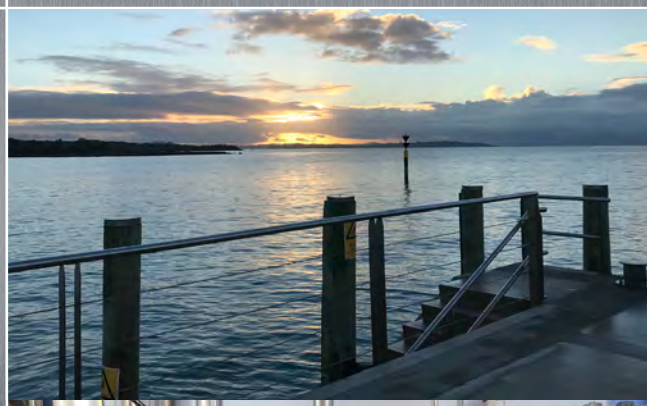
New Zealand Tube Mills

PRODUCT CATALOGUE



WWW.NZTUBEMILLS.CO.NZ

NEW ZEALAND TUBE MILLS

Welcome to New Zealand Tube Mills, we are a leading manufacturer of carbon steel precision tube and stainless tube for New Zealand and Australia.

This product catalogue provides information on the range and Products that we produce from our manufacturing facility in Lower Hutt, Wellington, New Zealand. This contains general technical information that will be of interest for stockists, fabricators and end users.

New Zealand Tube Mills commenced business in 1938 first producing truck rear-vision mirrors and pram wheels. The production of steel tubing and car exhaust systems followed soon after.

A shortage of materials in the Second World War prompted the company to design and build tube mills capable of producing tubular steel using oxy acetylene welding. Today the company manufactures and distributes precision carbon tube and a range of stainless architectural and food and beverage tube.

EcoTrellis, NZ Tube Mills latest innovations for the Horticulture sector, include EcoTrellis-Vineyard replacement posts, EcoBeam, overhead Kiwifruit canopy support, EcoBerry, supporting berry growers and EcoV for pipfruit growers, all multifunctional products that are innovative, user friendly and recyclable.

New Zealand Tube Mills has over many years of participation in the Tube manufacturing sector built a level of knowledge and experience that has helped build a company that has great products and excellent customer service.

We are able to do this by:

- Understanding our customers needs and requirements
- Extensive Global sourcing of input materials
- An international quality accreditation to ISO 9001
- Technically trained support personnel

CONTENTS

PRECISION TUBE

CARBON STEEL RANGE

FEATURES

- Functionality, strength and precision
- Easy to cut, weld, drill or powdercoat

BENEFITS

- Orders are also run off published mill schedules in lengths to suit.
- Tube can be offered on a cut to length basis to suit specific manufacturing requirements.
- Deburring options are available.

APPLICATIONS

- Furniture Manufacturing
- Automotive Exhausts
- General Engineering
- Fencing
- Shopfitting
- Outdoor Products
- Cattle Fencing
- Playground
- Handrails
- Glass House

MATERIAL PROPERTIES

Specified minimum mechanical properties of strip:

SPECIFICATION AND QUALITY

- Tube is manufactured to NZTM Q15.
- Near equivalent external standards: AS 1450, BS EN 10296-1.
- During manufacture, the tube undergoes a series of tests to ensure that it meets our high quality standards.

PRODUCT RANGE

- We manufacture round, square, rectangle, oval and flat- sided oval tube. For size profile options outside the range listed contact NZTM sales office.
- Ex mill tube is sold in standard bundle sizes of 5.500 metre lengths in New Zealand.
- All tube is longitudinally welded by high frequency induction welding. Tube is shear cut from the size range 9.5mm to 76.2mm. The tube sizes 88.9mm to 101.6mm are crash cut and exhibit a slight dimple in each end.

PACKAGING

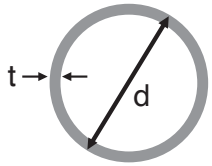
All tube profiles are coated with Anti Corrosive Coating to ensure tube is delivered in the best possible condition.

It is important in the handling process that tube is kept dry and free from moisture to ensure surface oxidisation does not occur.

Where possible avoid long term restrictive covers over the tube as temperature change will cause sweating and the formation of rust.

	Mild Steel (Cold Rolled)	Semi-Bright Tube 300 (Hot Rolled)	Galvanised Steel G300/G310 - Z450	Galvanised Steel G300/G250 - Z275
Yield Stress (MPa)	160	250	300/310	250
Tensile Stress (Mpa)	285	350	340	320
Elongation (%)	28	16	20	25

ROUND TUBE
MASS & BUNDLING DATA



MILD STEEL, SEMI BRIGHT

Tube Size Nominal (mm)	Tube Size Actual d (mm)	Wall Thickness t (mm)	Kilo's / Metre
9.5	9.53	1.2	0.2465
	9.53	1.6	0.3129
12.7	12.7	1.2	0.3403
	12.7	1.6	0.4380
	12.7	2.0	0.5278
15.9	15.88	1.2	0.4344
	15.88	1.6	0.5635
	15.88	2.0	0.6846
19.1	19.05	1.2	0.5282
	19.05	1.6	0.6885
	19.05	2.0	0.8410
21.3	21.3	1.2	0.5948
	21.3	1.6	0.7773
	21.3	2.0	0.9519
	21.3	2.6*	1.1990
22.2	22.22	1.2	0.6221
	22.22	1.6	0.8136
	22.22	2.0	0.9973
25.4	25.4	1.2	0.7162
	25.4	1.6	0.9391
	25.4	2.0	1.1542
	25.4	2.6*	1.4119
26.9	26.9	1.2	0.7606
	26.9	1.6	0.9983
	26.9	2.0	1.2281
	26.9	2.6*	1.5581
28.6	28.58	1.2	0.8103
	28.58	1.6	1.0646
	28.58	2.0	1.3110
31.8	31.75	1.2	0.9041
	31.75	1.6	1.1897
	31.75	2.0	1.4674
	31.75	2.6*	1.8034
33.7	33.7	1.2	0.9618
	33.7	1.6	1.2666
	33.7	2.0	1.5635
	33.7	2.6*	1.9941
35.0	34.92	1.2	0.9979
	34.92	1.6	1.3148
	34.92	2.0	1.6237
38.1	38.1	1.2	1.0920
	38.1	1.6	1.4402
	38.1	2.0	1.7806
	38.1	2.6*	2.2763
41.3	41.3	1.2	1.1861
	41.3	1.6	1.3769
	41.3	2.0	1.5657
	41.3	2.6*	1.9374
44.5	44.45	1.2	1.2799
	44.45	1.6	1.6908
	44.45	2.0	2.0938
	44.45	2.6*	2.6834
47.6	47.62	1.6	1.8159
50.8	50.8	1.2	1.4679
	50.8	1.6	1.9414
	50.8	2.0	2.4070
	50.8	2.6	2.9779
57.2	57.2	1.2	1.6558
	57.2	1.6	2.1919
	57.2	2.0	2.7202
60.3	60.3	1.6	2.4425
	60.3	2.0	2.8765
63.5	63.5	1.6	2.4425
	63.5	2.0	3.0334
69.9	69.9	1.6	2.6930
	69.9	2.0	3.3466
76.2	76.2	1.6	2.9436
	76.2	2.0	3.6598
88.9	88.9	1.6	3.4447
	88.9	2.0	4.2862
101.6	101.6	1.6	3.9458
	101.6	2.0	4.9126

