

### What are Metric Tube and Fittings?

- ~ This is a lightweight range of welded tube, fittings and flanges with thin walls
- ~ An I/D based system
- ~ This range IS NOT to be confused with the ISO range of tube sizes which are sometimes INCORRECTLY called 'ISO Metric' – The ISO sizes are a thin walled, lower cost alternative to ANSI Pipe and are not very popular in the UK.
- ~ Note that an 'Isometric' is a pipe-work plan used by engineers and defined as follows: Isometric is a mathematical method of constructing a 3 dimensional object without using perspective. Isometric was an attempt to make drawing 3-D images easy and more realistic. The mathematics involved mean that all lengths when drawn at 30 degrees can be drawn using their true length (in other words lines aren't shortened as with oblique drawings). An isometric drawing shows two sides of the object and the top or bottom of the object. All vertical lines are drawn vertically, but all horizontal lines are drawn at 30 degrees to the horizontal.

### Where is this range used?

- ~ Water and Waste Water Treatment
- ~ Pulp and Paper Industry
- ~ Food and Drink (Pre-Process)
- ~ Pharmaceutical (Bulk Handling)
- ~ Chemicals
- ~ Construction
- ~ Semi Conductor and other Clean Room Facilities

### What are the advantages?

- ~ Lightweight
- ~ Dismountable and re-usable
- ~ Simple to fabricate and erect
- ~ Quick and easy to commission
- ~ Easy to alter the system, make additions, etc.
- ~ Low footprint, handling weight and transport cost
- ~ Flexibility of fit-up with option of 'spinning'/backing flanges

### What is in the range?

- ~ Tube
- ~ Elbows, Tees, Reducers, End Caps
- ~ Collars and Flanges
- ~ Clips and Clamps

### What is the size range?

- ~ 15mm to 900mm DN
- ~ 18mm to 910mm O/D
- ~ Wall Thickness 1.5mm to 5.0mm

### What do DN/ND and O/D mean?

- ~ DN/ND = Nominal Diameter (I/D)
- ~ O/D = Outside/External Diameter
- ~ I/D = Internal Diameter

### Backing Flanges may be:

- ~ Stainless Steel
- ~ Aluminium – These may have an epoxy coating
- ~ Mild Steel – These will have a coating such as PPA571 Grey Epoxy, Zinc Plating

### What is the manufacturing specification?

- ~ Dimensional tolerances are to SS/EN/ISO 1127
- ~ Alloys are to BS EN 10088

### What is the finish?

- ~ Sizes up to about 18mm DN may be bright annealed
- ~ Sizes up to about 70mm DN will be annealed and pickled
- ~ Larger sizes will be pickled but may be unannealed

## FOR FURTHER INFORMATION

Please download or request a hard copy of our Brochure on this product range

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## REVISION HISTORY

Datasheet Updated	18 July 2019
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## Metric Tube & Fittings

### Introduction/Specifications

#### Stainless steel metric tubulars range

A complete range of fittings including elbows, tees, reducers, end caps, collars, backing flanges and clamps is available.

#### Advantages

This ID based system brings many advantages including:

- Light weight
- Systems flexibility including ease of alteration
- Fast welding times
- Low consumables usage
- Attractive appearance
- Clean/hygienic/high-tech image
- Low environmental impact
- Recyclability
- Simple fabrication and erection
- Good mechanical properties
- Good ductility
- Low maintenance
- Long service life
- Smooth surface with no coatings or linings

#### Grades

A range of grades is available from stock or on fast-track production:

BSEN 1.4307 (304L)

BSEN 1.4404 (316L)

BSEN 1.4432 (316L High Molybdenum)

Sizes shown throughout are the most popular. Many more are available, please contact your local Aalco branch for details.



Approved for use in public water supplies

#### Specifications

- **Dimensional tolerances to EN/ISO 1127**
  - **Outside Diameter (Class D3):**  $\pm 0.75\%$  / minimum  $\pm 0.3\text{mm}$
  - **Outside Diameter for tubes 168.3mm O/D & above (Class D2):**  $\pm 1.0\%$  / minimum  $\pm 0.5\text{mm}$
  - **Wall Thickness (Class T3):**  $\pm 10\%$  / minimum  $\pm 0.15\text{mm}$
- **Lengths**
  - 6 metre random lengths with plain ends.
- **Finish**
  - Unannealed, Pickled.

