	355	48	67	117	292	30	12
200	345	29	44	102	298.5	22	8	380	41.5	62	111	330	26	12	420	55.5	76	133	349	33	12
250	405	30.5	49	102	362	26	12	445	48	67	117	387.5	30	16	510	63.5	86	152	432	36	16
300	485	32	56	114	432	26	12	520	51	73	130	451	33	16	560	66.5	92	156	489	36	20
350	535	35	57	127	476	30	12	585	54	76	143	514.5	33	20	605	70	94	165	527	39	20
400	600	37	64	127	540	30	16	650	57.5	83	146	571.5	36	20	685	76.5	106	178	603	42	20
450	635	40	68	140	578	33	16	710	60.5	89	159	628.5	36	24	745	83	117	184	654	45	20
500	700	43	73	145	635	33	20	775	63.5	95	162	686	36	24	815	89	127	190	724	45	24
600	815	48	83	152	749.5	36	20	915	70	106	168	813	42	24	940	102	140	203	838	52	24
750	985	54	89	130.2	914	35	28	1090	92	210	210	997	48	28	1130	114	248	248	1022	54	28
900	1170	60.3	95	136.5	1086	41	32	1270	105	241	241	1168	54	32	1315	124	283	283	1194	67	28

NOM. SIZE DN	PN150 (CLASS 900)							PN250 (CLASS 1500)							PN420 (CLASS 2500)						
	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(2)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(2)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS	DIA. OF FIG. O	THICKNESS OF FIG. MIN. C(2)*	LENGTH THRU HUB		DIA. OF BOLT CIRCLE	DIA. OF BOLT HOLES	NO. OF BOLTS
			THRD. SLIP-ON SOC/WELD Y(2)*	WELD NECK Y(2)*						THRD. SLIP-ON SOC/WELD Y(2)*	WELD NECK Y(2)*						THRD. SLIP-ON SOC/WELD Y(2)*	WELD NECK Y(2)*			
15							120	22.5	32	60	82.5	22	4	135	30.5	40	73	89	22	4	
20							130	25.5	35	70	89	22	4	140	32	43	79	95	22	4	
25							150	29	41	73	101.5	26	4	160	35	48	89	108	26	4	
32							160	29	41	73	111	26	4	185	38.5	52	95	130	30	4	
40							180	32	44	83	124	30	4	205	44.5	60	111	146	33	4	
50							215	38.5	57	102	165	26	8	235	51	70	127	171.5	30	8	
65							245	41.5	64	105	190.5	30	8	270	57.5	79	143	197	33	8	
80	240	38.5	54	102	190.5	26	8	270	48	73	118	203	33	8	305	67	92	168	228.5	36	8
100	295	44.5	70	114	235	32	8	310	54	90	124	241.5	36	8	355	76.5	108	190	273	42	8
125	350	51	79	127	279.5	35	8	375	73.5	105	155	292	42	8	420	92.5	130	229	324	48	8
150	380	56	86	140	317.5	32	12	395	83	119	171	317.5	39	12	485	108	152	273	368.5	56	8
200	470	63.5	102	162	393.5	39	12	485	92	143	213	393.5	45	12	550	127	178	318	438	56	12
250	545	70	108	184	470	39	16	585	108	159	254	482.5	52	12	675	165.5	229	419	539.5	68	12
300	610	79.5	117	200	533.5	39	20	675	124	181	283	571.5	56	16	760	184.5	254	464	619	76	12
350	640	86	130	213	559	42	20	750	133.5		298	635	60	16							
400	705	89	133	216	616	45	20	825	146.5		311	705	68	16							
450	785	102	152	229	686	52	20	915	162		327	774.5	76	16							
500	855	108	159	248	749.5	54	20	985	178		356	832	80	16							
600	1040	140	203	292	901.5	68	20	1170	203.5		406	990.5	94	16							

Notes:

- * 1. The 2mm Raised Face is included in thickness C(1) and length through hub Y(1). This applies to PN20 and PN50 Pressure Ratings.
- † 2. The 7mm Raised Face is not included in thickness C(2) and length through hub Y(2). PN100, 150, 250 and 420 Pressure Ratings are regularly furnished with 7mm Raised Face which is additional to the flange thickness C(2) and Y(2).
- 3. Always specify bore when ordering weldneck flanges. Bore dimensions shown opposite also provide inside pipe diameters.

LARGE DIAMETER FLANGES ABOVE DN 600

- + For Blind Flanges refer to MSS SP44.
- BS 3293 covers Slip-On and Weldneck but excludes Blind Flanges.
- MSS SP44 covers Blind and Weldneck but excludes Slip-On Flanges.
- BS 3293 Weldneck PN20 flange thickness, C(1), is less than MSS SP44 equivalents.
- API - 605 Dimensions for Large Diameter Flanges vary considerably from both BS 3293 and MSS SP44
- Details upon request.

FLANGES TO AMERICAN STANDARDS (CONTINUED)

RAISED FACE DIAM.	NOM. SIZE DN	O.D. OF PIPE MM	APPROXIMATE WELDING NECK FLANGE BORES — MM														
			SCH. 10	SCH. 20	SCH. 30	STD. WT.	SCH. 40	SCH. 60	EXT. STG.	SCH. 80	SCH. 100	SCH. 120	SCH. 140	SCH. 160	X.X. STG.		
35	15	21.3				15.8	SAME AS STD. WT.		13.9	SAME AS EXT. STG.				11.8	6.4		
43	20	26.7				20.9			18.9							15.5	11
51	25	33.4				26.6			24.3							20.7	15.2
64	32	42.2				35.1			32.5							29.5	22.8
73	40	48.3				40.9			38.1							34	27.9
92	50	60.3				52.5			49.2							42.9	38.2
105	65	73				62.7			59							54	45
127	80	88.9				77.9			73.7							66.7	58.4
140	90	101.6				90.1			85.4							--	--
157	100	114.3				102.3			97.2				92.1			87.3	80.1
186	125	141.3				128.2			122.3				115.9			109.6	103.2
216	150	168.3				154.1			146.3				139.7			131.8	124.4
270	200	219.1		206.4	205	202.7			198.5		193.7		188.9	182.6	177.8	173.1	174.6
324	250	273.1		260.3	257.5	254.5			247.7		247.7	242.9	236.5	230.2	222.3	215.9	222.3
381	300	323.9		311.1	307.1	304.8		303.2	295.3		298.5	288.9	281	273.1	266.7	257.2	273.1
413	350	355.6	342.9	339.8	336.6	336.6		333.3	325.4		330.2	317.5	307.9	300	292.1	284.2	
470	400	406.4	393.7	390.6	387.4	387.4		381	373.1		381	363.5	354	344.5	333.3	325.4	
533	450	457	444.5	441.4	434.9	438.2	428.7	419.1	431.8	409.5	398.5	387.4	377.9	366.7			
584	500	508	495.3	489	482.6	489	477.8	466.8	482.6	455.6	442.9	431.8	419.1	408			
692	600	610	596.9	590.6	581.1	590.6	574.6	560.4	584.2	547.7	531.8	517.6	504.9	490.5			
857	750	762	746.2	736.6	730.2	743			736.6								
1022	900	914	898.6	889	882.6	895.4	876.3		889								

Notes:

- * 1. The 2mm Raised Face is included in thickness C(1) and length through hub Y(1). This applies to PN20 and PN50 Pressure Ratings.
- * 2. The 7mm Raised Face is not included in thickness C(2) and length through hub Y(2). PN100, 150, 250 and 420 Pressure Ratings are regularly furnished with 7mm Raised Face which is additional to the flange thickness C(2) and Y(2).
- 3. Always specify bore when ordering weldneck flanges. Bore dimensions shown opposite also provide inside pipe diameters.

LARGE DIAMETER FLANGES ABOVE DN 600

* For Blind Flanges refer to MSS SP44.

BS 3293 covers Slip-On and Weldneck but excludes Blind Flanges.

MSS SP44 covers Blind and Weldneck but excludes Slip-On Flanges.

BS 3293 Weldneck PN20 flange thickness, C(1), is less than MSS SP44 equivalents.

API - 605 Dimensions for Large Diameter Flanges vary considerably from both BS 3293 and MSS SP44

— Details upon request.

I.S.O. METRIC HEXAGON STEEL BOLTS FOR USE WITH FLANGES AS.2129

Steel hexagon Bolts and Nuts (XOX) are recommended for use within a temperature range of -50°C to $+300^{\circ}\text{C}$. Outside of this temperature range, Stud Bolts should be used as recommended in AS.2528.

A quick reference chart for sizing bolts and nuts for a range of regularly used standard flanges is given below.

APPLICABLE TO PLATE AND FORGED STEEL LOOSE FLANGES ONLY

Note:

Integral valve flanges quite often differ in thickness to equivalent loose flanges.

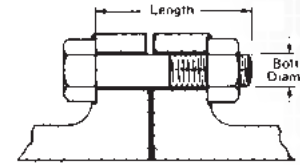
When integral flanges are involved due allowance should be made to bolt lengths.

NOMINAL FLANGE SIZE DN	TABLE D		TABLE E		TABLE F		TABLE H	
	NO. BOLTS PER FLANGE	XOX BOLT & NUT DIA. X LENGTH	NO. BOLTS PER FLANGE	XOX BOLT & NUT DIA. X LENGTH	NO. BOLTS PER FLANGE	XOX BOLT & NUT DIA. X LENGTH	NO. BOLTS PER FLANGE	XOX BOLT & NUT DIA. X LENGTH
15	4	M12 x 40mm*	4	M12 x 40mm*	4	M12 x 40mm*	4	M16 x 45mm*
20	4	M12 x 40mm*	4	M12 x 40mm*	4	M12 x 40mm*	4	M16 x 45mm*
25	4	M12 x 40mm*	4	M12 x 40mm*	4	M16 x 45mm*	4	M16 x 50mm*
32	4	M12 x 40mm*	4	M12 x 40mm*	4	M16 x 45mm*	4	M16 x 55mm*
40	4	M12 x 40mm*	4	M12 x 40mm*	4	M16 x 45mm*	4	M16 x 55mm*
50	4	M16 x 45mm*	4	M16 x 45mm*	4	M16 x 50mm*	4	M16 x 60mm*
65	4	M16 x 45mm*	4	M16 x 45mm*	8	M16 x 50mm*	8	M16 x 60mm*
80	4	M16 x 45mm*	4	M16 x 45mm*	8	M16 x 50mm*	8	M16 x 65mm*
100	4	M16 x 45mm*	8	M16 x 45mm*	8	M16 x 60mm*	8	M16 x 70mm*
125	8	M16 x 45mm*	8	M16 x 50mm*	8	M20 x 70mm*	8	M20 x 80mm*
150	8	M16 x 45mm*	8	M20 x 60mm*	12	M20 x 70mm*	12	M20 x 80mm*
200	8	M16 x 45mm*	8	M20 x 60mm*	12	M20 x 75mm*	12	M20 x 90mm*
250	8	M20 x 55mm*	12	M20 x 70mm*	12	M24 x 85mm*	12	M24 x 100mm*
300	12	M20 x 60mm*	12	M24 x 80mm*	16	M24 x 100mm*	16	M24 x 110mm*
350	12	M24 x 75mm*	12	M24 x 85mm*	16	M27 x 100mm*	16	M27 x 130mm*
400	12	M24 x 75mm*	12	M24 x 100mm*	20	M27 x 120mm*	20	M27 x 140mm*
450	12	M24 x 80mm*	16	M24 x 100mm*	20	M30 x 130mm*	20	M30 x 160mm*
500	16	M24 x 85mm*	16	M24 x 110mm*	24	M30 x 140mm*	24	M30 x 170mm*
600	16	M27 x 100mm*	16	M30 x 130mm*	24	M33 x 150mm*	24	M33 x 190mm*
700	20	M27 x 100mm*	20	M30 x 140mm*	24	M33 x 160mm*		
750	20	M30 x 120mm*	20	M33 x 150mm*	28	M33 x 170mm*		
800	20	M33 x 120mm*	20	M33 x 150mm*	28	M33 x 180mm*		
900	24	M33 x 140mm*	24	M33 x 170mm*	32	M36 x 200mm*		
1000	24	M33 x 140mm*	24	M36 x 180mm*	36	M36 x 220mm*		
1200	32	M33 x 160mm*	32	M36 x 200mm*	40	M39 x 240mm*		

All dimensions are in millimetres (mm).