*ON APPLICATION

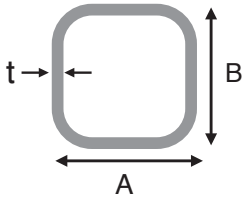
G250/Z275 GALVANISED

Tube Size Nominal (mm)	Tube Size Actual d (mm)	Base Metal Wall Thickness (mm)	Kilo's / Metre
15.9	15.88	1.15	0.4305
	15.88	1.55	0.5601
19.1	19.05		0.4397
	19.05	1.15	0.5231
	19.05	1.55	0.6841
22.2	22.22	1.15	0.6158
	22.22	1.55	0.8080
25.4	25.4	1.15	0.7087
	25.4	1.55	0.9323
28.6	28.58	1.15	0.8016
	28.58	1.55	1.0566
31.8	31.75	1.15	0.8943
	31.75	1.55	1.1805
	31.75	1.85	1.3900
33.6	33.6	1.55	1.2528
	33.6	1.85	1.4760
35.0	34.92	1.15	0.9869
	34.92	1.55	1.3044
	34.92	1.85	1.5373
38.1	38.1	1.15	1.0799
	38.1	1.55	1.4287
	38.1	1.85	1.6852
41.3	41.28	1.15	1.1728
	41.28	1.55	1.5530
	41.28	1.85	1.8330
42.4	42.40	1.2	1.2193
	42.40	1.6	1.6099
	42.40	2.0	1.9926
	42.40	2.6	2.5520
44.5	44.45	1.15	1.2654
	44.45	1.55	1.6769
	44.45	1.85	1.9804
47.6	47.62	1.15	1.3581
	47.62	1.55	1.8008
	47.62	1.85	2.1277
48.3	48.30	1.2	1.3939
	48.30	1.6	1.8427
	48.30	2.0	2.2837
	48.30	2.6	2.9303
50.8	50.8	1.15	1.4510
	50.8	1.55	1.9251
	50.8	1.85	2.2756
57.2	57.15	1.15	1.6366
	57.15	1.55	2.1734
	57.15	1.85	2.5708
60.3	60.32	1.15	1.7292
	60.32	1.55	2.2973
	60.32	1.85	2.7181
63.5	63.5	1.15	1.8222
	63.5	1.55	2.4216
	63.5	1.85	2.8660
70.0	69.85	1.55	2.6698
	69.85	1.85	3.1612
76.2	76.2	1.55	2.9180
	76.2	1.85	3.4564
88.9	88.9	1.55	3.4144
	88.9	1.85	4.0468
101.6	101.6	1.55	3.9109
	101.6	1.85	4.6371

