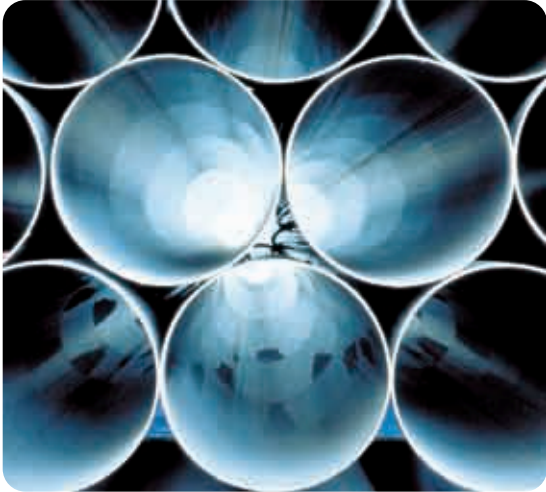


# Stainless Steel Tube and Fittings



# 5

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# Stainless steel tube and fittings



**Stainless steel tube is typically specified by OD (outside diameter), WT (wall thickness), grade, condition and surface finish.**

**It is resistant to many forms of corrosion, has hygienic sterile properties, high quality aesthetic appeal and exceptional strength.**

Tube is manufactured in round, square and rectangular sections in a variety of wall thicknesses and usually by the processes of longitudinal welding, hot and cold drawing (seamless) or spiral welding.

Finishes or appearance range from unpolished to highly polished. Unpolished has a 2B mill finish, standard polished is a finely grit polished finish and there is a finer buffed finish giving close to a mirror appearance. Finishes are selected to suit application and aesthetic appeal.

Stainless steel tube can be joined by welding, which facilitates rigidity in construction, or by the use of mechanical fittings which enables dismantling for hygienic cleaning.

Tube is usually annealed if extensive forming and bending is required, such as for bending or expanding. The tubular products system incorporates a comprehensive range of stainless steel fittings in the form of elbows, tees, reducers and flanges in various sizes, wall thickness, grades and finishes to suit tube dimensions and tolerances.

## As-welded (AW) tube

**Decorative & Structural Tube** – This tubing is produced direct off the continuous tube welding mill, using cold rolled stainless steel strip made to ASTM standards, with tube produced to commercial limits of straightness in standard or specific customer lengths.

AW tube has a higher yield point than annealed tube and is generally used for structural and decorative applications in mildly corrosive conditions. It is not suitable for applications requiring significant flaring, expanding or bending, nor for pressure applications. AW tube is also available with rebate slots for support of architectural glass panels.

**Manufacturing specification:** ASTM A554.

**Food Quality Tube** – As-welded food quality tube is stocked by Atlas Steels. This tube at the point of manufacture goes through a process where the internal weld bead is rolled. The result is an improved internal finish along the weld, reducing the chance of a crevice where liquid or food product may be trapped. This assists with 'clean in place' (CIP) environment food and beverage process lines or other applications such as the pharmaceutical industry. Further assurance of reliability of food tube comes from the 100% weld NDT mandatory for this product.

**Manufacturing specification:** AS 1528.

## As-welded annealed (AWA) tube

This tube is produced by the same process as AW tube but is annealed to relieve stresses and improve ductility. Bright annealing is carried out in a controlled-atmosphere furnace, so that no oxide or scale is formed on the surface.

Annealing both increases the corrosion resistance and softens the tube which allows severe manipulation such as bending, expanding and forming.

**Manufacturing specification:** ASTM A269

### Cold worked annealed (CWA) tube

This tube is typically destined for heat exchanger applications and is produced in a similar way to AWA product except that the internal bead is rolled flush with the inside tube surface prior to annealing. Because of the critical end use this tube undergoes extensive testing as part of the manufacturing process.

**Manufacturing specification:** ASTM A249M.

### Cold drawn seamless (CDS) tube

This tube is produced by drawing from hollow billets. It is usually supplied in the annealed and pickled condition and used where service conditions involve high pressure and corrosive conditions and where good surface finish and close tolerances are required, e.g. heat exchanger and condenser tubing, instrumentation tubing and some refinery applications.