Notes:

- High strength structural bolts to AS 1252 may be substituted for property class 8.8 bolts if agreed to by the purchaser.
- Bolts to AS 1252 are heavy hexagon series and the selection of such bolts would be subject to space being available on the relevant flange.



Bolt lengths listed apply to flat-faced or 1.6mm raised face flanges with allowance for 1.6mm gasket thickness.

*For approximate Stud Bolt Lengths take the XOX Bolt Length and add the metric diameter in mm rounded to the nearest 5mm increment up.

Note:

This does not include length of point.

This chart shows bolt diameters as recommended in AS.2129. Some of these are Non-preferred sizes e.g. (M27), (M33) and (M39) which are not readily available in Australia.

Stud Bolts should be used as alternatives to bolts where the size is greater than M24 and it is therefore suggested that Stud Bolts as specified in AS.2528 or BS.4882 should be used.

Inch series bolts interchangeable as follows:

FOR:	USE:	FOR:	USE:
1/4"	M6	7/8"	M24
5/16"	M8	1"	(M27)
3/8"	M10	1 1/8"	M30
1/2"	M12	1 1/4"	(M33)
5/8"	M16	1 3/8"	M36
3/4"	M20	1 1/2"	(M39)

BOLT HOLE DIAMETERS

For bolts to M24, clearance hole 2mm larger.

Above M24, clearance hole 3mm larger.

XOX BOLTS & NUTS

XOX is the trade term used for H.R.H. commercial steel bolts and nuts.

H.R.H. denotes Hexagon Head x Round Shank x Hexagon Nut.

XOX BOLTING		
TEMP. RANGE: -50°C TO $+300^{\circ}\text{C}$		
FLANGE TABLE	SPECIFICATIONS	
	BOLTS	NUTS
D, E, & F	AS 1110 Gr.4.6 or AS 1111 Gr.4.6	AS1112 Gr.5
H	AS 1110 Gr.8.8	AS 1112 Gr.8

DRESSING SETS

When using a flanged connection (be it flange to flange, flange to valve or similar) there will be a requirement for a gasket and a suitable number and size of bolt and nuts to match the particular hole configuration of the flange.

As a general statement, for low pressure applications involving Table D, E or PN 10 flanging, the Dressing Sets below will suffice, whilst for PN 40 and ANSI high pressure applications then studding is more suitable (see Studding section) – although the application designer will likely stipulate which.

Steel & Tube carry a range of pre-bagged “Dressing Sets” (gasket, bolts and nuts) to suit most flange types. This makes installation on-site so much easier with little chance of not having the correct number or size of bolt.

The following pre-packed Dressing Set range is available:

Dressing Set packs come in 2 varieties – either with a Rubber or a Fibre (refer to Gasket section for recommendations) gasket and to match either Table D or Table E flanges.

The length of the bolts has taken into account the gasket material and allowed a suitable tolerance.

However, if sizes or types outside this range, are required then these can be supplied on demand.

PRODUCT CODE	TABLE	DIA	GASKET TYPE	NO OF BOLTS – BOLT SIZE
32TEDSR	TD/TE	32mm	Rubber Gasket	Bolts 4 - M12 x 45
40TEDSR	TD/TE	40mm	Rubber Gasket	Bolts 4 - M12 x 45
50TEDSR	TD/TE	50mm	Rubber Gasket	Bolts 4 - M16 x 50
65TEDSR	TD/TE	65mm	Rubber Gasket	Bolts 4 - M16 x 50
80TEDSR	TD/TE	80mm	Rubber Gasket	Bolts 4 - M16 x 55
125TEDSR	TD/TE	125mm	Rubber Gasket	Bolts 8 - M16 x 65
100TDDSR	TD	100mm	Rubber Gasket	Bolts 4 - M16 x 55
100TEDSR	TE	100mm	Rubber Gasket	Bolts 8 - M16 x 65
150TEDSR	TE	150mm	Rubber Gasket	Bolts 8 - M20 x 65
200TEDSR	TE	200mm	Rubber Gasket	Bolts 8 - M20 x 65
250TEDSR	TE	250mm	Rubber Gasket	Bolts 12 - M20 x 65
300TEDSR	TE	300mm	Rubber Gasket	Bolts 12 - M24 x 80
25TEDSF	TD/TE	25mm	Fibre Gasket	Bolts 4 - M12 x 40
32TEDSF	TD/TE	32mm	Fibre Gasket	Bolts 4 - M12 x 45
40TEDSF	TD/TE	40mm	Fibre Gasket	Bolts 4 - M12 x 45
50TEDSF	TD/TE	50mm	Fibre Gasket	Bolts 4 - M16 x 50
65TEDSF	TD/TE	65mm	Fibre Gasket	Bolts 4 - M16 x 50
80TEDSF	TD/TE	80mm	Fibre Gasket	Bolts 4 - M16 x 55
125TEDSF	TD/TE	125mm	Fibre Gasket	Bolts 8 - M16 x 65
100TEDSF	TE	100mm	Fibre Gasket	Bolts 8 - M16 x 65
150TEDSF	TE	150mm	Fibre Gasket	Bolts 8 - M20 x 65
200TEDSF	TE	200mm	Fibre Gasket	Bolts 8 - M20 x 65
250TEDSF	TE	250mm	Fibre Gasket	Bolts 12 - M20 x 65

SEALANT AND FLANGE GASKETS

Steel & Tube's comprehensive reticulation range includes sealants and gaskets for most pressure applications.

LOCTITE®

Steel & Tube stock a range of thread Sealants including Loctite® thread sealants.

Properties of Loctite Thread/Flange sealing:

- Prevent and stop leakages.
- Single component – quick and easy to apply.
- Can be used on any size pipe fitting and seal to the burst strength of most piping systems.
- Corrosion protection for thread.
- Seal and secure metal pipes and fittings, filling the space between threaded metal parts and hardening to prevent and stop leakages.
- Designed for high and low pressure applications.
- Controlled strength of ease of disassembly.

Available from stock:

Loctite® 55™ Pipe Sealing Cord, Thread Sealing General purpose threaded pipe and fitting sealant.

Loctite® 567™ PST® Thread Sealant Low strength, high temperature thread sealant. Solvent resistant.

Loctite® 510™ Gasket Eliminator® Flange Sealant has a temperature range to 400 °F with excellent solvent and chemical resistance. Makes or dresses gaskets in rigid assemblies. Eliminates gasket compression set.

Loctite® 515™ Gasket Eliminator® Flange Sealant is a flexible, gasketing material for use on rigid machined flanges with less than 0.015" gap. Eliminates preformed, pre-cut, paper, rubber and cork gaskets.



KLINGER® THREADSEAL TAPE

Threadseal tape offers a clean, quick and highly effective means of sealing threaded pipe fittings in the engineering, chemical and electrical industries. These tapes are manufactured from PTFE and hence are inert and resistant to most media. They are also colour coded for ease of identification. KLINGER threadseal is supplied in spools so that it can be wound direct onto the pipe thread. A 50% overlap is recommended for all applications.

Available in:

- White: Commercial grade for general service.
- Yellow: Approved for gas installations, domestic and industrial up to 25,000 kPa.
- Silver: Nickel impregnated for stainless steel lines.

KLINGER® GASKETS

Steel & Tube are proud to be Klinger® stockists. We stock a range of gaskets to suit our range of flanges and have access to a wider range of sealant technologies through the Klinger® agency.

- Klingsil® C-4430, A Universal material with outstanding stress retention and resistance to hot water and steam. Suitable for Natural Gas, Potable Water and many chemical services. Typically -150°C to 250°C @ 40 BarG.
- Klinger® Spiral Wound, Certified Fire Safe According to API 6FB, stocked for ANSI gaskets from Classes 150 to 2500. Steel & Tube stock Type CR & CRIR in both Steel and Stainless Steel variants.
- Metallic Ring Type Joint Gaskets (RTJ): Are heavy duty, high-pressure gaskets largely used in offshore and onshore petrochemical and geothermal applications. They are precision-engineered components designed to be used in conjunction with precision-machined flanges. Klinger® Ring Joints are manufactured according to ASME B16.20 and API 6A.
- Natural Rubber: Natural rubber exhibits exceptional elongation, tear strength and recovery properties. It has poor resistance to ozone, oxygen and sunlight weathering. Natural rubber has high wear and abrasion resistance. The material is suitable for moderate acids, alkalis, salt solutions, petroleum and solvents. It is considered unsuitable for use with strong acids, fats, greases and most hydrocarbons. Temperature range -50 to 120 deg C.



OTHER SEALANTS

Steel & Tube also stock a variety of other sealant technologies:

- Plumbers Hemp: 500g rolls for use with soap or other jointing compounds.
- Sunlight® Soap: Sold in box pack of 4 for water services.



Stock code: Hemp

Note:

Contact a Steel & Tube branch for brand specific literature for suitability of any sealant to specific applications.



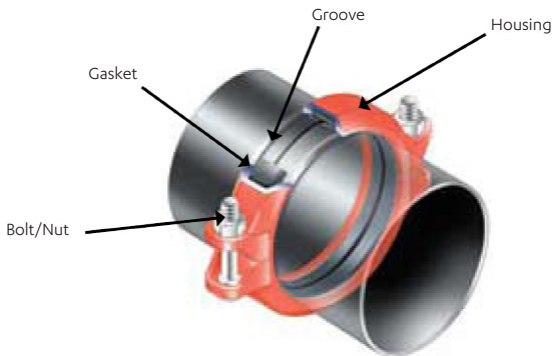
Stock code: Soap

ROLL GROOVE SYSTEMS

MECH is manufactured by the largest pipe fittings manufacturer in the world, Jinan Meide Casting Co. Jinan Meide's core value of quality provides product of premium levels employing the latest manufacturing technology. MECH's commitment to quality is reflected in the fact that every product, even down to the smallest galvanised malleable fitting, is pressure tested. Steel & Tube has enjoyed a very successful relationship with Jinan Meide and their MECH product range. MECH products are sold in over 60 countries and are world leaders both in quality and value.