*G310/Z450 GALVANISED
PLEASE ENQUIRE FOR SIZING AND PRICING

CARBON STEEL RANGE

SQUARE TUBE
MASS & BUNDLING DATA



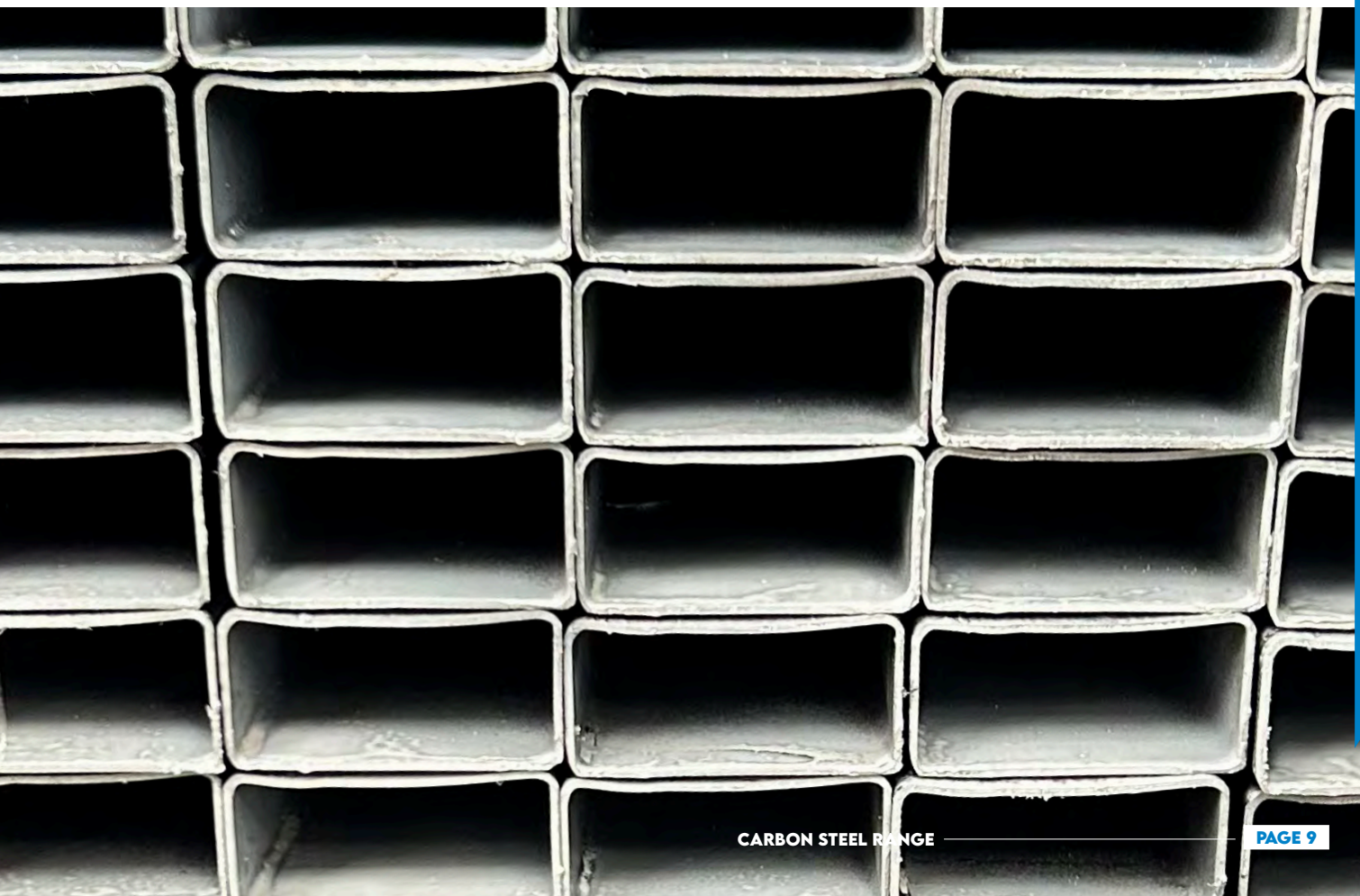
MILD STEEL, SEMI BRIGHT

Tube Size Nominal (mm)	Tube Size Actual A (mm) B	Wall Thickness t (mm)	Kilo's / Metre
12.7	12.7 x 12.7	1.2	0.4099
	12.7 x 12.7	1.6	0.5113
15.9	15.88 x 15.88	1.2	0.5297
	15.88 x 15.88	1.6	0.6711
19.1	19.05 x 19.05	1.2	0.6491
	19.05 x 19.05	1.6	0.8303
22.2	22.22 x 22.22	1.2	0.7686
	22.22 x 22.22	1.6	0.9896
	22.22 x 22.22	2.0	1.1930
25.4	25.4 x 25.4	1.2	0.8884
	25.4 x 25.4	1.6	1.1494
	25.4 x 25.4	2.0	1.3927
31.8	31.75 x 31.75	1.2	1.1277
	31.75 x 31.75	1.6	1.4684
	31.75 x 31.75	2.0	1.7915
35.0	34.92 x 34.92	1.2	1.2471
	34.92 x 34.92	1.6	1.6276
	34.92 x 34.92	2.0	2.4195
38.1	38.1 x 38.1	1.2	1.3669
	38.1 x 38.1	1.6	1.7874
	38.1 x 38.1	2.0	2.6691
50.8	50.8 x 50.8	1.2	1.8455
	50.8 x 50.8	1.6	2.4254
	50.8 x 50.8	2.0	2.9878

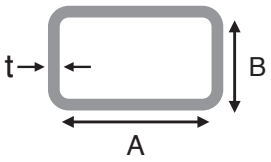
G250/Z275 GALVANISED

Tube Size Nominal (mm)	Tube Size Actual A (mm) B	Wall Thickness t (mm)	Kilo's / Metre
12.7	12.7 x 12.7		0.3446
	12.7 x 12.7	1.15	0.4032
	12.7 x 12.7	1.55	0.5070
15.9	15.88 x 15.88		0.4412
	15.88 x 15.88	1.15	0.5197
	15.88 x 15.88	1.55	0.6635
19.1	19.05 x 19.05		0.5376
	19.05 x 19.05	1.15	0.6360
	19.05 x 19.05	1.55	0.8196
22.2	22.22 x 22.22		0.6339
	22.22 x 22.22	1.15	0.7522
	22.22 x 22.22	1.55	0.9756
25.4	25.4 x 25.4		0.7305
	25.4 x 25.4	1.15	0.8687
	25.4 x 25.4	1.55	1.1321
	25.4 x 25.4	1.85	1.3181
31.8	31.75 x 31.75	1.15	1.1015
	31.75 x 31.75	1.55	1.4447
	31.75 x 31.75	1.85	1.6904
35.0	34.92 x 34.92	1.15	1.2177
	34.92 x 34.92	1.55	1.6007
	34.92 x 34.92	1.85	1.8763
38.1	38.1 x 38.1	1.15	1.3631
	38.1 x 38.1	1.55	1.8147
44.5	44.45 x 44.45	1.15	1.5959
	44.45 x 44.45	1.55	2.1272
50.8	50.8 x 50.8	1.15	1.8287
	50.8 x 50.8	1.55	2.4398
65.0	65 x 65	1.55	3.1387
	65 x 65	1.85	3.6402

***G310/Z450 GALVANISED**
PLEASE ENQUIRE FOR SIZING AND PRICING



RECTANGULAR TUBE
MASS & BUNDLING DATA



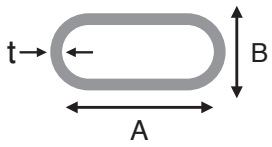
MILD STEEL, SEMI BRIGHT

Tube Size Nominal (mm)	Tube Size Actual A (mm) B			Base Metal Wall Thickness t (mm)	Kilo's / Metre	Corner Radius (R)
25.4 x 12.7	25.4	x	12.7	1.2	0.649	2.05
	25.4	x	12.7	1.6	0.830	2.95
	25.4	x	12.7	2.0	0.994	3.85
30 x 20	30	x	20	1.2	0.873	2.05
	30	x	20	1.6	1.129	2.95
	30	x	20	2.0	1.368	3.85
31.8 x 15.9	31.75	x	15.88	1.2	0.829	2.05
	31.75	x	15.88	1.6	1.070	2.95
35 x 19.1	34.92	x	19.05	1.2	0.948	2.05
	34.92	x	19.05	1.6	1.229	2.95
	34.92	x	19.05	2.0	1.492	3.85
38 x 25.4	38.1	x	25.4	1.2	1.128	2.05
	38.1	x	25.4	1.6	1.468	2.95
	38.1	x	25.4	2.0	1.791	3.85
50 x 30	50	x	30	1.6	1.883	2.95
	50	x	30	2.0	2.310	3.85
51 x 25.4	50.8	x	25.4	1.2	1.367	2.05
	50.8	x	25.4	1.6	1.787	2.95
	50.8	x	25.4	2.0	2.190	3.85
	50.8	x	25.4	2.6	2.669	4.975
51 x 31.8	50.8	x	31.75	1.2	1.487	2.05
	50.8	x	31.75	1.6	1.947	2.95
	50.8	x	31.75	2.0	2.390	3.85
51 x 38	50.8	x	38.1	1.2	1.606	2.05
	50.8	x	38.1	1.6	2.106	2.95
	50.8	x	38.1	2.0	2.589	3.85
63.5 x 38	63.5	x	38.1	1.2	1.845	2.05
	63.5	x	38.1	1.6	2.425	2.95
	63.5	x	38.1	2.0	2.988	3.85
68 x 43	68	x	43	1.6	2.662	2.95
	68	x	43	2.0	3.283	3.85