**Manufacturing specification:** ASTM A269 for general service. ASTM A213M for heat exchanger service and A268 for Ferritic and Martensitic tubes.

### Spiral welded tube

This tube is produced by the helical forming and automatic welding of a continuous strip of stainless steel.

Typical applications include water and pulp in paper mills, product and effluent lines in chemical processing, water lines for brewing, dust fume extraction, furnace and boiler flues, stormwater down-pipes in high-rise applications and ventilation ducts and condensation lines for airconditioning.

**Manufacturing specification:** generally to ASTM A778, except for mechanical properties.

**Grades:**

Austenitic: 304, 304L, 316, 316L, 321.

Ferritic: 409.

Duplex: 2205.

**Stainless steel round tube** – Specifications refer p1-2

Product range, dimensions, theoretical weights and method of manufacturing											
OD of tube		Wall thickness (mm)	Weight (kg/m)	As welded (AW)		As welded annealed (AWA)		Cold drawn seamless (CDS)		Cold worked annealed (CWA)	
				304	316	304	316	304	316	304/304L	316/316L
4.76	3/16	0.50	0.05								
		0.70	0.07								
		0.90	0.09								
6.35	1/4	0.50	0.07								
		0.70	0.10								
		0.90	0.12								
		1.20	0.15								
		1.60	0.19								
7.94	5/16	0.50	0.09								
		0.70	0.13								
		0.90	0.16								
		1.20	0.20								
		1.60	0.25								
9.52	3/8	0.50	0.11								
		0.70	0.15								
		0.90	0.19								
		1.20	0.25								
		1.60	0.32								
12.70	1/2	0.50	0.15								
		0.70	0.21								
		0.90	0.26								
		1.20	0.34	FD	FD						
		1.60	0.44	FD	FD						
		2.00	0.53								

**Tube finishes** Tube is stocked in three different finishes: unpolished, 320 grit polished and 600 grit highly polished.  
**Food grade (FD)** Marked as 'FD' indicates an additional stock range of tube suitable for use in a food processing operation.  
 The tube is weld bead removed internally.

**Cold Worked Annealed (CWA)**  
 Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Stainless steel round tube** – Specifications refer p1-2

OD of tube		Wall thickness (mm)	Weight (kg/m)	Product range, dimensions, theoretical weights and method of manufacturing											
				As welded (AW)		As welded annealed (AWA)		Cold drawn seamless (CDS)		Cold worked annealed (CWA)					
mm	inches		304	316	304	316	304	316	304	316	304/304L	316/316L	2205		
15.88	5/8	0.50													
		0.70													
		0.90													
		1.20	FD												
		1.60	FD												
		2.00													
19.05	3/4	0.50													
		0.70													
		0.90													
		1.20	FD												
		1.60	FD												
		2.00													
22.22	7/8	0.90													
		1.20													
		1.60													
		1.60	FD												
		0.50													
		0.70													
25.40	1	0.90													
		1.20													
		1.60													
		1.60	FD												
		0.50													
		0.70													
		0.90													
		1.20	FD												
		1.60	FD												
		2.00													
		2.60													
		3.20													

**Tube finishes** Tube is stocked in three different finishes: unpolished, 320 grit polished and 600 grit highly polished.  
**Food grade (FD)** Marked as 'FD' indicates an additional stock range of tube suitable for use in a food processing operation.  
 The tube is weld bead removed internally.

**Cold Worked Annealed (CWA)**  
 Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Stainless steel round tube** – Specifications refer p1-2

OD of tube		Product range, dimensions, theoretical weights and method of manufacturing												
		Wall thickness (mm)		Weight (kg/m)		As welded (AW)		As welded annealed (AWA)		Cold drawn seamless (CDS)		Cold worked annealed (CWA)		
mm	inches			304	316	304	316	304	316	304	316	304/304L	316/316L	2205
28.58	1 1/8	1.20	0.82											
		1.60	1.08											
31.75	1 1/4	0.90	0.69											
		1.20	0.90	FD										
34.92	1 3/8	1.60	1.19	FD	FD									
		2.00	1.47											
38.10	1 1/2	2.60	1.89											
		3.20	2.29											
44.45	1 3/4	0.90	0.77											
		1.20	1.01											
		0.90	0.83											
		1.20	1.09											
		1.60	1.44	FD	FD									
		2.00	1.78											
		2.60	2.28											
		3.20	2.80											
		0.90	0.98											
		1.20	1.28											
		1.60	1.69											
		2.00	2.09											
		2.60	2.68											
		3.20	3.25											