The Grooved System is one of the most advanced, versatile, economical and reliable systems available today. After the pipe ends are grooved, a gasket is stretched over the pipe ends. The coupling segments are then placed over the gasket and bolts and nuts are fastened resulting in a secure joint.

A coupling can be installed 3-4 times faster than a comparable welded or brazed joint and there is no need for a flame or welding torch on the job site. A coupling can be installed by fastening a pair of bolts and nuts while using only a spanner, whereas a comparable flanged joint requires the fastening of many bolts and nuts. The grooved system allows for easy material take-offs and unlike the threaded system, there is no need to allow for added pipe length for thread engagement. With the removal of just a few bolts, one can easily access the system for cleaning, maintenance, changes and or system expansion.



RIGID COUPLINGS

Rigid couplings are the most popular and most widely used couplings today. They can be used in applications that require a rigid joint similar to that of a traditional flanged, welded and or threaded connection.

ANGLE PAD DESIGN

As the bolts are tightened, the angled bolt pads slide in opposite directions causing the coupling keys to tightly grip the pipe, while at the same time the grooves are forced outwards against the coupling keys.



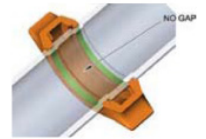
TONGUE AND GROOVE DESIGN

The T & G Design mechanism provides a mechanical and frictional interlock resulting in a rigid joint which reduces undesired angular movement.



BUTT-JOINT DESIGN

The Unique butt-joint design eliminates the gap in between pipe ends, thus eliminating not only angular and rotational movement but also axial displacement under normal service conditions*.



* Pipes must be cut true and square to achieve a butt-joint.

FLEXIBLE COUPLINGS

Flexible couplings allow for full design features in applications such as curved or deflected layouts and/or when systems are exposed to outside forces beyond normal static conditions, such as seismic events or where vibration and/or noise attenuation are a concern. The ability to design in controlled flexibility is an advantageous feature when compared to traditional rigid jointing methods such as threading, flanging and welding. When designing with flexible couplings, allow for proper support to the system so as to eliminate undesired stress.



PIPE SYSTEMS TERMINOLOGY



Rotational Movement



Axial Displacement



Angular Movement

ROLL GROOVE SYSTEMS (CONTINUED)



1GS - RIGID COUPLING LIGHT DUTY

- Can be used in services up to 2070Kpa and is available in Painted Hot Dipped Galvanised.
- The built-in teeth on the coupling grip the groove shoulder and serve to reduce linear movement.
- The T&G mechanism features a slight offset at the foot of the coupling halves which serve to protect the gasket from exposure.
- With the T&G style coupling no metal-to-metal contact of the pads is required. There is normally a 1.6mm to 3.2mm gap between the bolt pads when installed.



1N - FLEXIBLE COUPLING LIGHT DUTY

- Accommodates pipe deflection and or non-alignment: If nominal diameter <DN200, deflection angle is $\geq 1^\circ$; if nominal diameter \geq DN200, deflection angle is $\geq 0.5^\circ$ but $< 1^\circ$.
- The C-shaped rubber gasket provides excellent self-sealing capabilities in both low and high-pressure services as well as under certain vacuum conditions.
- The design and construction of the coupling with elastomeric gaskets can provide significant noise and vibration absorption as well as seismic stress.
- Coupling keys engage the full circumference of the grooves and provide significant pressure and end load restraint against pipe movement from internal and external forces.



1G - RIGID COUPLING

- Can be used in services up to 3450Kpa and is available in painted or hot dipped galvanised.
- The built-in teeth on the coupling grip the groove shoulder and serve to reduce linear movement.
- The T&G mechanism features a slight offset at the foot of the coupling halves which serve to protect the gasket from exposure.
- With the T&G style coupling no metal-to-metal contact of the pads is required. There is normally a 1.6mm to 3.2mm gap between the bolt pads when installed.



90S - 90DEG ELBOW LIGHT DUTY

130S - LIGHT DUTY TEE

120 - ELBOW 45DEG



300 - CAP

- Painted in acrylic enamel (MSDS available).
- Made to ASTM A-536 - Specification for Ductile Iron Castings Grade. Available in Galvanised finish. Galvanising conforms to ASTM A-153.
- Also available - Concentric Reducers, Eccentric Reducers, Reducing Tees and more.



3G - MECHANICAL TEE GROOVED

3J - MECHANICAL TEE THREADED

- Designed for creating an easy and effective branch/ outlet in pipe work.
- Made to ASTM A-536 - Specification for Ductile Iron Castings Grade. Available in Galvanised finish. Galvanising conforms to ASTM A-153.
- Available with threaded or grooved outlets.



321G - FLANGE ADAPTOR STUB

- Holes are incorporated into the fitting, available in different hole configurations.
- Painted in acrylic enamel (MSDS available).
- Made to ASTM A-536 - Specification for Ductile Iron Castings Grade.
- Available in Galvanised. Galvanising conforms to ASTM A-153.

GROOVED FITTINGS

STOCK RANGE - PAINTED

TYPE	CODE	25NB	32NB	40NB	50NB	65NB	80NB	100NB	125NB	150NB	200NB	250NB	300NB
1GS Rigid Couplings	GxxFCP					Y	Y	Y		Y	Y		
1G Rigid Couplings	GxxRCP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1N Flexible Couplings	GxxCP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1N Reducing Coupling	GxxxxCP				Y	Y	Y	Y		Y			
1NH H/Duty Flexible Couplings	GxxHPCP				Y	Y	Y	Y		Y	Y		
90S Elbow Short Radius	GxxFE				Y	Y	Y	Y		Y	Y		
90 Elbow	GxxE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
120 Elbow 45°	GxxE45		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
110 Elbow 22.5°	GxxE22		Y	Y	Y	Y	Y	Y	Y	Y	Y		
130S Tee Short Radius	GxxFT				Y	Y	Y	Y		Y	Y		
130 Tee	GxxT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
130R Reducing Tee	GxxxxT				Y	Y	Y	Y		Y	Y		
240 Concentric Reducer	GxxxxCR				Y	Y	Y	Y		Y	Y	Y	
230 Eccentric Reducer	GxxxxER						Y	Y		Y	Y		
3G Mechanical Tee Grooved	GxxxxGMT				Y	Y	Y	Y		Y	Y		
3J Mechanical Tee BSPT	GxxxxMT				Y	Y	Y	Y	Y	Y	Y		
3L Mechanical Tee U-Bolt	GxxxxUMT		Y	Y	Y	Y	Y						
300 Cap	GxxCP	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
321G TE Flange Adaptor	GxxFAE					Y	Y	Y		Y	Y		
Butterfly Valve	GxxBFV				Y	Y	Y	Y	Y	Y	Y	Y	Y
Check Valve	GxxCV					Y	Y	Y	Y	Y	Y	Y	Y
Strainer	GxxYS					Y	Y	Y	Y	Y	Y	Y	Y
Monitored Butterfly Valve	xxxMBVG300					Y	Y	Y		Y	Y		
Alarm Valve	xxxAVE3					Y	Y	Y		Y	Y		

STOCK RANGE - GALVANISED

TYPE	CODE	25NB	32NB	40NB	50NB	65NB	80NB	100NB	125NB	150NB	200NB	250NB	300NB
1GS Rigid Couplings	GxxFCPG					Y	Y	Y		Y	Y		
1G Rigid Couplings	GxxRCPG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1N Flexible Couplings	GxxCPG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1N Reducing Coupling	GxxxxCPG				Y	Y	Y	Y		Y			
1NH H/Duty Flexible Couplings	GxxHPCPG				Y	Y	Y	Y		Y	Y		
90S Elbow Short Radius	GxxFEG				Y	Y	Y	Y		Y	Y		
90 Elbow	GxxEG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
120 Elbow 45°	GxxE45G		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
110 Elbow 22.5°	GxxE22G		Y	Y	Y	Y	Y	Y	Y	Y	Y		
130S Tee Short Radius	GxxFTG				Y	Y	Y	Y		Y	Y		
130 Tee	GxxTG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
130R Reducing Tee	GxxxxTG				Y	Y	Y	Y		Y	Y		
240 Concentric Reducer	GxxxxCRG				Y	Y	Y	Y		Y	Y	Y	
230 Eccentric Reducer	GxxxxERG						Y	Y		Y	Y		
3G Mechanical Tee Grooved	GxxxxGMTG				Y	Y	Y	Y		Y	Y		
3J Mechanical Tee BSPT	GxxxxMTG				Y	Y	Y	Y	Y	Y	Y		
3L Mechanical Tee U-Bolt	GxxxxUMTG		Y	Y	Y	Y	Y						
300 Cap	GxxCPG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
321G TE Flange Adaptor	GxxFAEG					Y	Y	Y		Y	Y		

GROOVED FITTINGS (CONTINUED)



1G-RIGID

Stock code: G(NB)RCP & G(NB)RCPG



1GS-RIGID

Stock code: G(NB)FCP & G(NB)FCPG



1N-FLEXIBLE

Stock code: G(NB)CP & G(NB)CPG



1N-REDUCING COUPLING

Stock code: G(NB)(NB)CP & G(NB)(NB)CPG



1NH-HEAVY DUTY FLEXIBLE

Stock code: G(NB)HPCP



3G MECH TEE GROOVED OUTLET

Stock code: G(NB)(NB)GMT & G(NB)(NB)GMTG



3J MECH TEE BSP OUTLET

Stock code: G(NB)(NB)MT & G(NB)(NB)MTG



3L MECH TEE U-BOLT BSP OUTLET

Stock code: G(NB)(NB)UMT & G(NB)(NB)UMTG



90-ELBOW 90°

Stock code: G(NB)E & G(NB)EG



90S-LIGHT DUTY ELBOW 90°

Stock code: G(NB)FE & G(NB)FEG



120 45° ELBOW

Stock code: G(NB)E45



130 TEE

Stock code: G(NB)FT & G(NB)FTG



130-R REDUCING TEE

Stock code: G(NB)(NB)T & G(NB)(NB)TG



130S LIGHT DUTY TEE

Stock code: G(NB)FT & G(NB)FTG



240-CONCENTRIC REDUCER

Stock code: G(NB)(NB)CR & G(NB)(NB)CRG



230-ECCENTRIC REDUCER

Stock code: G(NB)(NB)ER

GROOVED FITTINGS (CONTINUED)



300 CAP

Stock code: G(NB)C &
G(NB)CG



**321-PN16 FLANGE ADAPTER
HINGED**

Stock code: G100F



321G-FLANGE ADAPTER STUB

Stock code: G(NB)FAEG



BUTTERFLY VALVE

Stock code: G(NB)BFV



CHECK VALVE

Stock code: G(NB)CV



STRAINER

Stock code: G(NB)(NB)YS

HIGH PRESSURE FITTINGS

The high pressure pipe fittings illustrated in the following pages are designed for use with American Standard Linepipe and are used extensively in the fabrication of screwed or socket-weld high pressure piping systems.

They are found throughout refinery, petrochemical and industrial plants, on pressure vessels, hydraulic lines, refrigeration plants and wherever high pressures and/or temperatures occur.

	FITTING PRESSURE CLASS	CORRESPONDING MAX. PIPE SCHEDULE
THREADED FITTINGS	3000 lb	Sch 80
	6000 lb	XXS
SOCKET-WELD FITTINGS	3000 lbs	Sch 80
	6000 lbs	Sch 160

DIMENSION SPECIFICATIONS

ASME B16.11 - Forged Steel Fittings, Socket-weld and Threaded.