G250/Z275 GALVANISED

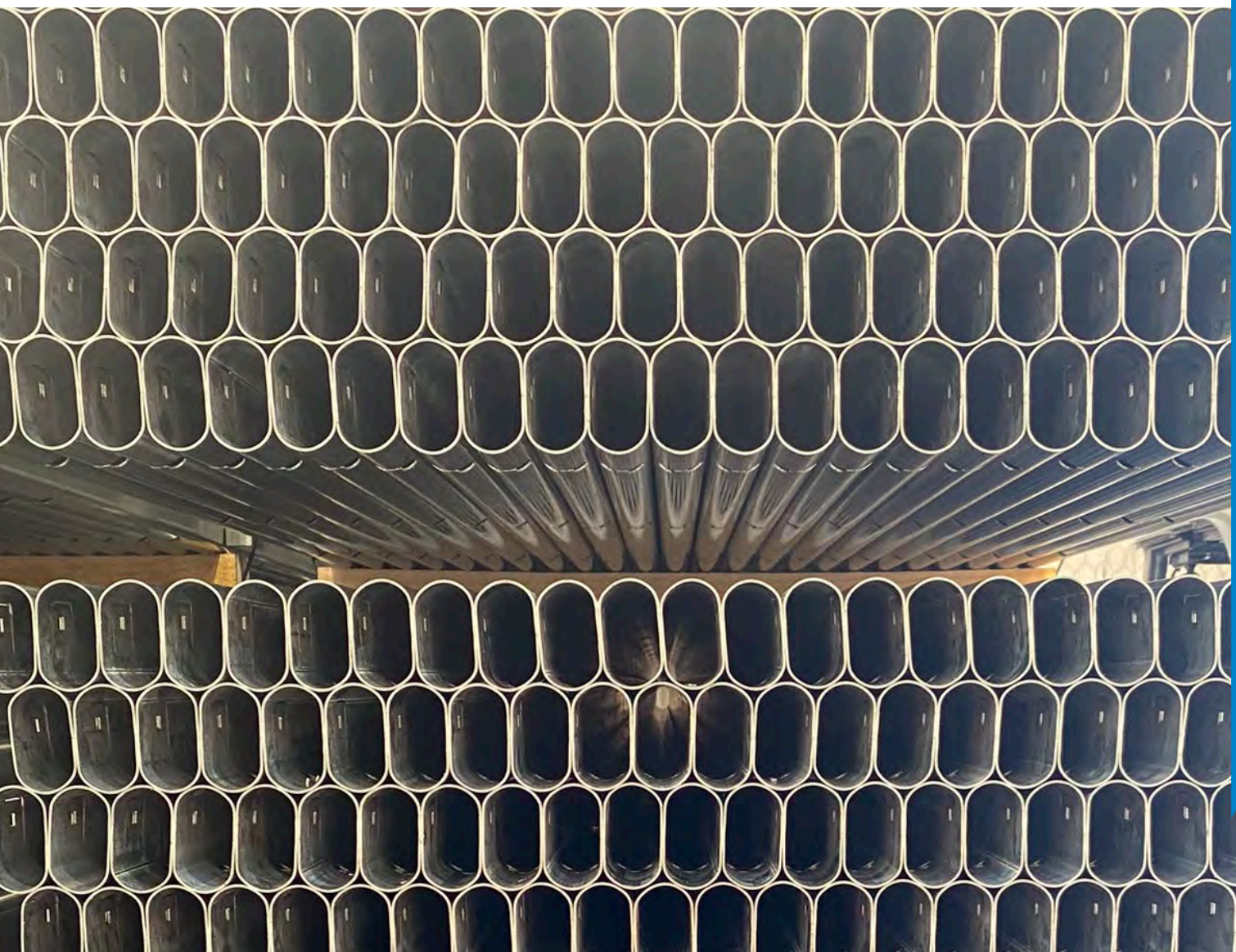
Tube Size Nominal (mm)	Tube Size Actual A (mm) B			Base Metal Wall Thickness t (mm)	Kilo's / Metre	Corner Radius (R)
25.4 x 12.7	25.4	x	12.7	1.15	0.6360	1.9
	25.4	x	12.7	1.55	0.8196	2.8
	25.4	x	12.7	1.85	0.9457	3.5
30 x 20	30	x	20	1.55	1.1124	2.8
	30	x	20	1.85	1.2946	3.5
31.8 x 15.9	31.75	x	15.88	1.15	0.8106	1.9
	31.75	x	15.88	1.55	1.0541	2.8
35 x 19.1	34.92	x	19.05	1.15	0.9268	1.9
	34.92	x	19.05	1.55	1.2101	2.8
	34.92	x	19.05	1.85	1.4110	3.5
38 x 25.4	38.1	x	25.4		0.9234	1.5
	38.1	x	25.4	1.15	1.1015	1.9
	38.1	x	25.4	1.55	1.4447	2.8
	38.1	x	25.4	1.85	1.6904	3.5
50 x 30	50	x	30	1.55	1.8507	2.8
	50	x	30	1.85	2.1742	3.5
51 x 25.4	50.8	x	25.4	1.15	1.8507	2.8
	50.8	x	25.4	1.55	1.7572	2.8
	50.8	x	25.4	1.85	2.0628	3.5
51 x 31.8	50.8	x	31.75	1.55	1.9135	2.8
	50.8	x	31.75	1.85	2.2490	3.5
51 x 38	50.8	x	38.1	1.55	2.0697	2.8
	50.8	x	38.1	1.85	2.4352	3.5
63.5 x 38	63.5	x	38.1	1.15	1.7999	1.9
	63.5	x	38.1	1.55	2.3823	2.8
	63.5	x	38.1	1.85	2.8075	3.5
	63.5	x	38.1		3.3591	4.4
68 x 43	68	x	43	1.55	2.6136	2.8
	68	x	43	1.85	2.8075	3.5
	68	x	43		3.6938	4.4
75 x 25	75	x	25	1.55	2.3429	2.8
75 x 50	75	x	50	1.55	2.9582	2.8
	75	x	50	1.85	3.4936	3.5
80 x 55	80	x	55	1.55	3.2043	2.8
	80	x	55	1.85	3.7868	3.5