**Tube finishes** Tube is stocked in three different finishes: unpolished, 320 grit polished and 600 grit highly polished.  
**Food grade (FD)** Marked as 'FD' indicates an additional stock range of tube suitable for use in a food processing operation. The tube is weld bead removed internally.  
**Cold Worked Annealed (CWA)** Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Stainless steel round tube** – Specifications refer p1-2

OD of tube		Wall thickness (mm)	Weight (kg/m)	Product range, dimensions, theoretical weights and method of manufacturing							
				As welded (AW)		Cold drawn seamless (CDS)		Cold worked annealed (CWA)			
mm	inches			304	316	304	316	304/304L	316/316L	2205	
50.80	2	0.90	1.12								
		1.20	1.47								
		1.60	1.94	FD							
		2.00	2.41								
		2.60	3.09								
63.50	2 1/2	3.20	3.76								
		1.20	1.84								
		1.60	2.44	FD							
		2.00	3.03								
		2.60	3.90								
76.20	3	3.20	4.76								
		1.20	2.22								
		1.60	2.94	FD							
		2.00	3.66								
		2.60	4.72								
88.90	3 1/2	3.20	5.76								
		1.60	3.44								
		2.00	4.29								
		2.60	5.53								
		3.20	6.76								
101.60	4	1.60	3.95	FD							
		2.00	4.91								
		2.60	6.35								
		3.20	7.76								

**Tube finishes** Tube is stocked in three different finishes: unpolished, 320 grit polished and 600 grit highly polished.  
**Food grade (FD)** Marked as 'FD' indicates an additional stock range of tube suitable for use in a food processing operation.  
 The tube is weld bead removed internally.

**Cold Worked Annealed (CWA)**  
 Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Stainless steel round tube** – Specifications refer p1-2

Stock range, dimensions, theoretical weights and method of manufacturing												
OD of tube		Wall thickness (mm)	Weight (kg/m)	As welded (AW)		As welded annealed (AWA)		Cold drawn seamless (CDS)		Cold worked annealed (CWA)		
mm	inches			304	316	304	316	304	316	304/304L	316/316L	2205
127.0	5	1.60	4.95	FD								
		2.00	6.16									
		2.60	7.98									
152.4	6	3.20	9.77									
		1.60	5.95	FD	FD							
		2.00	7.42									
203.2	8	2.60	9.60									
		3.20	11.84									
		1.60	7.95									
		2.00	9.92	FD								

**Tube finishes**

Tube is stocked in three different finishes: unpolished, 320 grit polished and 600 grit (highly polished).  
**Food grade (FD)** Marked as 'FD' indicates an additional stock range of tube suitable for use in a food processing operation.  
 The tube is weld bead removed internally.

**Cold Worked Annealed (CWA)**

Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Cold Worked Annealed (CWA)**

Tube in 304/304L, 316/316L, 2205 is available on indent only.

**Slotted Tube**

Tubes with 15 x 15mm rebated slots are available for support of architectural glass panels.  
 Configurations: single slot, double at 90°, double at 180°

Grades: 304, 316

Finishes: 320#, 600#

Sizes: 50.8, 63.5, 76.2mm

**Stainless steel square tube** – Specifications refer p1-2

Mostly stocked in 304, more common sizes in both 304 and 316. Finish: polished for all stock.