BS 3799 - Forged Steel Pipe Fittings, screwed and socket-weld for the petroleum industry - based on ASME B16.11.

MATERIAL SPECIFICATIONS

Carbon Steel - forgings to ASTM A105, or barstock.

Stainless and Alloy Steels to ASTM A182 of the appropriate grades, including:

- Grade F11 (Chrome Moly, for high temperatures).
- Grade F316L (Stainless Steel, for temperature and corrosion resistance).
- ASTM A350 Gr LF2 (Carbon Steel for low temperatures).

WORKING PRESSURES

PRESSURE/TEMPERATURE RATINGS

NOMINAL PRESSURE RATINGS	SERVICE TEMPERATURE - CELSIUS NON SHOCK WORKING PRESSURES TABULATED IN KPA																		
	38	66	93	121	149	177	204	232	260	288	316	343	371	399	427	427*	482*	510+	538+
3000 lb	20,670	20,359	20,084	19,808	19,602	19,360	19,119	18,706	17,948	16,949	15,915	14,813	13,504	12,229	10,507	8,612	6,373	4,409	2,445
6000 lb	41,340	40,754	40,168	39,617	39,232	38,756	38,239	37,412	37,412	33,933	31,831	29,627	27,008	24,459	21,014	17,225	12,780	8,853	4,926

* These pressures are in accordance with the ANSI Code For Pressure Piping (ASME B31.1).

+ Suggest Alloy Steel above 482 deg C.

All High Pressure fittings must be used within the pressure / temperature limitations of the pipes to which they are attached.

THREADS

Screwed Fittings are Taper threaded in accordance with ASME B1.20.1, having thread lengths in accordance with applicable tables.

The actual theoretical axes of the threads may diverge by not more than 1.6 mm in 300 mm.

Fittings can be threaded to British Standard Taper (BS 21) if required. ASME B 1.20.1, the American Standard for pipe threads, determines length of thread engagement as below:

SIZE	6	8	10	15	20	25	32	40	50	65	80	90	100	125	150
SIZE MM	7.93	9.52	11.11	12.7	14.28	17.46	17.46	17.46	17.46	23.81	24.6	26.98	28.57	30.16	30.16

FINISH

Fittings are normally self coloured although a small range of Hot Dipped Galvanised finish is carried.

END FINISH

- Screwed BSP
- Screwed NPT
- Socket-Weld

HIGH PRESSURE FITTINGS (CONTINUED)

STOCK RANGE

Note: All NPT Threaded product is Shell Approved.

	CODE	8	10	15	20	25	32	40	50	80	100
BSP - 3000 LB											
Coupling	xxHBCPS	Y	Y	Y	Y	Y	Y	Y	Y		
Union F/F	xxHBUS		Y	Y	Y	Y	Y	Y	Y		
Hex Nipple	xxBHNS	Y	Y	Y	Y	Y	Y	Y	Y		
Elbow 90 deg F/F	xxHBES			Y	Y	Y	Y	Y	Y		
Bush	xxHBBS			Y	Y	Y	Y	Y	Y		
Hex Plug	xxHBPLS			Y	Y	Y	Y	Y	Y		
Tee	xxHBTS	Y		Y	Y	Y	Y	Y	Y		
NPT - 3000 LB											
Coupling	xxHNCPS	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Red. Coupling	xxHNCPS				Y	Y		Y	Y		
Coupling (Galv)	xxGHNCPS		Y	Y	Y	Y		Y	Y		
Elbow 90 deg F/F	xxHNES			Y	Y	Y	Y	Y	Y		
Elbow 90 deg F/F (Galv)	xxGHNES	Y		Y	Y	Y		Y	Y		
Elbow 90 deg M/F	xxHNEMFS	Y		Y	Y	Y	Y	Y	Y		
Elbow 45 deg F/F	xxHNE45S			Y	Y	Y			Y		
Elbow 45 deg F/F (Galv)	xxGHNE45S								Y		
Union F/F	xxHNUS			Y	Y	Y		Y	Y		
Union F/F (Galv)	xxGHNUS			Y		Y		Y	Y		
Bush	xxHNBS	Y	Y	Y	Y	Y	Y	Y	Y		
Bush (Galv)	xxGHNBS			Y	Y	Y		Y	Y	Y	
Plug	xxHNPLS	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Plug (Galv)	xxGHNPLS	Y	Y	Y	Y	Y		Y	Y		
Hex Nipple	xxHNNHNS	Y	Y	Y	Y	Y	Y	Y	Y		
Red. Hex Nipple	xxyyHNNHNS			Y	Y	Y		Y	Y		
Red. Hex Nipple (Galv)	xxyyGHNNHNS			Y	Y	Y		Y	Y		
Tee	xxHNNTS	Y	Y	Y	Y	Y	Y	Y	Y		
Red. Tee	xxHNNTS					Y					
Tee (Galv)	xxGHNTS			Y	Y	Y		Y	Y		
Cap	xxHNCS			Y	Y	Y		Y	Y		
Cap (Galv)	xxGHNCS			Y	Y	Y		Y	Y		
NPT - 6000 LB											
Coupling	xxHNCP6S			Y	Y	Y					
Elbow 90 deg F/F	xxHNE6S			Y		Y					
Hex Nipple	xxHNNH6S			Y	Y	Y		Y			
Tee	xxHNNT6S			Y		Y					
SOCKET-WELD 3000 LB											
Coupling	xxHSCPS			Y	Y	Y	Y	Y	Y		
Red. Coupling	xxHSCPS				Y	Y	Y	Y	Y		
Elbow 45 deg	xxHSE45S			Y	Y	Y	Y	Y	Y		
Elbow 90 deg	xxHSES		Y	Y	Y	Y	Y	Y	Y		
Union	xxHSUS			Y	Y	Y		Y	Y		
Tee	xxHSTS			Y	Y	Y	Y	Y	Y		
Red. Tee	xxHSTS				Y	Y		Y	Y		
Cap	xxHSCS			Y		Y		Y	Y		
Insert	xxHSIS				Y	Y	Y	Y	Y		

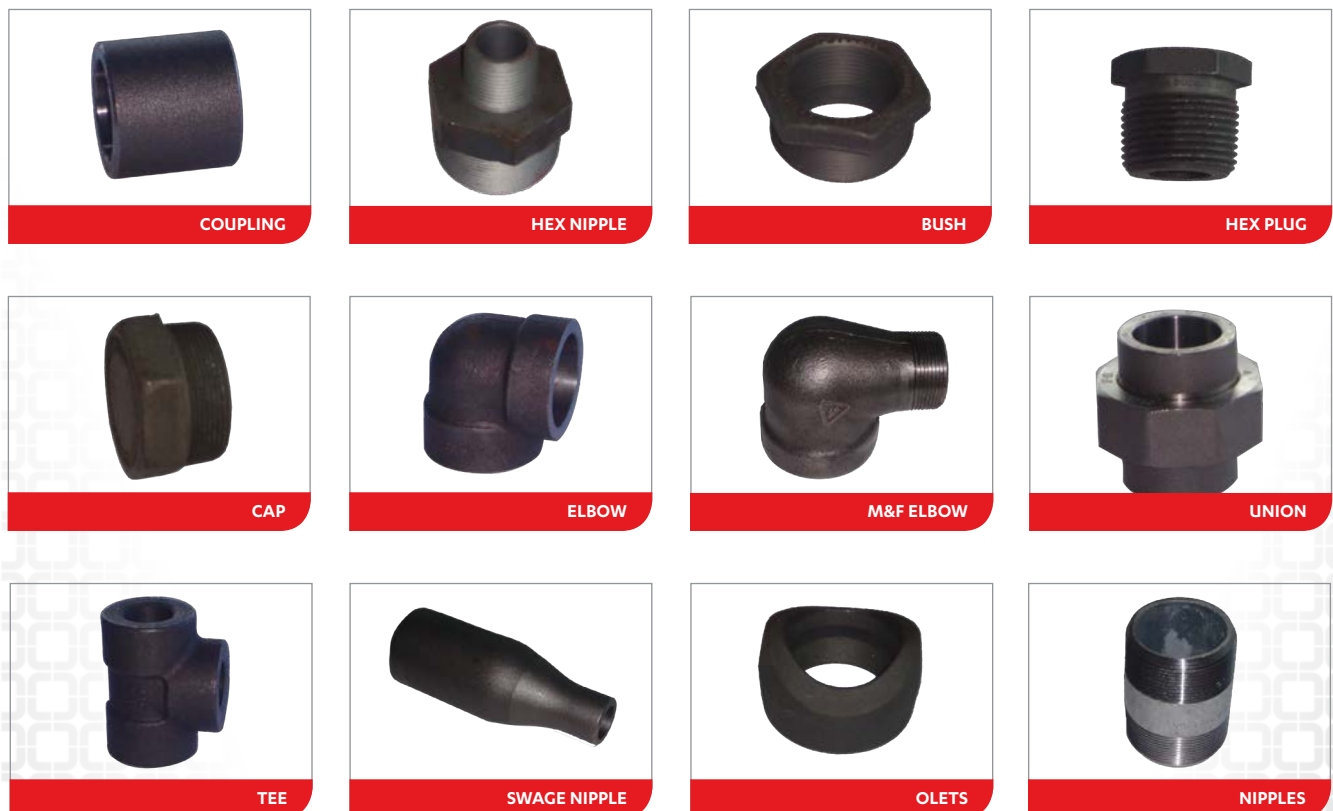
HIGH PRESSURE FITTINGS (CONTINUED)

STOCK RANGE (CONTINUED)

Note: All NPT Threaded product is Shell Approved.

	CODE	8	10	15	20	25	32	40	50	80	100
SOCKET-WELD 6000 LB											
Coupling	xxHSCP6S				Y	Y		Y	Y		
Elbow 90 deg	xxHSE6S				Y	Y					
Tee	xxHST6S				Y	Y					
OUTLETS											
Threadolet (BSP)	xxHBTLS			Y					Y		
Threadolet (NPT)	xxHNTLS	Y	Y	Y	Y	Y		Y	Y		
Elbowlet	xxHNELS			Y		Y					
Threadolet 6000lb (NPT)	xxHNLT6S			Y	Y	Y			Y		
Socketlet	xxHSLs			Y	Y	Y	Y	Y	Y		
Socketlet 6000lb	xxHSL6S			Y	Y	Y					
Weldolet Sch 40	xxHWLS			Y	Y	Y	Y	Y	Y	Y	Y
Weldolet Sch 80	xxS80HWLS				Y	Y		Y	Y	Y	Y
Weldolet Sch 160	xxS160HWLS					Y			Y		
Weldolet XXS	xxXXSHWLS					Y		Y	Y		
Nipolet 6000 lb	xxNOL			Y	Y	Y		Y			
MISCELLANEOUS											
Concentric Swage Nipple S80	xyyS80CSNS					Y		Y	Y		
Concentric Swage Nipple S160	xyyS160CSNS					Y		Y	Y		

HIGH PRESSURE FITTINGS



MECHANICAL JOINTS

Steel & Tube are agents for Klamflex, manufacturers of a wide range of mechanical couplings and fittings.