FLAT SIDED OVAL TUBE
MASS & BUNDLING DATA
(MANUFACTURED TO ORDER)

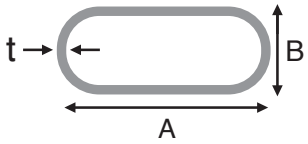


MILD STEEL, SEMI BRIGHT

Tube Size Nominal (mm)	Tube Size Actual A (mm)		B	Wall Thickness t (mm)	Kilo's / Metre
25.4 x 15.9	25.4	x	15.88	1.2	0.6138
	25.4	x	15.88	1.6	0.8026
31.8 x 15.9	31.8	x	15.88	1.2	0.7344
	31.8	x	15.88	1.6	0.9634
35 x 15.9	34.92	x	15.88	1.2	0.7932
	34.92	x	15.88	1.6	1.0418
35 x 20	34.92	x	20	1.2	0.8375
	34.92	x	20	1.6	1.1008
	34.92	x	20	2.0	1.3563
40 x 20	40	x	20	1.6	1.2284
44.5 x 12.7	44.45	x	12.77	1.2	0.9385
	44.45	x	12.77	1.6	1.2355
51 x 15.9	50.8	x	15.88	1.2	1.0923
	50.8	x	15.88	1.6	1.4407
54 x 19.1	53.98	x	19.05	1.2	1.1863
	53.98	x	19.05	1.6	1.5660
60 x 30	60	x	30	1.6	1.8742
	60	x	30	2.0	2.3230
67 x 48	67	x	48	1.6	2.3081
	67	x	48	2.0	1.7811
97 x 42	97	x	42	1.6	2.9757
	97	x	42	2.0	3.6999



CATTLE RAIL



TUBE STANDARD MANUFACTURED TO AS 1450, AS 1163

Advantages:

- Tube can be made in high strength light weight carbon steel to reduce weight and cost of galvanising.
- Also available in pre Galvanised strip.
- NZTM Cattle rail is manufactured for reliability and durability at an affordable price.
- Cut lengths ex mill by negotiation.

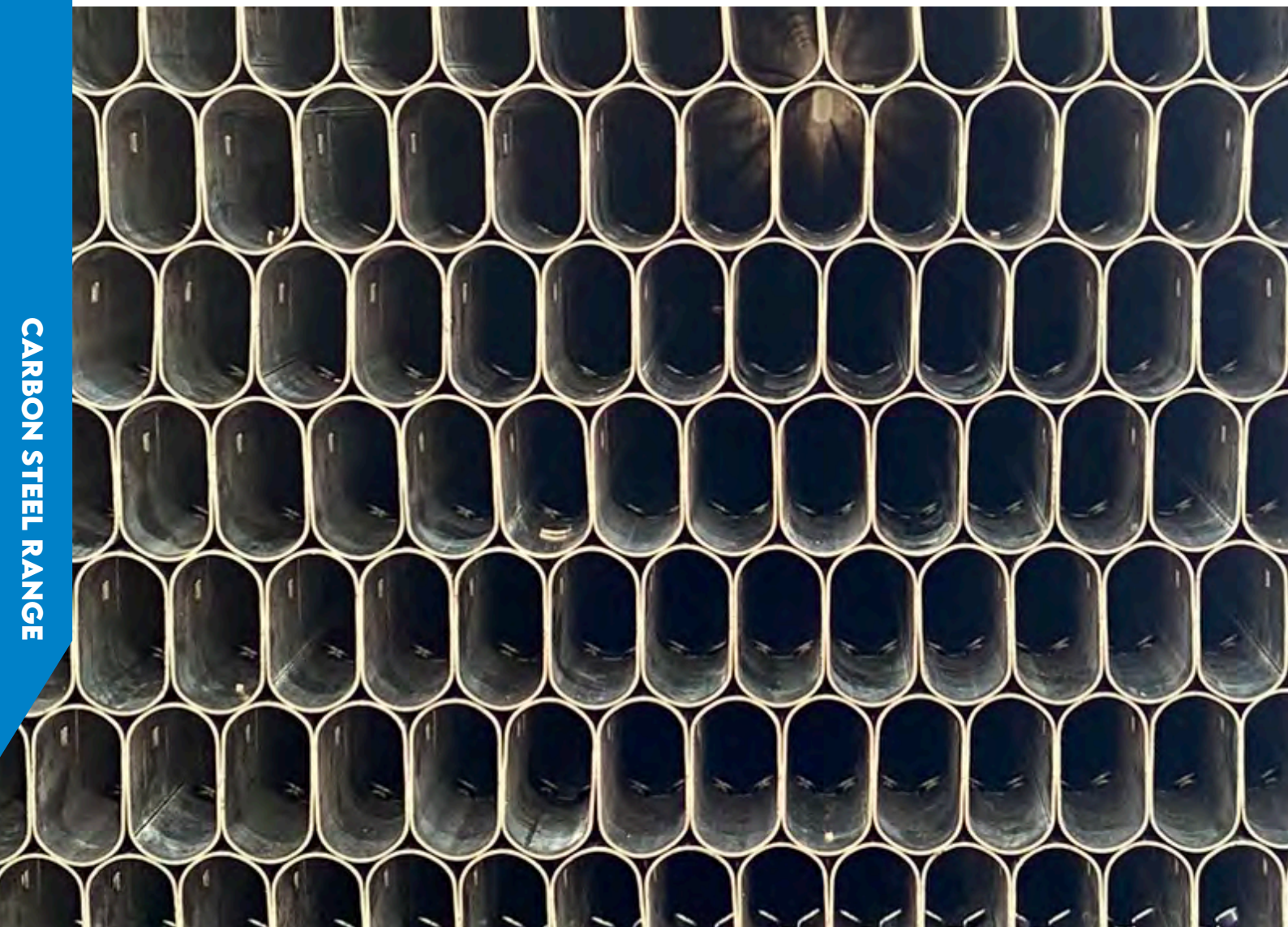
Application:

- Cattle Yards
- Horse Yards
- Goat Yards
- Alpaca Yards
- Loading Ramps
- Combination Yards
- Calf Cradles
- Cattle Drafting
- Cattle Crushes & Head Bails
- General Panels

Tube Size Nominal A B	Wall Thickness t (mm)	Kg/m	Qty / Bundle	Kilo's / Metre
60 x 30	1.6	1.8742	30	342
60 x 30	2.0	2.3230	30	425
67 x 48	1.6	2.3081	25	352
67 x 48	2.0	2.8655	25	437
97 x 42	1.6	2.9757	20	363
97 x 42	2.0	3.6999	20	451

Minimum Order Qty Applies

Materials	Galvanised Steel G310 / Z450	Semi Brightl Tube 300 (Hot Rolled)
Yield (MPa) min	310	350
Tensile (MPa) min	400	370
Elongation (%) min	18	10
Hardness (HRB)	-	72-80



CARBON STEEL RANGE

TELESCOPING

Telescope tube is used where additional strength is required. Common uses for telescope tube are tent poles, extension arms, shop-fittings, tables, architectural features.

The internal tube can be of any nominated wall thickness however the telescoping tube (external) **must be of 1.2mm wall thickness.** Telescope tube run from mill production schedules may require internal plug gauges or client specifications to ensure correct sizing of the tube. Please contact your local sales office when ordering.

Telescoped tube is available in the following material types:

- Mild steel
- Galvanised Steel

ROUND PROFILES		
9.5mm	Fits inside	12.7mm
12.7mm	Fits inside	15.9mm
15.9mm	Fits inside	19.1mm
19.1mm	Fits inside	22.2mm
22.2mm	Fits inside	25.4mm
25.4mm	Fits inside	28.6mm
28.6mm	Fits inside	31.8mm
31.8mm	Fits inside	35.0mm
35.0mm	Fits inside	38.0mm
38.0mm	Fits inside	41.3mm
41.3mm	Fits inside	44.5mm
44.5mm	Fits inside	47.6mm
47.6mm	Fits inside	50.8mm
50.8mm	Fits inside	57.0mm
57.0mm	Fits inside	60.3mm

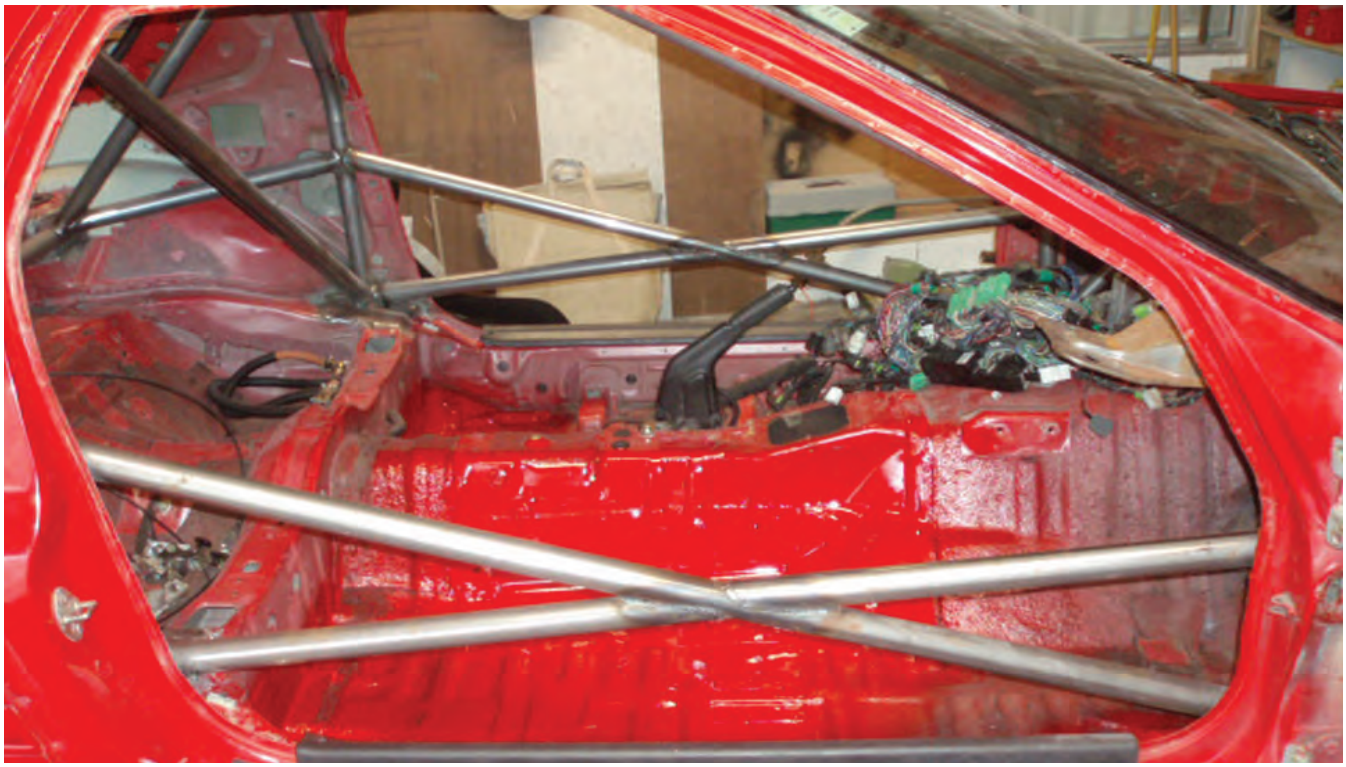
SQUARE PROFILES		
9.5 x 9.5mm	Fits inside	12.7 x 12.7mm
12.7 x 12.7mm	Fits inside	15.9 x 15.9mm
15.9 x 15.9mm	Fits inside	19.1 x 19.1mm
19.1 x 19.1mm	Fits inside	22.2 x 22.2mm
22.2 x 22.2mm	Fits inside	25.4 x 25.4mm
25.4 x 25.4mm	Fits inside	28.6 x 28.6mm
28.6 x 28.6mm	Fits inside	31.8 x 31.8mm
31.8 x 31.8mm	Fits inside	35.0 x 35.0mm

RECTANGLE PROFILES		
31.8 x 16.0mm	Fits inside	35.0 x 19.0mm
63.5 x 37.6mm	Fits inside	68.0 x 43.0mm
75.0 x 50.0mm	Fits inside	80.0 x 55.0mm

FLAT SIDED OVAL		
50.8 x 15.9mm	Fits inside	54.0 x 19.0mm

NZTM Q29
ROLL CAGE TUBE

Motorsport New Zealand have deemed "Rollbar" welded steel tube produced by New Zealand Tube Mills complies with MANZ requirements set out in the technical publication reference Motorsport Association Technical Bulletin. Motorsport New Zealand (MSNZ) and Motorsport Australia (MSAS) have deemed "Safety Cage" welded from steel tube produced by New Zealand Tube Mills as it complies with the requirements set out in their technical bulletin **"Schedule A"** from MSNZ and **"Schedule J"** from MSAS.