Product size range and weight (kg/m)						
Dimensions		Wall thickness (mm)				
mm	inches	0.9	1.2	1.6	2.0	2.5
12.70	1/2	0.33	0.45	0.56		
15.88	5/8	0.40	0.55	0.70		
19.05	3/4	0.54	0.73	0.96		
22.22	7/8	0.57	0.80	1.02		
25.40	1	0.67	0.93	1.22	1.49	
31.75	1 1/4	0.69	1.23	1.60	2.02	
38.10	1 1/2	0.83	1.42	1.85	2.33	
50.80	2	1.12	1.90	2.46	3.13	3.03
63.50	2 1/2			3.16	3.92	3.79
76.20	3				4.80	4.54
101.6	4				6.46	6.06
152.4	6					

**Stainless steel structural square tube** – Specifications refer p1-2

Mostly stocked in 304, more common sizes in both 304 and 316. Finish: polished for all stock.

Product size range and weight (kg/m)				
Dimensions	Wall thickness (mm)			
mm	2	3	4	5
25	1.50	2.22		
40	2.45	3.76	4.81	
50	3.08	4.47	5.96	7.41
60	3.71	5.67	7.22	8.90
80	4.99	6.87	9.82	12.40
100	6.40	9.23	12.40	15.38
150		14.06	18.62	22.40

Note: "Polished" finish of square and rectangular tube is grit abrasive finished in the longitudinal direction.

**Grade 304 stainless steel rectangular tube** – Specifications refer p1-2. Finish: polished.

Product size range and weight (kg/m)									
Rectangular tube						Rectangular hollow			
Dimensions		Wall thickness (mm)				Wall thickness (mm)			Dimensions (mm)
mm	inches	0.9	1.2	1.6	2	3	4	5	
25.40 x 12.70	1 x 1/2	0.54	0.72	0.94					
31.75 x 12.70	1 1/4 x 1/2	0.60	0.79	1.04	1.28				
38.10 x 25.40	1 1/2 x 1		1.00	1.60	2.02	2.85			40 x 25
50.80 x 25.40	2 x 1		1.41	1.85	2.34	3.46			50 x 25
50.80 x 38.10	2 x 1 1/2		1.64	2.18	2.70	4.12			50 x 40
63.50 x 38.10	2 1/2 x 1 1/2			2.52	3.14	4.65	5.96		60 x 40
76.20 x 25.40	3 x 1			2.66	3.39				
76.20 x 38.10	3 x 1 1/2			2.99	3.67	5.43	7.22	8.90	80 x 40
76.20 x 50.80	3 x 2				3.80	5.93	8.50	10.63	80 x 50
101.6 x 50.80	4 x 2				4.60	6.95	9.09	11.24	100 x 50
152.4 x 76.20	6 x 3					11.25	15.05	18.80	150 x 80
152.4 x 101.6	6 x 4					12.26	16.35	20.40	150 x 100
203.2 x 101.6	8 x 4					14.06	18.62	22.40	200 x 100

**Grade 304 and 316 stainless steel spiral welded tube** – Specifications refer p1-2

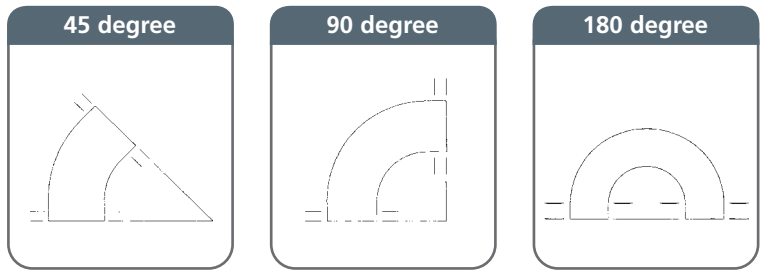
Product size range and weight (kg/m)							
Dimensions (OD)		Wall thickness (mm)					
mm	inches	1.6	2	2.5	3	3.5	4
76.20	3	3.00	3.80				
101.6	4	4.00	5.00	6.30			
127.0	5	5.00	6.30	7.90	9.50		
152.4	6	6.10	7.60	9.50	11.40	13.20	
203.2	8	8.10	10.10	12.60	15.10	17.70	20.20
254.0	10	10.10	12.60	15.80	18.90	22.10	25.20
304.8	12	12.10	15.10	18.90	22.70	26.50	30.30
355.6	14	14.10	17.70	22.10	26.50	30.90	35.30
406.4	16	16.10	20.20	25.20	30.30	35.30	40.40
457.2	18	18.20	22.70	28.40	34.10	39.70	45.40
508.0	20	20.20	25.20	31.50	37.80	44.10	50.50
558.8	22	22.20	27.70	34.70	41.60	48.60	55.50
609.6	24		30.30	37.80	45.40	53.00	60.50
762.0	30		37.80	47.30	56.80	66.20	75.70
1016.0	40				75.70	88.30	100.90