RANGER COUPLINGS

Klamflex Ranger Couplings are designed to join pipes of various outside diameters with the same or different nominal bore.

They can be used as a straight or step coupling.

Range 50 - 600 NB.

Maximum working pressure - 16 bar.

RANGER COUPLINGS WITH STAINLESS STEEL SLEEVE

Klamflex Ranger Coupling SS are designed with a stainless steel sleeve and epoxy coated end rings, the sleeve which comes into contact with the fluid is manufactured from T316 Stainless Steel and can be used where the media is extremely corrosive.

Range 50 -300 NB.

Maximum working pressure - 16 bar.

RANGER END CAPS

Klamflex Ranger End Caps are manufactured from Ranger Couplings providing the versatility of using them on a variety of different pipe materials and outside diameters.

Range 50 -300 NB.

Maximum working pressure - 16 bar.

RANGER FLANGE ADAPTORS

Ranger Flange Adaptors are designed to join pipes of various outside diameters to flanged valves, pumps, flow meters, flanged pipe and fittings.

They are manufactured using multi drilled flange to accommodate most drilling tables.

KLAMFLEX DISMANTLING JOINTS

Dismantling Joints are a double flanged composite fitting featuring a telescopic action between a flanged spigot and a flange adaptor. The joint is designed to provide longitudinal adjustment in flanged pipe systems. They provide a simple method for the installation and removal of flanged valves, pumps, flow meters, flanged pipes and pipe fittings.



SHOULDERED FITTINGS

To compliment the Shouldered Pipe range, a full array of couplings and fittings is available.

COUPLINGS

Galvanised cast couplings 50 NB through to 150 NB with SBR rubber gaskets for water and air service.
200 NB and 250 NB with NBR rubber gaskets.

50 NB & 100 NB 20 bar working pressure / 60 bar test pressure.

150 NB & 200 NB 20 bar working pressure / 40 bar test pressure.

FITTINGS

Fittings are manufactured from pipe to SABS62 in sizes up to and including 250 NB.

Wall thickness are as follows:

50NB 3.2mm

80NB 3.5mm

100NB 3.9mm

150NB 4.2mm

200NB 4.5mm

QUICK CLAMPS

Quick Clamps provide a simple solution for the joining of pipe without the need for welding or screwing.

Simply insert pipe into the specific fitting and tighten by means of a Stainless Steel Grub Screw.

A variety of approximately 30 product types in 5 sizes provides the flexibility to construct pipe frames no matter how complex.

The fittings are designed to match general purpose pipe meeting AS 1074 and BS 1387 as follows:

20NB

25NB

32NB

40NB


50NB

All fittings are Hot Dipped Galvanised.

Quick Clamp fittings can support a axial load of 900 kg (2,000 lbs) per grub screw with the grub screw tightened to a torque of 39 Nm (29 lbs/ft).


Grub Screw material - ASTM A276 - type 410.

101 SHORT TEE		
101A-27	20QC101	
101B-34	25QC101	
101C-42	32QC101	
101D-48	40QC101	
101E-60	50QC101	

125 90° ELBOW		
125A-27	20QC125	
125B-34	25QC125	
125C-42	32QC125	
125D-48	40QC125	
125E-60	50QC125	


104 LONG TEE		
104A-27	20QC104	
104B-34	25QC104	
104C-42	32QC104	
104D-48	40QC104	
104E-60	50QC104	

126 ANGLE CROSS FOR SLOPE UP TO 45°		
126B-34	25QC126	
126C-42	32QC126	
126D-48	40QC126	

116 CORNER WITH THROUGH CENTRE TUBE		
116A-27	20QC116	
116B-34	25QC116	
116C-42	32QC116	
116D-48	40QC116	
116E-60	50QC116	


128 3 WAY 90° ELBOW		
128A-27	20QC128	
128B-34	25QC128	
128C-42	32QC128	
128D-48	40QC128	
128E-60	50QC128	

119 TWO SOCKET CROSS WITH CENTRE VERTICAL TUBE		
101A-27	20QC119	
101B-34	25QC119	
101C-42	32QC119	
101D-48	40QC119	
101E-60	50QC119	


131 WALL FLANGE		
131A-27	20QC131	
131B-34	25QC131	
131C-42	32QC131	
131D-48	40QC131	
131E-60	50QC131	

QUICK CLAMPS (CONTINUED)


132 RAILING BASE FLANGE

132A-27	20QC132	
132B-34	25QC132	
132C-42	32QC132	
132D-48	40QC132	
132E-60	50QC132	


144 RAILING SIDE SUPPORT VERTICAL BASE

144B-34	25QC144	
144C-42	32QC144	
144D-48	40QC144	


134 GROUND SOCKET

134C-42	32QC134	
134D-48	40QC134	


146 SIDE PALM FIXING

146B-34	25QC146	
146C-42	32QC146	
146D-48	40QC146	


135 CLAMP ON TEE

135A-27	20QC135	
135B-34	25QC135	
135C-42	32QC135	
135D-48	40QC135	

148 SHORT TEE SWIVEL

148A-27	20QC148	
148B-34	25QC148	
148C-42	32QC148	
148D-48	40QC148	


138 GATE EYE

138A-27	20QC138	
138B-34	25QC138	
138C-42	32QC138	
138D-48	40QC138	

149 SLEEVE JOINT

149A-27	20QC149	
149B-34	25QC149	
149C-42	32QC149	
149D-48	40QC149	
149E-60	50QC149	


140 GATE HINGE

140A-27	20QC140	
140B-34	25QC140	
140C-42	32QC140	
140D-48	40QC140	

150 INTERNAL JOINT

150A-27	20QC150	
150B-34	25QC150	
150C-42	32QC150	
150D-48	40QC150	

143 HANDRAIL BRACKET

143A-27	20QC143	
143B-34	25QC143	
143C-42	32QC143	
143D-48	40QC143	

158 FOUR WAY CROSS WITH CENTRE TUBE


158A-27	20QC158	
158B-34	25QC158	
158C-42	32QC158	
158D-48	40QC158	

QUICK CLAMPS (CONTINUED)

160 CLAMP ON CROSSOVER

160B-34	25QC160	
160C-42	32QC160	
160D-48	40QC160	


173M SINGLE MALE SECTION OF SWIVEL

173MA-27	20QC173M	
173MB-34	25QC173M	
173MC-42	32QC173M	
173MD-48	40QC173M	
173ME-60	50QC173M	

161 90' CROSSOVER

161A-27	20QC161	
161B-34	25QC161	
161C-42	32QC161	
161D-48	40QC161	
161E-60	50QC161	


173 SINGLE SWIVEL COMBINATION

173A-27	20QC173	
173B-34	25QC173	
173C-42	32QC173	
173D-48	40QC173	
173E-60	50QC173	


167M DOUBLE MALE SECTION OF SWIVEL

167MA-27	20QC167M	
167MB-34	25QC167M	
167MC-42	32QC167M	
167MD-48	40QC167M	


176 SIDE OUTLET TEE

176A-27	20QC176	
176B-34	25QC176	
176C-42	32QC176	
176D-48	40QC176	
176E-60	50QC176	


168M 90' CORNER SWIVEL MALE SECTION

146B-34	25QC146	
146C-42	32QC146	
146D-48	40QC146	

179 LOCKING COLLAR

179A-27	20QC179	
179B-34	25QC179	
179C-42	32QC179	
179D-48	40QC179	

173F FEMALE SECTION OF SWIVEL

173FA-27	20QC173F	
173FB-34	25QC173F	
173FC-42	32QC173F	
173FD-48	40QC173F	
173FE-60	50QC173F	

TEEKAY – PIPE COUPLINGS

Teekay Pipe Couplings allow pipes to be joined without the need for flanging, grooving, threading or welding. By simply butting two pipes together and connecting with a Teekay Pipe Coupling, space, weight, time and cost savings are achieved with every installation.

Teekay Couplings have been sold for over three decades to more than 85 countries worldwide for civil, water, oil and gas, marine, building service, process, automotive and countless other industrial projects for pipes between 21mm and 4200mm in diameter.

Teekay Couplings are available in two configurations, Axilock and Axiflex:

AXILOCK (AXIALLY RESTRAINED)

The Teekay Axilock has two metallic anchor rings that dig into the pipe wall when the coupling is installed. This prevents the two pipes from pushing apart under pressure or pulling away under end-load.

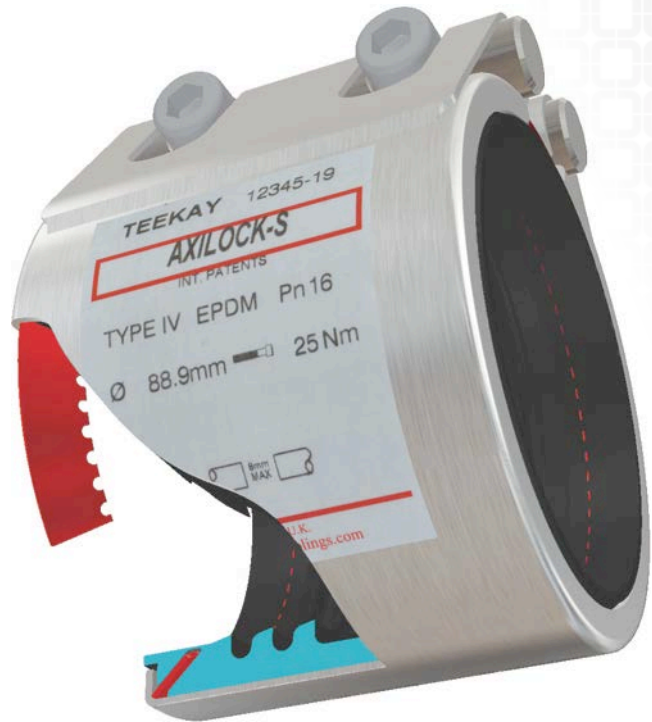
AXIFLEX (NON AXIALLY RESTRAINED)

The Teekay Axiflex joins pipes that are already anchored, in this instance the pipeline forces do not have to be contained by the couplings. Therefore diameters up to 4 metres are possible with this design. The coupling can be placed over the pipe ends or supplied in a wrap-around version.

Each coupling (whether Axilock or Axiflex) consists of a casing, a gasket and a lockpart. The purpose of the casing is to house the gasket and to press it onto the pipe surface when the lockpart is closed. The lockpart is designed to pull the two ends of the casing together circumferentially around the pipe. In order to achieve this, the coupling is labelled clearly with a torque figure which ensures that the gasket is compressed sufficiently against the pipe surface.

The Axilock has two anchor rings which are placed adjacent to, but separate from, the sealing mechanism.

As the locking part is tightened the sealing lips are pressed against the pipe surface to form a seal. At the same time the two anchor rings penetrate the rubber, bite into the two pipes and

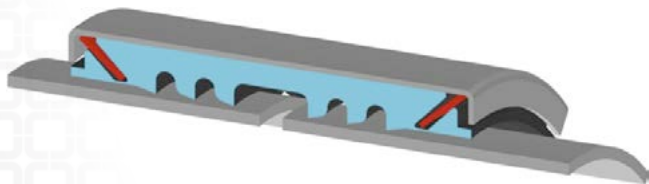


prevent them from pulling apart, whether by external loading or intense pressure. The end seal is also pressed against the pipe surface, which protects both the anchor ring and the section of the pipe where the anchor rings have bitten, from any possible external corrosion.