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HORTICULTURAL SOLUTIONS

ECO BEAM

ECO V

ECO BERRY

ECOTRELLIS
HORTICULTURAL PRODUCT RANGE

Since 1938 NZ Tube Mills has been a pioneer of innovation and this continues today with the well established EcoTrellis range of products servicing both the viticulture and horticulture industries in NZ and Australia as well as exporting around the world.

All EcoTrellis products are made from high tensile steel with a heavy-duty zinc coating offering a long and stable life span.

EcoTrellis, a multi-award-winning trellising system that offers a complete vineyard trellising solution using posts, clips, and strainers as relevant to site location. It's the perfect system for both new vineyard developments and the replacement of damaged wooden posts.

EcoBeam a widely used steel growing system for Kiwifruit that is versatile and durable, it lends itself to stronger options, as evidenced by it's extensive ongoing use in the replanting of kiwifruit orchards to new varieties.

EcoV & EcoVP an all-steel growing system for pipfruit and cherry growers with a quick install time and an improved growing style

EcoBerry, an innovative and easy to install trellising system developed to save berry fruit growers time and money.

STAINLESS STEEL TUBE

SUMMARY

New Zealand Tube Mills produce a leading stainless tube primarily used for running lines in sanitary and food grade applications.

The tube is longitudinally welded using TIG (Tungsten Inert Gas) to produce a large range of rounds for this specific market. Tube has been manufactured on site beginning in 1967. Finished goods are manufactured to the following standards:

- AS1528.1
- JIS G3447
- ASTM A554
- NZTM Q12A

Telarc ISO 9001 accreditation ensures the highest quality tube reaches the market.

Material types include 304 / 304L, 316L.

Food and Beverage tube for sanitary applications is weld bead controlled (cold worked) (31.8mm to 152.4mm) and 100% eddy current tested to ASTM A1016M to ensure quality for end use applications.

NON-DESTRUCTIVE TESTING

Each tube shall be subjected to the non-destructive eddy current test. Testing shall be in accordance with ASTM A1016M.

Tube is offered in an As Welded (AW) condition or, 320G Polished (AWBP).

Brighter finishes are available and these can be requested to a UltraBrite. Refer to your local sales office for more information.

Tube is cut to a standard 6.00m length with a length tolerance +35mm / -0mm. The round tube has chamfered OD and ID ends. Inkjet marking ensures full traceability back to the mother coil. Colour coded plastic sleeving allows for ease of identification and protection from scratching and marking. Tube is sold in bundles (refer the bundle chart) and is wrapped for maximum protection to ensure it reaches its destination clean, dry and undamaged.

Certification of test and mill certificates are issued on request to ensure appropriate accreditation and full traceability.

If test and mill certificates are required this should be specified at the time of order placement.

Typical uses for Stainless Tube:

- Food processing
- Wine flow lines
- Brewing flow lines
- Milk processing
- Cheese processing
- Automotive
- General fabrication
- Handrails
- Kitchen
- Heating Elements

AUSTENITIC STAINLESS STEEL

New Zealand Tube Mills manufacture tube from the austenite family of stainless steel.

This group contains a minimum of 16% chromium and 8% nickel. The basic 304 grade is commonly referred to as 18/8.

The material is also suitable for low temperature applications. The nickel content assists with its resistance to brittleness at low temperatures.

Characteristics of austenitic stainless steel are:

- Good corrosion resistance
- Ease of welding using standards equipment
- A stable grain structure at all temperatures
- Cannot be hardened by heat treatment

FOOD & BEVERAGE APPLICATIONS

New Zealand Tube Mills produce world class stainless tube. Tube is used in the following applications:

- Beverage
- Food
- Milk Processing
- Marine
- Architectural

The tube is longitudinally welded and is supplied to the following standards:

- AS1528.1
- ASTM A269
- ASTM A554
- JIS G3447

Telarc ISO 9001 accredited.

Our in-house Quality Assurance department are responsible for coordinating process control methods throughout the organisation.

SPC (Statistical Process Control) techniques are widely employed, to monitor process. Tube has been locally manufactured since 1967.

Material types include 304 / 304L, 316 / 316L.

Beverage and Food tubes supplied for sanitary applications are weld bead controlled, eddy current tested and ink jet marked.

Tube is offered in an As Welded (AW) condition or, 320G Polished (AWBP).

Tube is cut to a standard 6.00m length

Size range 9.53mm to 152.4mm

Wall thickness 0.9mm to 2.0mm

Inkjet marking ensures full traceability.

As Welded tube is inkjet marked by negotiation.

Colour coded plastic sleeving allows ease of identification of the type of material and provides protection from scratching and marking.

Tube is sold in bundles and is export wrapped for maximum protection to ensure the consignment reaches its destination clean, dry and undamaged.

TYPICAL APPLICATION FOR FOOD AND BEVERAGE TUBE

HEAT EXCHANGER TUBE

ANNEALED TUBE

HISTORY

New Zealand Tube Mills has been manufacturing and supplying annealed tubes for over 15 years. The product is built on the solid reputation of 40 years of stainless steel tube manufacture and supply to the pharmaceutical industry and other food standard applications. We have excellent manufacturing and testing facilities on site assuring your product quality every time.

PRODUCT

NZTM annealing line is a continuous type bright annealing process and tube is manufactured to ASTM-A269 and ASTMA–249 for high-temperature application.

CAPABILITIES

We can supply in sizes ranging from 25.4mm diameter to 63.5mm diameter. Lengths are customer specific up to 20 metres (calibrated). Material thickness range from 0.9mm to 2mm. Ends can be chamfered or straight cut and deburred.