### Tube fittings

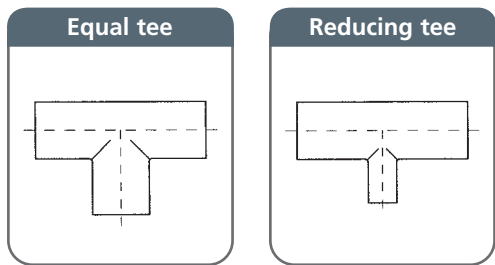
Complementing our stock of round tube is a range of tube fittings. The more common tube fittings include bends, tees, reducing tees, eccentric and concentric reducers, BSM unions and tube clamps.

**Tube bends** – Bends are generally stocked as 45, 90 or 180 degree. Three common manufacturing processes are pulled bends (cold drawn bend), pressed bends and lobster back bends. The process of manufacturing often relates to the diameter of the tube and the thickness of material used. Up to and including 152.4mm the bends are generally pulled, by far the most commonly supplied bends. Pressed bends can be from 101.6 to 305mm OD. Lobster back bends are generally supplied in diameters 101.6mm and above and these bends are used generally to suit spiral welded tube.

To maintain a level of quality and consistency Atlas stocks pulled bends with an extended leg. The importance of this style of bend ensures each end of the bend is finished off true and accurate. The extended leg gives the ability to maintain the original circularity of the tube and a precise 45 or 90 degree radius measured from across the end face of the bends.



**Tees** – Two common processes of manufacturing are welded or pulled tees. To maintain product quality and consistency welded tees are stocked as opposed to pulled tees. Tees are stocked in two forms; equal or reducing. An equal tee has all three branches of the tee equal in diameter. A reducing tee has a reduced diameter of tube on the branch section of the tee.



As tube fittings are often used in the food industry and hygiene is important many of these fittings are stocked in a polished finish.

### Stainless steel butt welding tube fittings

Commonly stocked as 304 and 316. Finish: polished or unpolished.

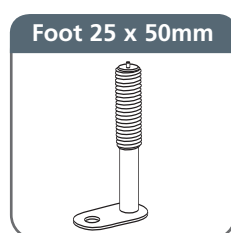
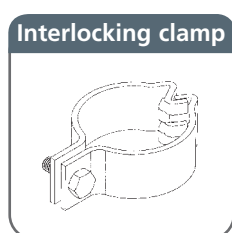
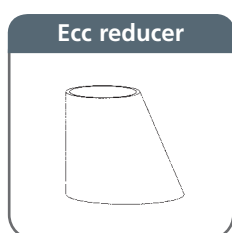
Product size range and weight (kg)									
Dimensions OD		Bends 45 degree		Bends 90 degree		Bends 180 degree		Equal tee	
		Wall thickness (mm)		Wall thickness (mm)		Wall thickness (mm)		Wall thickness (mm)	
mm	inches	1.6	2	1.6	2	1.6	2	1.6	2
9.52	3/8	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.04
12.70	1/2	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.05
19.05	3/4	0.02	0.02	0.02	0.03	0.03	0.03	0.08	0.09
25.40	1	0.03	0.04	0.04	0.04	0.05	0.06	0.13	0.15
31.75	1 1/4	0.05	0.06	0.06	0.07	0.08	0.09	0.20	0.25
38.10	1 1/2	0.07	0.08	0.08	0.10	0.11	0.13	0.30	0.38
50.80	2	0.12	0.15	0.15	0.18	0.20	0.24	0.50	0.65
63.50	2 1/2	0.18	0.23	0.23	0.29	0.31	0.38	0.80	1.10
76.20	3	0.27	0.33	0.34	0.42	0.45	0.56	1.10	1.50
101.6	4	0.48	0.60	0.60	0.75	0.80	1.00	1.60	2.30
127.0	5	0.75	0.94	0.95	1.17	1.26	1.57	1.80	3.80
152.4	6	1.09	1.36	1.36	1.7	1.81	2.26	2.80	5.40
203.2	8	1.94	2.42	2.42	3.02	3.23	4.03	3.50	8.40
254.0	10	2.90	3.49	3.50	4.50	4.70	5.05	4.30	9.90