The Axiflex has two thick sealing lips which allow for pipe expansion and contraction.

The sealing lips press against the pipe surface and form lip seals. The lip seals are designed to resist the internal pressure in the pipes. As the pressure increases, the lip seals swell to seal more tightly against the pipe surface.

For more detailed information refer to:
www.teekaycouplings.com



HIGH DENSITY POLYETHYLENE PIPE (HDPE)

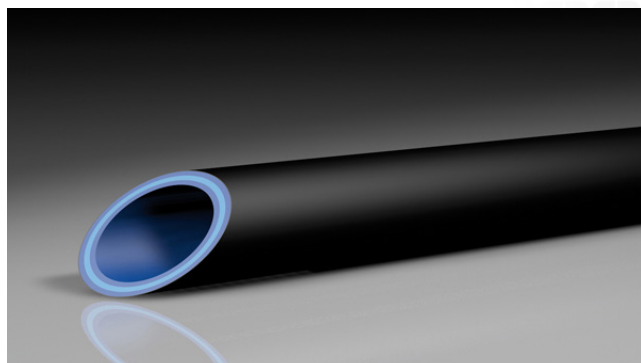
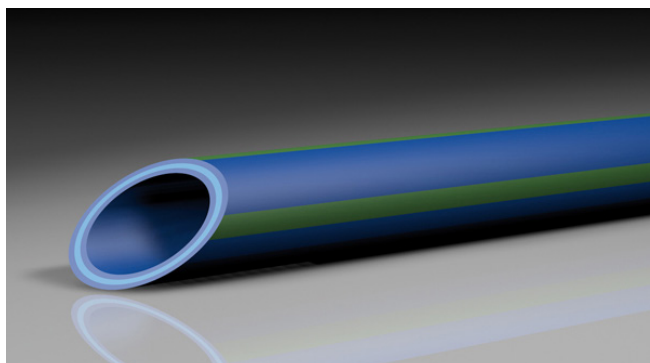
Polyethylene pipe is available in pressures ranging from PN 5 through to PN 25 and sizing between 63mm OD through to 1000mm OD. Polyethylene pipe is manufactured to AS/NZS 4130 2009. Lengths include 6m, 12m 15m and 18m. Steel & Tube distribute a variety of additional sizes and specifications, and offer a full indent service for project work.

PIPE DIMENSIONS TO AS/NZS 4130:2009

* = NON STANDARD OUTSIDE DIAMETERS

PE100	PN 5		PN 6.3		PN 8		PN 10		PN 12.5		PN 16		PN 20		PN 25									
	PN 4		PN 5		PN 6.3		PN 8		PN 10		PN 12.5		PN 16		PN 20.									
	SDR 33		SDR 26		SDR 21		SDR 17		SDR 13.6		SDR 11		SDR 9		SDR 7.4									
DN	MEAN BORE	S	KG/M	MEAN BORE	S	KG/M	MEAN BORE	S	KG/M	MEAN BORE	S	KG/M	MEAN BORE	S	KG/M	MEAN BORE	S	KG/M						
63	59	2.2	0.4	58	2.5	0.5	57	3.2	0.6	55	4.1	0.7	53	5	0.9	51	6.2	1.1	48	7.6	1.3	45	9.1	1.5
75	70	2.5	0.55	69	3	0.67	67	3.9	0.85	65	4.8	1	63	5.9	1.3	61	7.2	1.5	57	8.9	1.9	53	10.9	2.1
*80	75	2.6	0.65	73	3.2	0.78	72	4.1	0.95	70	5.1	1.2	67	6.4	1.45	64	7.9	1.7	61	9.6	2	58	11.7	2.4
*85	79	2.8	0.7	78	3.4	0.88	76	4.4	1.1	74	5.4	1.3	71	6.8	1.6	68	8.4	1.9	65	10.2	2.3	62	12.4	2.7
90	84	3	0.8	83	3.6	0.99	81	4.6	1.2	78	5.8	1.5	76	7	1.8	73	8.7	2.2	69	10.7	2.6	64	13	3.1
*101	94	3.3	1	93	4	1.2	91	5.2	1.5	88	6.4	1.8	85	8	2.3	81	9.9	2.7	77	12.1	3.3	74	14.7	3.9
110	103	3.7	1.2	101	4.4	1.4	99	5.7	1.8	96	7	2.2	93	8.6	2.7	89	10.6	3.2	84	13	3.9	79	16	4.6
125	117	4.2	1.5	115	5	1.9	112	6.4	2.3	109	7.9	2.8	105	9.8	3.5	101	12.1	4.2	95	14.8	5	89	18.1	5.9
140	131	4.6	1.9	128	5.6	2.3	126	7.1	2.8	122	8.8	3.5	118	10.9	4.3	113	13.4	5.2	107	16.6	6.3	100	20.3	7.4
*145	135	4.8	2	133	5.8	2.5	130	7.5	3.5	127	9.2	3.8	122	11.5	4.7	117	14.2	5.6	110	17.4	6.7	104	21.2	7.9
160	150	5.2	2.5	147	6.4	3	144	8.2	3.8	140	10	4.6	135	12.5	5.7	129	15.4	6.9	122	18.9	8.2	114	23.1	9.6
*170	159	5.6	2.8	156	6.8	3.4	153	8.8	4.3	148	10.8	5.2	143	13.5	6.4	137	16.7	7.7	129	20.4	9.2	122	24.8	10.9
180	168	5.9	3.1	165	7.2	3.9	162	9.1	4.8	157	11.4	5.8	152	14.1	7.2	145	17.3	8.7	138	21.2	10.3	129	25.9	12.2
*185	173	6	3.3	170	7.4	4.1	166	9.5	5.1	161	11.8	6.2	156	14.7	7.6	149	18.2	9.1	140	22.2	10.9	132	27	12.9
200	187	6.6	3.8	184	8	4.7	180	10.2	6	175	12.6	7.2	169	15.5	8.8	162	19.2	11.2	153	23.6	12.7	143	28.8	15.1
*213	199	7	4.4	195	8.6	5.3	191	11	6.7	186	13.5	8.2	179	16.9	10.1	171	20.9	12.1	162	25.6	14.5	151	31.1	17.1
225	210	7.3	4.9	206	9	5.9	202	11.4	7.5	197	14.2	9.1	190	17.5	11.2	182	21.6	13.5	172	26.5	16.2	161	32.4	19.1
250	234	8.2	6	229	10	7.4	225	12.5	9.2	219	15.6	11.2	211	19.4	13.8	202	23.9	16.7	191	29.4	19.9	178	36	23.4
280	262	9.1	7.5	257	11.3	9.3	252	14.2	11.5	245	17.5	14.1	237	21.7	17.3	226	26.8	21	214	33	25	199	40.3	29.5
315	295	10.2	9.5	289	12.7	11.7	283	15.8	14.6	276	19.7	17.9	266	24.5	21.9	255	30.1	26.5	241	37.1	31.6	225	45.2	37.4
*320	299	10.4	9.8	294	12.9	12.2	287	16.5	15	279	20.3	18.4	269	25.4	22.5	257	31.4	27.4	243	38.4	32.6	227	46.7	38.6
355	332	11.5	12	326	14.3	14.8	319	17.8	18.5	310	22.3	22.7	300	27.5	27.8	287	33.9	33.7	272	41.7	40.2	253	51	47.5
*385	360	12.6	14.2	354	15.5	17.4	345	19.8	22	336	24.4	26.7	324	30.6	32.7	309	37.8	39.6	293	42.6	47.2	273	56.2	55.6
400	374	13	15.3	367	16.1	18.8	359	20.1	23.5	350	25	28.7	338	31	35.3	324	38.2	42.3	306	47	51	285	57.4	60.2
450	421	14.6	18.7	413	17.9	23.9	405	22.7	28.9	394	28.1	35.3	380	34.9	43.3	364	43	52.5	346	52	62.7	-	-	-
500	468	16.2	24	459	20.1	29.4	450	25.2	36.8	437	31.2	44.9	423	38.7	55.1	404	47.8	66.8	383	58.7	79.7	-	-	-
560	524	18.2	30	514	22.6	36.9	504	28.1	46.1	490	35	53.6	473	43.4	69.1	453	53.4	83.8	-	-	-	-	-	-
630	589	20.4	38	579	25.4	46.7	567	31.6	58.4	551	39.3	71.2	533	48.7	87.5	-	-	-	-	-	-	-	-	-
710	667	23	47.4	652	28.6	59.3	639	35.7	72.3	625	44.3	88.7	603	54.9	108.2	-	-	-	-	-	-	-	-	-
800	749	25.4	59.9	735	32.3	74.9	720	39.9	92.2	701	49.4	112.1	676	61.7	137.8	-	-	-	-	-	-	-	-	-
900	842	28.6	75.5	827	36.3	95.2	810	44.9	116.1	788	55.5	141.9	761	69.4	174.1	-	-	-	-	-	-	-	-	-
1000	936	31.8	93.3	919	40.3	117.3	900	49.9	143.6	876	61.7	175.2	845	77.2	215.1	-	-	-	-	-	-	-	-	-

AQUATHERM BLUE



Pipe system made of polypropylene for chilled, hot fluid and various industrial applications.

This system was developed 10 years ago in order to prevent corrosion in air conditioning pipes and quickly expanded its range of application, with many positive features for other fields of piping installation. It has gone on to find success around the world in hotels, stadiums, schools, offices, and industrial applications.

The Aquatherm Blue pipe system has been developed especially for applications outside the potable water installation. In addition to the general advantages of the PP-R pipesystem Aquatherm Blue pipe in comparison with the Aquatherm Green pipe system offers higher volumetric current values due to smaller wall thickness.

SYSTEM COMPONENTS

The system has to be installed in combination with the Aquatherm Green pipe fittings and includes all elements for the pipe system installation for chilled, hot fluid and various industrial applications.


The Aquatherm Blue pipe system is applied in all fields of:

- New installation.
- Repair.
- Renovation.
- Heating pipes for residential houses.
 - Heat generator connections heating manifolds risers
 - high rise manifold connections radiator connections.
- Pipe networks for:
 - Climate technology.
 - Chilled water technology.
 - Swimming-pool technology for chemical transport.
 - Rainwater application.
 - Compressed air systems.
 - Underfloor heating systems in ship building.
 - District heating.
 - Geothermal.