## Metric Tube & Fittings

Range/Sizes - Metric Tube

Metric Tube & Fittings – Range/Sizes - Metric Tube

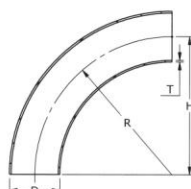
### Metric tube sizes

DN	OD	Weight per metre (kg) for given Wall Thickness in mm					
		1.5mm	2.0mm	2.5mm	3.0mm	4.0mm	5.0mm
15	18	0.620					
15	20	0.695	0.901				
20	23	0.808					
20	25	0.883					
25	28	0.995					
25	30	1.070	1.402				
25	32	1.146					
32	35	1.258					
32	38	1.371	1.803				
32	40		1.903				
40	43	1.559					
40	44.5		2.128				
50	51	1.859	2.454				
50	53	1.934					
50	54		2.604				
65	68	2.498					
65	69		3.355				
65	70		3.405				
75	78	2.870					
80	83	3.061					
80	84		4.107				
100	103	3.812					
100	104		5.108				
100	106				7.737		
100	108					10.417	
125	128	4.751					
125	129		6.360				
150	153	5.690					
150	154		7.612				
150	156				11.493		
150	158					15.425	
200	203	7.568					
200	204		10.116				
200	205			12.677			
200	206				15.249		
200	208					20.433	
250	254		12.620				
250	255			15.807			
250	256				19.005		
300	304		15.214				
300	305			18.937			
300	306				22.761		
300	308					30.449	
350	355			22.067			
350	356				26.517		
400	406				30.273		
400	408					40.465	
450	456				34.029		
500	506				37.785		
500	508					50.481	
600	606				45.297		
600	608					60.497	

## Metric Tube & Fittings

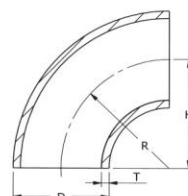
### Range/Sizes - Metric Elbows

**Welded 45° & 90° elbows (radius D+100)**



Data refers to 90° Bends only.  
45° Bends in sizes below DN200  
are cut from 90°s

**Welded 45° & 90° elbows (radius 1.5D)**



Data refers to 90° Bends only.  
45° Bends in sizes below DN200  
are cut from 90°s

D DN	OD	T Wall	Weight
mm	mm	mm	kg
25	30	2	0.27
40	44.5	2	0.46
50	54	2	0.61
65	69	2	0.90
80	84	2	1.16
100	104	2	1.61
100	106	3	2.43
125	129	2	2.25
125	131	3	3.40
150	154	2	2.99
	156	3	4.51
200	204	2	4.77
	205	2.5	5.97
	206	3	7.19
250	254	2	6.94
	255	2.5	8.69
	256	3	10.45
	304	2	9.52
300	305	2.5	11.90
	306	3	14.30
	355	2.5	15.62
350	356	3	18.74
	406	3	23.78
450	456	3	29.40
500	506	3	35.61
	508	4	47.57
	606	3	49.90
600	608	4	66.52
	708	4	88.60
700	710	5	101.91

D DN	OD	T Wall	Weight
mm	mm	mm	kg
15	18	1.5	0.030
20	23	1.5	0.050
25	28	1.5	0.060
32	38	2	0.140
40	44.5	2	0.220
50	54	2	0.320
65	69	2	0.450
80	84	2	0.770
	86	3	1.180
100	104	2	1.200
	106	3	1.820
125	129	2	1.880
150	154	2	2.690
	156	3	4.060
	204	2	4.770
200	205	2.5	5.970
	206	3	7.190
	254	2	7.430
250	256	3	11.190
	304	2	10.710
300	306	3	16.090
	356	3	22.500
350	406	3	29.040
	408	4	38.620
450	456	3	36.760
	506	3	45.400
500	508	4	60.420
	510	5	75.370
	606	3	65.420
600	608	4	87.080

45° & 90° elbows (radius 3D) are also available on request

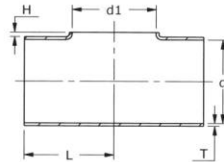
Metric Tube & Fittings - Range/Sizes - Metric Elbows

## Metric Tube & Fittings

### Range/Sizes - Metric Tees

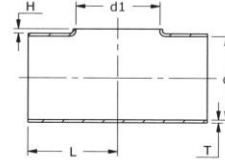
Metric Tube & Fittings - Range/Sizes - Metric Tees

#### Pulled equal tees



DN	OD	T Wall	L	H	Weight
mm	mm	mm	mm*	mm*	kg
25	28	1.5	28.5	15.5	0.05
32	38	1.5	47.5	20.5	0.13
40	44	2	47.5	24	0.14
50	54	2	57	29	0.22
65	69	2	63.5	38.5	0.37
80	84	2	85.5	45	0.63
100	104	2	105	55	0.95
125	129	2	124	69	1.42
150	154	2	143	84	2.03
200	204	2	178	110	3.80
250	254	2	216	140	5.80
300	306	3	300	168	10.60
350	356	3	350	195	14.40
400	406	3	400	223	22.54