Usual stock range is 1.6mm wall thickness up to 127mm diameter, and 2.0mm wall thickness for large sizes.

### Stainless steel reducing tube fittings

Commonly stocked as 316. Finish: polished.

Product size range and weight (kg)									
Dimensions OD		Con reducer	Ecc reducer	Reducing tees	Dimensions OD		Con reducer	Ecc reducer	Reducing tees
		Wall thickness (mm)					Wall thickness (mm)		
mm	mm	1.6	1.6	1.6	mm	mm	1.6	1.6	1.6
19.05	12.70	0.02	0.02	0.08	76.20	50.80	0.25	0.25	1.10
25.40	12.70	0.04	0.04	0.13	76.20	63.50	0.25	0.25	1.10
25.40	19.05	0.04	0.04	0.13	101.6	25.40	0.30	0.30	1.60
31.75	12.70	0.05	0.05	0.20	101.6	38.10	0.30	0.30	1.60
31.75	25.40	0.05	0.05	0.20	101.6	50.80	0.30	0.30	1.60
38.10	12.70	0.05	0.05	0.30	101.6	63.50	0.30	0.30	1.60
38.10	19.05	0.05	0.05	0.30	101.6	76.20	0.30	0.30	1.60
38.10	25.40	0.05	0.05	0.30	127.0	50.80	0.60	0.60	1.80
38.10	31.75	0.05	0.05	0.30	127.0	63.50	0.60	0.60	1.80
50.80	12.70	0.10	0.10	0.50	127.0	76.20	0.60	0.60	1.80
50.80	19.05	0.10	0.10	0.50	127.0	101.6	0.60	0.60	1.80
50.80	25.40	0.10	0.10	0.50	152.4	50.80	0.70	0.70	2.80
50.80	31.75	0.10	0.10	0.50	152.4	63.50	0.70	0.70	2.80
50.80	38.10	0.10	0.10	0.50	152.4	76.20	0.70	0.70	2.80
63.50	25.40	0.10	0.10	0.80	152.4	101.6	0.70	0.70	2.80
63.50	38.10	0.10	0.10	0.80	152.4	127.0	0.70	0.70	2.80
63.50	50.80	0.10	0.10	0.80	203.2	101.6	1.60	1.60	3.50
76.20	25.40	0.25	0.25	1.10	203.2	127.0	1.60	1.60	3.50
76.20	31.75	0.25	0.25	1.10	203.2	152.4	1.60	1.60	3.50
76.20	38.10	0.25	0.25	1.10					



### Stainless steel plain tube clamps

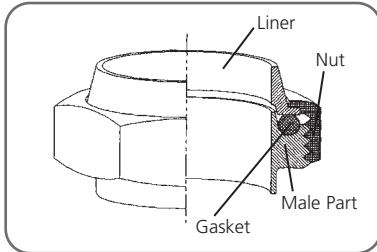
(mm)	25.40	31.75	38.10	50.80	63.50	76.20	88.90	101.6	127.0	152.4	203.2
(inches)	1	1¼	1½	2	2½	3	3½	4	5	6	8

### Stainless steel feet and plastic inserts

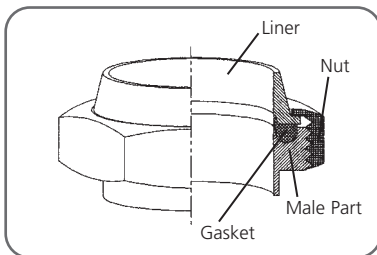
Plastic inserts to suit square tube 25.40, 31.75, 38.10 –  
Stainless steel feet machine adjust tread with base 50mm or 63.5mm.