ARTICLE-NO.	OLD BRAND NAME	NEW BRANDING STRUCTURE					
		NEW BRAND NAME		STANDARD DIMENSION RATIO	STRUCTURE OF PIPE	SPECIAL FEATURE OF PIPE	MATERIAL
		COMPANY	SYSTEM				
2010208...2010212	Climatherm SDR11	Aquatherm	Blue	SDR 11	S		PP-R
2070112...2070712	Climatherm faser composite pipe SDR7,4/SDR11	Aquatherm	Blue	SDR 7,4/SDR 11	MF		PP-R
2070162...2070762	Climatherm faser composite pipe SDR7,4/SDR11/SDR17,6 UV	Aquatherm	Blue	SDR 7,4/SDR 11/SDR 17,6	MF	UV	PP-R
2170114...2170712	Climatherm faser composite pipe SDR7,4/SDR11 OT	Aquatherm	Blue	SDR 7,4/SDR 11	MF	OT	PP-R
2170164...2170188	Climatherm faser composite pipe SDR7,4/SDR11 UV OT	Aquatherm	Blue	SDR 7,4/SDR 11	MF	UV-OT	PP-R
2570130...2570154	Climatherm faser composite pipe SDR17,6	Aquatherm	Blue	SDR 17,6	MF		PP-R
2270111...2270142	Climatherm faser composite pipe SDR7,4/SDR11 ISO	Aquatherm	Blue	SDR 7,4/SDR 11	MF	TI	PP-R
2470711...2470126	Climatherm faser composite pipe SDR7,4/SDR11 OT ISO	Aquatherm	Blue	SDR 7,4/SDR 11	MF	OT-TI	PP-R

AQUATHERM BLUE (CONTINUED)

Pipe system made of polypropylene for chilled, hot fluid and various industrial applications			
SDR:	11	SDR:	7,4 / 11 / 17,6
ø:	20-32mm	ø:	20-630mm
Type of pipe:		Type of pipe:	
Old:	climatherm pipe	Old:	climatherm faser composite pipe
New:	aquatherm blue pipe S	New:	aquatherm blue pipe MF
SDR:		SDR:	7,4 / 11
ø:		ø:	20-250mm
Type of pipe:		Type of pipe:	
Old:		Old:	climatherm faser composite pipe OT
New:		New:	aquatherm blue pipe MF OT

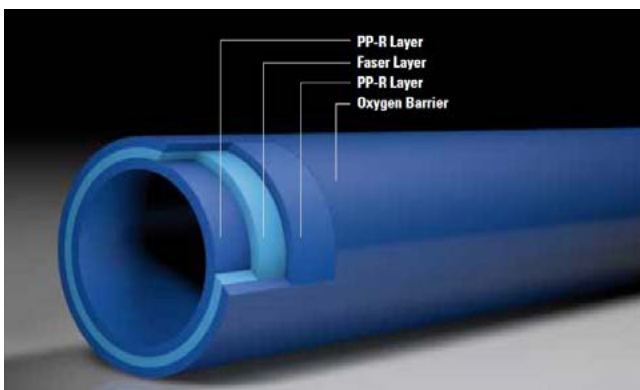
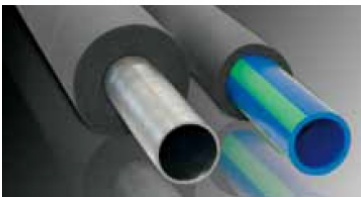


AQUATHERM BLUE PIPE STOPS CORROSION DAMAGES

Air conditioning systems (problems with dew-point) installed with steel pipes especially are affected by corrosion at the outer surface of the pipes. Aquatherm Blue pipe is manufactured from 100% corrosion resistant materials which increase the life time of air conditioning pipe systems considerably.

INSULATION AGAINST ENERGY LOSS

Compared to metal pipes Aquatherm Blue pipes require a considerable thinner insulation.



OXYGEN TIGHT

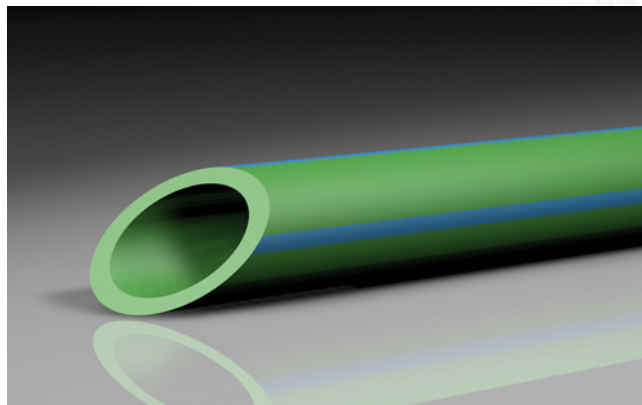
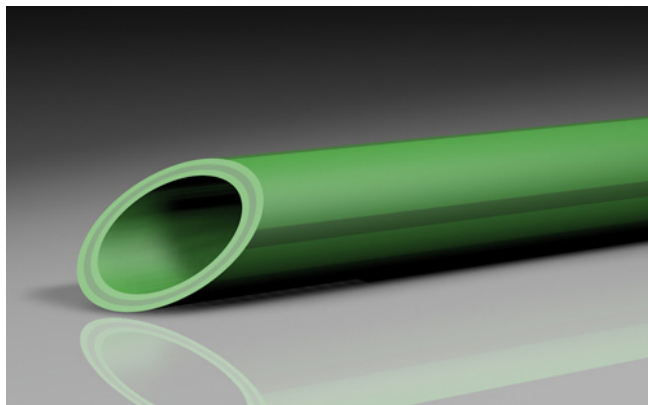
With the redeveloped Aquatherm Blue pipe faser composite pipe OT, Aquatherm launches an oxygen tight pipe, which is equipped with an oxygen barrier and thus corresponds to the requirements of DIN 4726.

The Aquatherm Blue pipe faser composite pipe OT in combination with the Aquatherm Blue pipe system includes all elements for the pipe installation of chilled, hot fluid and various industrial applications.

The advantages of Aquatherm Blue pipe OT:

- Oxygen tight by diffusion barrier certified according to DIN 4726.
- Absolutely corrosion resistant.
- Less pipe friction.
- High stability.
- High heat-stability.
- High environmental compatibility.
- High impact rate.
- Resistant against chemicals.
- Heat and sound insulating characteristics.
- Very good welding properties.
- Considerably thinner insulation.

AQUATHERM GREEN



PRE INSULATED PIPE SYSTEMS FOR DISTRICT HEATING

One of the most energy efficient methods of transporting hot potable water as well as heating or cooling water covering long distances is the application of underground piping. To achieve the necessary insulating characteristics for this type of application, Aquatherm offers the factory made pre-insulated Aquatherm TI pipe system with different medium pipes.

These systems are insulated with closed cell PUR rigid foam and coated with a casing pipe made of HDPE.

All medium pipes are plastic-fibre composite pipes.

AQUATHERM GREEN TI

Faser composite pipe system SDR 7,4/9/11 pipe system for potable water in dimensions DN25 – DN200.

AQUATHERM BLUE TI

Faser composite pipe system SDR 7,4/11/17,6 pipe system for heating, cooling and waste water in dimensions DN25 – DN300.

AQUATHERM BLUE OT TI

Faser composite pipe system SDR 7,4/11 oxygen-tight pipe system for heating - and industrial in dimensions DN25 – DN100.

MANIFOLD CONSTRUCTION CUSTOM MADE

A SPECIAL AQUATHERM SERVICE

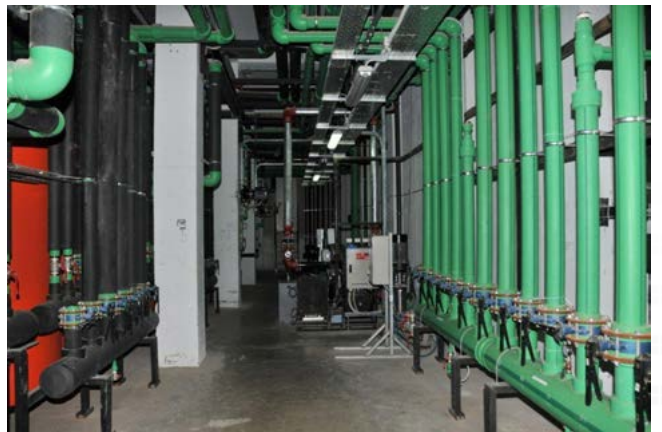
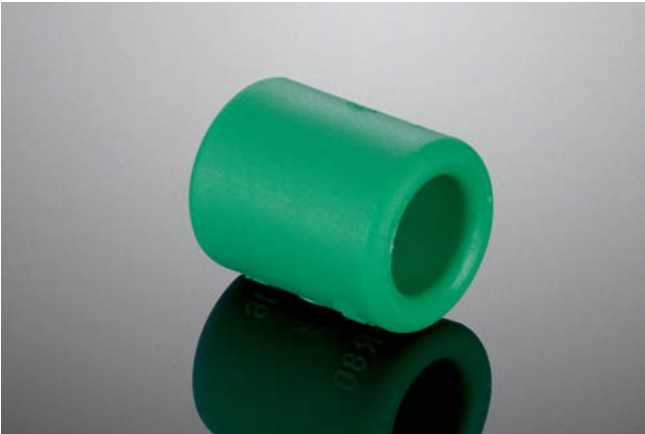
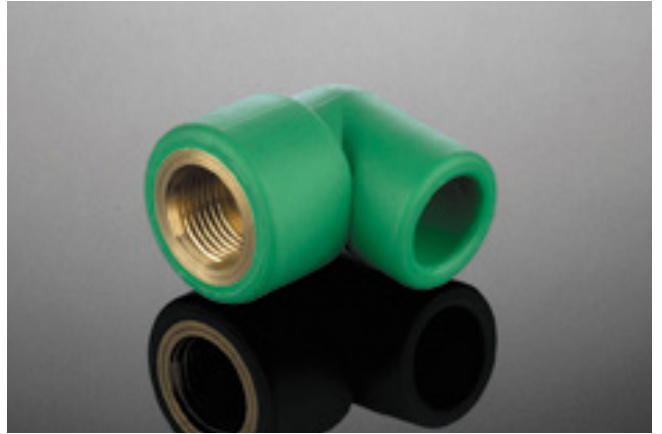
Time is money a worldly wisdom coming true every day especially in the building industry.

The plumbing and heating installation of each construction project is always a temporal and logistical challenge not only for the architect and planner.

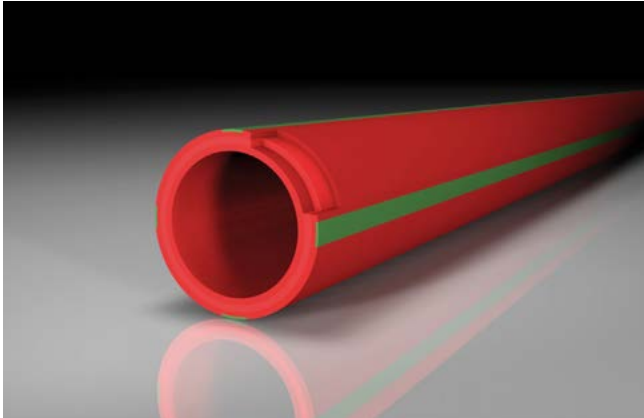
The realisation at site is often a problem for the site managers. Neither the external circumstances or the temporal requirements allow them to concern detailed with the construction of a complicated manifold. In addition there are high costs for the temporary expenses and diverse problems at site, which in most cases can only be solved by higher expenses. Now, Aquatherm offers an alternative to its customers.



AQUATHERM GREEN (CONTINUED)



AQUATHERM RED



Pipe system made of polypropylene for fire sprinkler systems.

Firestop the first plastic pipe system in Germany certified by the VdS will change its name to Aquatherm Red.

Corrosion in fire extinguishing systems brings the risk that the sprinkler system may fail when it is needed most. Leaks at the joints increases installation and maintenance costs. The Aquatherm Red pipe system developed by Aquatherm prevents both and offers a high level of security due to its flame resistant properties.