#### Pulled reducing tees



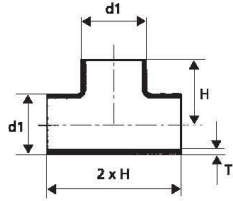
DN1 x DN2	OD1 x OD2	T Wall	L	H	Weight
mm	mm	mm	mm*	mm*	kg
50 x 25	54 x 28	2	57	29	0.20
50 x 40	54 x 44	2	57	29	0.20
65 x 40	69 x 44	2	63.5	38	0.35
65 x 50	69 x 54	2	63.5	38	0.35
80 x 40	84 x 44	2	85.5	45	0.60
80 x 50	84 x 54	2	85.5	45	0.60
80 x 65	84 x 69	2	85.5	45	0.60
100 x 50	104 x 54	2	105	55	0.90
100 x 65	104 x 69	2	105	55	0.90
100 x 80	104 x 84	2	105	55	0.90
125 x 80	129 x 84	2	124	69	1.30
125 x 100	129 x 84	2	124	69	1.30
150 x 80	154 x 84	2	143	84	1.90
150 x 100	154 x 104	2	143	84	1.90
150 x 125	154 x 129	2	143	84	1.90
200 x 100	204 x 104	2	178	110	3.60
200 x 125	204 x 129	2	178	110	3.60
200 x 150	204 x 154	2	178	110	3.60
250 x 150	254 x 154	2	216	140	5.50
250 x 200	254 x 204	2	216	140	5.50
300 x 200	306 x 206	3	300	165	10.30

Notes  
\* Approximate

## Metric Tube & Fittings

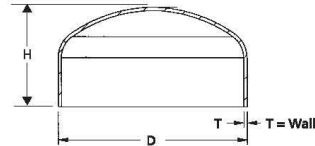
Range/Sizes - Metric Tees and End Caps

Equal tees with branch



DN	d1 OD	T Wall	H	Weight
mm	mm	mm	mm	kg
25	28	1.5	28.5	0.07
32	38	1.5	47.5	0.18
32	38	2	47.5	0.24
40	44.5	2	47.5	0.24
50	54	2	57.0	0.34
65	69	2	63.5	0.48
80	84	2	85.5	0.77
100	104	2	105	1.19
125	129	2	124	1.76
150	154	2	143	2.03
200	204	2	178	3.84

Pressed end caps



DN	D OD	T Wall	H Height	Weight
mm	mm	mm	mm	kg
25	28	1.5	12	0.02
30	33	2	12	0.03
32	38	2	15	0.03
40	44.5	2	16	0.04
50	54	2	19	0.06
80	84	2	23	0.13
100	104	2	24	0.19
125	129	2	34	0.31
150	154	2	41	0.44
200	206	3	50	1.13
250	256	3	55	1.62
300	306	3	70	2.47
350	356	3	89	3.52
400	406	3	98	4.52
450	458	4	108	5.5
500	508	4	120	6.6
600	608	4	140	9.2

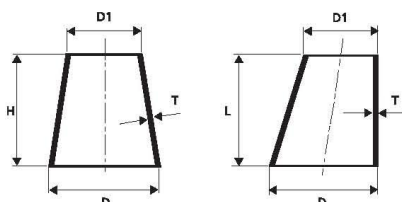
Metric Tube & Fittings - Range/Sizes - Metric Tees and End Caps

## Metric Tube & Fittings

### Range/Sizes - Metric Reducers

Metric Tube & Fittings - Range/Sizes - Metric Reducers

#### Concentric and eccentric reducers



DN1 x DN2	OD1 x OD2	T Wall	Length	Weight
mm	mm	mm	mm	kg
25 x 20	28 x 23	1.5	25	0.024
30 x 25	33 x 28	1.5	30	0.034
40 x 25	43 x 28	1.5	40	0.054
40 x 25	44 x 29	2	40	0.073
50 x 25	54 x 29	2	50	0.104
50 x 40	54 x 44	2	50	0.123
65 x 40	69 x 44	2	65	0.185
65 x 50	69 x 54	2	65	0.201
80 x 40	84 x 44	2	80	0.257
80 x 50	84 x 54	2	80	0.277
80 x 65	84 x 69	2	80	0.307
100 x 50	104 x 54	2	100	0.397
100 x 65	104 x 69	2	100	0.44
100 x 80	104 x 84	2	100	0.472
125 x 50	129 x 54	2	125	0.575
125 x 80	129 x 84	2	125	0.669
125 x 100	129 x 104	2	125	0.732
150 x 80	154 x 84	2	150	0.897
150 x 100	154 x 104	2	150	0.98
150 x 100	156 x 106	3	150	1.49
150 x 125	154 x 129	2	150	1.07
200 x 100	204 x 104	2	200	1.55
200 x 125	204 x 129	2	200	1.67
200 x 150	204 x 154	2	200	1.80
250 x 125	254 x 129	2	250	2.41