## BSM unions

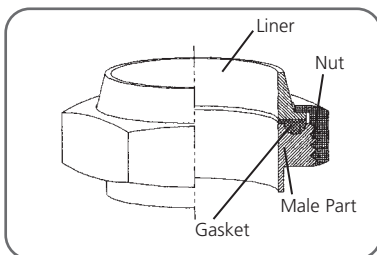
British Standard Milk (BSM) stainless steel unions were designed specifically for tube installation in the dairy industry, but they are now commonly used in food and beverage processing and the pharmaceutical industries where crevice-free hygienic conditions are required. A commonly used term is 'CIP' which comes from the phrase *Clean In Place*.



**RJT** (Ring Joint Type) – often referred to as a standard union comprises an 'O' ring style gasket. This leaves a small crevice internally where the liner and male part of the union overlap, this is not suitable for permanent CIP.



**CIP** (Australian style) – developed from a RJT union, features a gasket giving the desirable characteristics for CIP installation. The gasket fills the crevice between the liner and male part of the union.



**CIPFF** – the FF stands for 'Flat Face' and refers to a BSM modified union supporting CIP installations. The gasket is moulded completely filling the crevice between the liner and male part and allows a small lip to give a flush finish on the ID of the fitting. The liner and male parts of this union have been modified creating a flat face style sealed with a flat face gasket. A flat faced liner and male part used in a CIPFF union are shaped differently to that used in an RJT or CIP union.

**Note:** Temperature rating of EPDM "E" gasket material is -51°C to 148°C.

**BSM unions**

Union (complete) RJT, CIP and CIPFF							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.41	0.45	0.61	0.71	1.01	1.41	1.71

Liners – Grade 316 RJT, CIP and CIPFF							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.10	0.10	0.15	0.20	0.30	0.40	0.50

Male parts – Grade 316 RJT, CIP and CIPFF							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.10	0.10	0.15	0.20	0.30	0.40	0.50

Gaskets – EPDM rubber – RJT, CIP and CIPFF							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.01	0.01	0.01	0.01	0.01	0.01	0.01

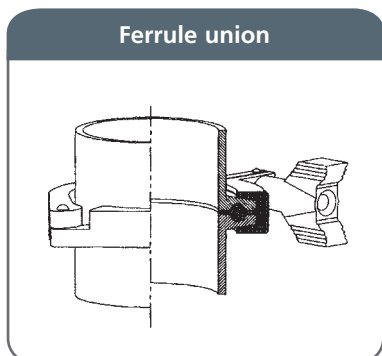
Blank caps – Grade 316							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.10	0.10	0.20	0.25	0.30	0.40	0.60

Blank nuts – Grade 304							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.20	0.20	0.30	0.30	0.40	0.60	0.70

Hex nut – Grade 304							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.20	0.20	0.30	0.30	0.40	0.60	0.70

A range of spanners and valves (ball and butterfly) is also available to match nominal tube dimensions.

### Tri-clamp stainless steel tube fittings



A tri-clamp is used to eliminate the need for a threaded joining system, employing a hinged clamp instead. The joint is common in CIP installation where the seal fills the crevice completely.

A range of spanners and valves (ball and butterfly) is also available to match nominal tube dimensions.

Tri-clamp Unions Complete							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.4	0.4	0.7	1.1	1.1	1.5	2.4

Tri-clamp Ferrule – 316							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.1	0.1	0.2	0.3	0.3	0.4	0.7

Tri-clamp Gaskets – EPDM rubber							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Tri-clamp Clamp – 316							
(mm)	25.40	38.10	50.80	63.50	76.20	101.6	152.4
(inches)	1	1½	2	2½	3	4	6
Weight (kg)	0.2	0.2	0.3	0.5	0.5	0.7	1.0

Tri-clamp Cap – 316						
(mm)	25.40	38.10	50.80	63.50	76.20	101.6
(inches)	1	1½	2	2½	3	4
Weight (kg)	0.1	0.1	0.2	0.25	0.3	0.40

**Note:** Temperature rating of EPDM “E” gasket material is -51°C to 148°C.

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