ADVANTAGES

- Certified and quality inspected.
- Connection by fusion welding.
- Resistant against corrosion and chemicals.
- No accumulation of corrosion products.
- Low pipe roughness factor and high abrasion resistance.
- Heat and sound-insulating characteristics.
- High impact strength.
- Leak-proof connection of pipe and fitting by fusion technique.
- Not easily flammable acc. to DIN 4102-1, building material class B1.
- Low weight compared to metal pipes.

- Short processing time.
- No gaskets - sealing elements are not required.
- 3-layer pipe with fibre glass reinforced inner layer.
- Concealed fire protection.
- Reduction of structural works costs by laying in concrete.
- Weld-in saddle.

Aquatherm Red pipe offers an extensive range of pipes and fittings for the installation of fire sprinkler systems.

The material fusiolen® PP-R FS, used for the pipe production, is a plastic whose properties are designed for the special demands of the fields of application. Both, the installer's request for easier processing and the demand for maximum safety in later application was regarded during the development.

AQUATHERM RED PIPE IS

CONNECTION BY FUSION WELDING

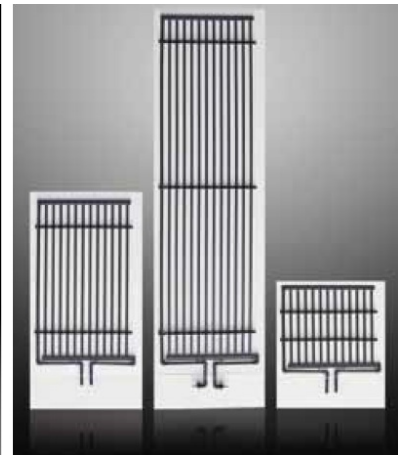
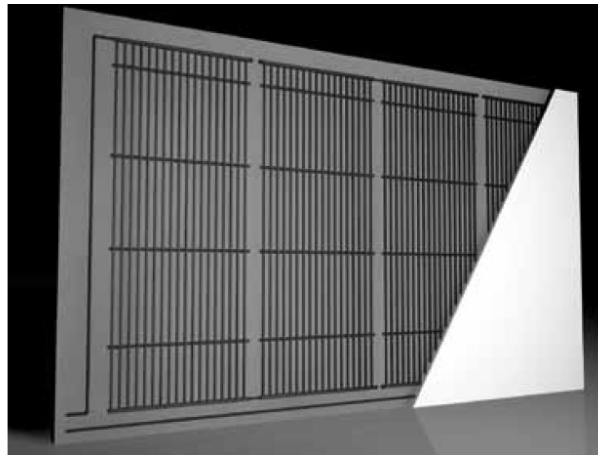
No sealants or adhesives are required for this permanent connection.

CORROSION-PROOF

Prevents the clogging of the sprinkler with corrosive material. This ensures a long, low maintenance service life as well as failure free functioning of the system.

ARTICLE-NO.	OLD BRAND NAME	NEW BRANDING STRUCTURE					
		NEW BRAND NAME		STANDARD DIMENSION RATIO	STRUCTURE OF PIPE	SPECIAL FEATURE OF PIPE	MATERIAL
		COMPANY	SYSTEM				
4170707...4170730	Aquatherm faser composite pipe firestop	Aquatherm	Red pipe	SDR 7,4	MF	HI	PP-R

AQUATHERM BLACK



SYSTEM FOR ROOM CLIMATISATION MADE OF POLYPROPYLENE

FOR CEILING AND WALL

Climasystem one of the newer, trend-setting developments now bears the name Aquatherm Black.

After only 3 years as system for room climatisation on the market, it has already received many awards and found international acceptance as the next phase of room comfort. From ceiling cooling in open plan offices to wall heating in family homes, and special applications such as mobile heating and cooling elements, the possibilities are nearly unlimited.

ADVANTAGES

- For wet and dry construction.
- No draughts.
- Noiseless.
- Dust reduction.
- Simple control technique.
- Thermal properties of the building are enhanced.
- System extendable.
- Quick installation thanks to high degree of prefabrication.
- Even temperature distribution.
- Safe connection techniques by thermal fusion.
- Push-fit connection for ceiling elements.
- Oxygen barrier.
- Minimal construction thickness.
- Greater architectural design freedom.
- Energy saving.

Aquatherm-Climasystem is exclusively made from fusiolen® PP-R. The exceptional good welding properties and fusion, result in an homogeneous unit, offering a maximum in security and life span. Aquatherm Black system is connected by fusion welding.

The pipe grids can be welded directly in parallel as well as with series connection.

DRY WALL HEATING ELEMENT

With the new dry wall heating element Aquatherm offers a product, which provides a quick and efficient installation.

That means reduced construction time and cost savings.

Whether in new buildings or in refurbishing the Aquatherm dry wall heating elements release high heat, which means a convenient environment without dust dispersing. Energy savings are possible due to a subjective feeling of warmth though the objective room temperature is lower.

The dry lining system consists of 12.5 mm thick system elements made of gypsum fibre with oxygen tight Aquatherm Black system grids.

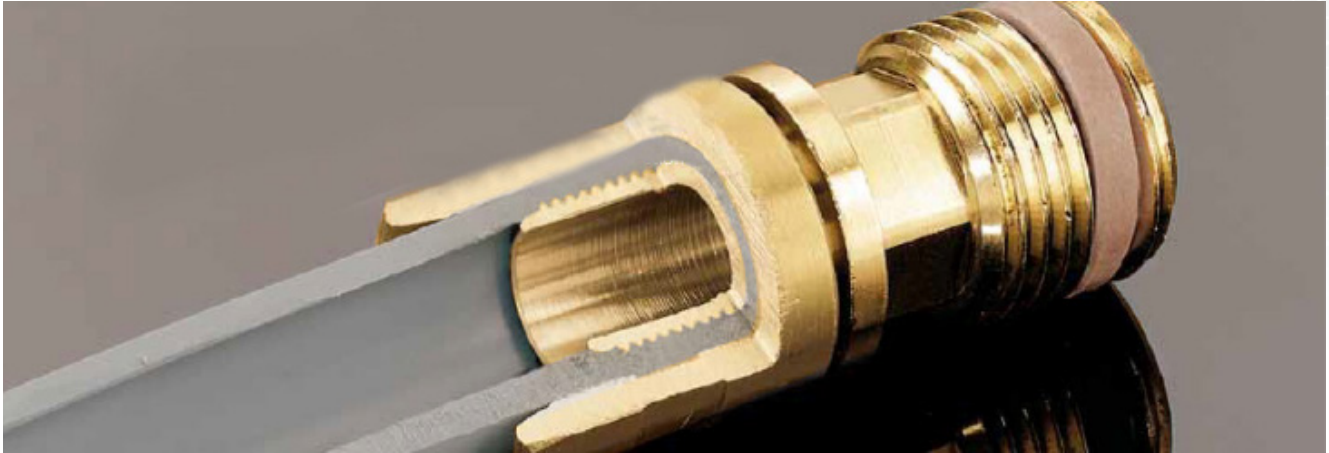
Assembly occurs with the smooth surface towards the room. After gluing the joints the elements can be painted, wallpapered, flagged or plastered.

For simple assembly at the wall or window parapet various sizes of elements are available.

- Large heating surfaces controllable by heating circuits.
- Energy saving by low mean heating temperature.
- Quick and safe installation.

ARTICLE-NO.	OLD BRAND NAME	NEW BRANDING STRUCTURE				
		NEW BRAND NAME		COLOUR	SPECIAL FEATURE OF PIPE	MATERIAL
		COMPANY	SYSTEM			
5000050...5080500	Climasystem	Aquatherm	Black system	Anthrazit	OT	PP

AQUATHERM GREY



Aquatherm SHT with over 2 decades of worldwide success, the sliding sleeve technology changes to Aquatherm Grey.

The Aquatherm Grey pipe system is suitable for systems in the field of potable water, heating and underfloor heating connection.

The material PB (polybutene) due to its high heat stability and the excellent hygienic qualities is suitable for the application in the field of potable water.

The profile of PE-RT (polyethylene raised temperature resistance) qualifies this material for the connection of radiators and underfloor heating systems. Applying both materials for small dimensioned connection supplies, they are ideal through high flexibility. Aquatherm Grey pipe is connected by sliding sleeve technique. This type of connection technique is easy and neat in appearance.

If in the field of radiator connection as well as for potable water installations without costs for large tools and without great difficulty of assembly permanent connections of small dimensions with brass and plastic fittings are made.

The Aquatherm Grey pipe system offers three types of connection pipes:

- Aquatherm Grey pipe PB connection pipe (grey) in coils, Ø 16-32 mm, made from the highly flexible material polybutene (PB).
- Aquatherm Grey pipe PE-RT underfloor heating and radiator connection pipe (red) in coils 16-20 mm, oxygen-tight according to DIN4726.
- Aquatherm Grey pipe multi layer metal composite pipe (white) Ø 16-40 mm in straight lengths (16 + 20 mm also available in coils) made from the material PE-HD.

The Aquatherm Grey pipe system can be combined easily with the Aquatherm Green pipe system.



ARTICLE-NO.	OLD BRAND NAME	NEW BRANDING STRUCTURE					
		NEW BRAND NAME		STANDARD DIMENSION RATIO	STRUCTURE OF PIPE	SPECIAL FEATURE OF PIPE	MATERIAL
		COMPANY	SYSTEM				
77000 ... 77002	Aquatherm SHT	Aquatherm	Grey	Green/Grey	MOT	PB	PP-R
77020 ... 77040	Aquatherm SHT	Aquatherm	Grey	Grey	MSOT	p	
77070 ... 77058	Aquatherm SHT	Aquatherm	Grey	White	MOT	PE-X	

AQUATHERM ORANGE



Surface heating system for residential, office and sports floor heating.

Aquatherm the surface heating system that started it all is now Aquatherm Orange.

Developed 40 years ago as one of the first surface heating systems, it formed the basis for the company Aquatherm. The most traditional system in our lineup changes not only the name but also the colour. In the future, the PE-RT pipes will be produced in this orange colour.

Aquatherm has reached a very successful market position in the field of underfloor heating just after its foundation.

Constant development on the technical know how and the great experience gained in the field of underfloor heating installations

in different projects over years, have led to the fact, that Aquatherm is always one step ahead, also in special applications.

Combining Aquatherm Orange pipe surface heating systems with Aquatherm Green pipe, Aquatherm Blue pipe or Aquatherm Grey pipe complete solutions are available for:

- Underfloor heating systems.
- Wall heating systems/chilled applications.
- Heating systems for renovations and new buildings.
- Open space heating.
- Industrial floor heating.
- Sports floor heating.
- Under-soil heating.

ARTICLE-NO.	OLD BRAND NAME	NEW BRANDING STRUCTURE				
		NEW BRAND NAME		COLOUR	SPECIAL FEATURE OF PIPE	MATERIAL
		COMPANY	SYSTEM			
90020...90030	Aquatherm FBH	Aquatherm	Orange	Orange	M OT	PE-RT
90306...90317	Aquatherm FBH	Aquatherm	Orange	Grey	M OT	PB



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0800 478 335

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