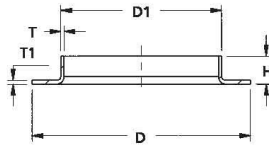
DN1 x DN2	OD1 x OD2	T Wall	Length	Weight
mm	mm	mm	mm	kg
250 x 150	254 x 154	2	250	2.56
250 x 200	254 x 204	2	250	2.88
250 x 200	255 x 205	2.5	250	3.59
250 x 200	256 x 206	3	250	4.35
300 x 200	304 x 204	2	300	3.83
300 x 200	306 x 206	3	300	3.85
300 x 250	304 x 254	2	300	4.21
300 x 250	306 x 256	3	300	6.35
350 x 200	356 x 206	3	350	7.41
350 x 250	356 x 256	3	350	8.07
350 x 300	356 x 306	3	350	8.73
400 x 200	406 x 206	3	400	9.22
400 x 250	406 x 256	3	400	9.98
400 x 300	406 x 306	3	400	10.73
400 x 350	406 x 356	3	400	11.49
450 x 300	456 x 306	3	450	12.92
450 x 350	456 x 356	3	450	13.77
450 x 400	456 x 406	3	450	14.62
500 x 300	506 x 306	3	500	15.30
500 x 350	506 x 356	3	500	16.24
500 x 400	506 x 406	3	500	17.18
500 x 450	506 x 456	3	500	18.12
600 x 400	606 x 406	3	600	22.88
600 x 450	606 x 456	3	600	24.01
600 x 500	606 x 506	3	600	25.14



## Metric Tube & Fittings

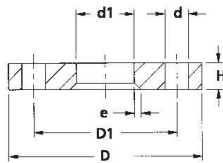
Range/Sizes - Metric Pressed Collars, Flanges, Clamps and Clips

### Pressed collars



DN	D1 x T x H	T1	D	Weight
mm	mm	mm	mm	kg
15	20 x 1.5 x 7	1.5	51	0.04
20	25 x 1.5 x 7	1.5	58	0.04
25	30 x 1.5 x 8	1.5	68	0.05
32	38 x 2 x 10	2	78	0.06
40	44.5 x 2 x 10	2	88	0.09
50	54 x 2 x 12	2	102	0.11
65	69 x 2 x 12	2	122	0.15
80	84 x 2 x 13	2	138	0.19
100	104 x 2 x 16	2	158	0.24
	106 x 3 x 16	3	158	0.36
125	129 x 2 x 15	2	188	0.31
	131 x 3 x 20	3	188	0.47
	154 x 2 x 19	2	212	0.38
150	156 x 3 x 20	3	212	0.57
	204 x 2 x 21	2	268	0.54
200	206 x 3 x 25	3	268	0.82
	256 x 3 x 25	3	320	1.07
300	306 x 3 x 21	3	370	1.21

### Flanges



Mild steel Zinc Plated and Passivated with drilling dimensions to BS4504 PN10 Reduced Thickness (Unipipe)

Other types of backing flanges are also available including Epoxy Coated Aluminium and Pressed Stainless Steel types.

DN	D	D1	No of Bolt Holes	Bolt Hole Diameter	d1	H	Flange Weight
mm	mm	mm	mm	mm	mm	mm	kgs/pc
25	115	85	4	14	35	10	0.6
32	140	100	4	18	42	10	1.0
40	150	110	4	18	50	10	1.2
50	165	125	4	18	60	10	1.4
65	185	145	4	18	75	10	1.7
80	200	160	8	18	90	10	1.8
100	220	180	8	18	110	10	1.9
125	250	210	8	18	136	12	3.1
150	285	240	8	22	161	12	3.8
200	340	295	8	22	213	12	4.9
250	395	350	12	22	262	16	8.0
300	445	400	12	22	313	19	11.0
350	505	460	16	22	364	22	15.5
400	565	515	16	26	418	22	18.1
450	615	565	20	26	470	25	22.1
500	670	620	20	26	520	28	25.4
600	780	725	20	29	630	31	30.0

### Clamps and clips

A range of tube Clamps and Clips is available in Grade 1.4404 (316L) Stainless Steel as well as Zinc Plated Mild Steel.