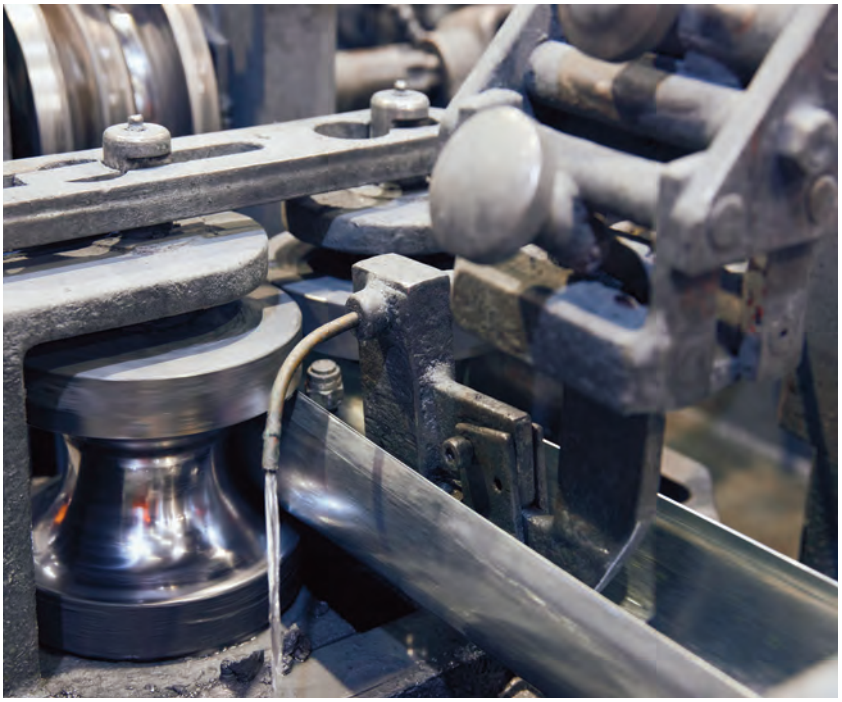
TEST AND CERTIFICATION

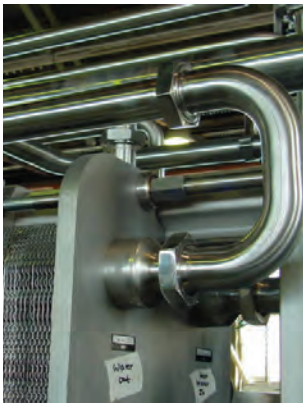
As part of our internal quality system we conduct regular in-process mechanical tests to ensure real-time quality control. We also offer a full range of test information from our on-site metallurgy laboratory. This ranges from supplying standard test certificates to customer specific macro reports such as below:

- As per standard requirements each tube is in line eddy current tested.
- Packaging is by steel pallet or to your requirements.
- Annealing range is 70 – 90 HRB

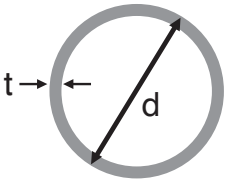
SERVICE

We plan our rolling programme to meet customer deadlines and requirements.





ROUND TUBE
MASS & BUNDLING DATA
STAINLESS STEEL 304 & 316L TYPE



Tube Size Nominal (mm)	Tube Size Actual **d** (mm)	Wall Thickness **t** (mm)	Kilo's / Metre
9.5	9.53	0.9	0.1935
	9.53	1.6	0.2490
12.7	12.70	0.9	0.2646
	12.70	1.2	0.3438
	12.70	1.6	0.4425
15.9	15.88	0.9	0.3359
	15.88	1.2	0.4389
	15.88	1.6	0.5692
19.1	19.05	0.9	0.4070
	19.05	1.2	0.5336
	19.05	1.6	0.6956
22.2	22.22	0.9	0.4780
	22.22	1.2	0.6284
	22.22	1.6	0.8219
25.4	25.40	0.9	0.5493
	25.40	1.2	0.7235
	25.40	1.6	0.9487
31.8	31.75	0.9	0.6917
	31.75	1.2	0.9133
	31.75	1.6	1.2018
35	34.93	0.9	0.7630
	34.93	1.2	1.0084
	34.93	1.6	1.3286
38.1	38.10	0.9	0.8341
	38.10	1.2	1.1031
	38.10	1.6	1.4549
44.5	44.45	1.2	1.2930
	44.45	1.6	1.7080
	44.45	2.0	2.1151
	44.45		2.6127
51	50.80	0.9	1.1188
	50.80	1.2	1.4828
	50.80	1.6	1.9611
	50.80	2.0	2.4315
63.5	63.50	1.2	1.8625
	63.50	1.6	2.4674
	63.50	2.0	3.0643
76.2	76.20	1.2	2.2422
	76.20	1.6	2.9736
	76.20	2.0	3.6971
101.6	101.60	1.6	3.9861
	101.60	2.0	4.9626
127	127.00	1.6	4.9985
	127.00	2.0	6.2282
152.4	152.40	1.6	6.0110
	152.40	2.0	7.4938

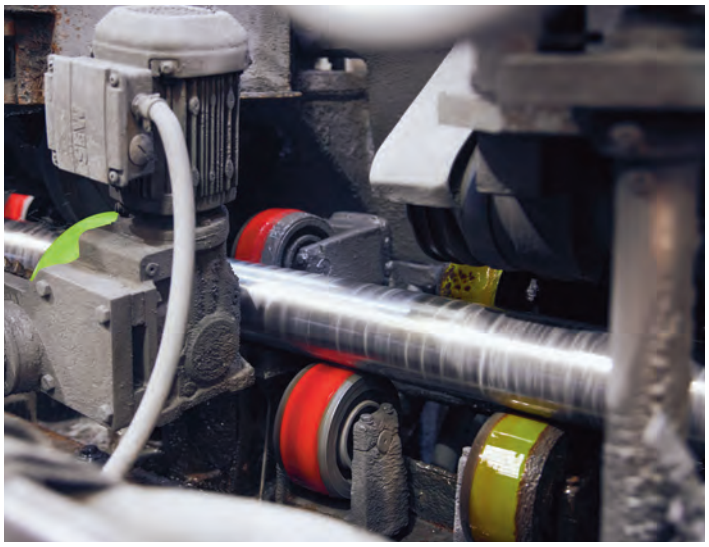
SPECIAL STAINLESS PROFILES

These new profiles are supplied to a premium mirror finish. The market position for these profiles and surface finish best suit high applications, where the fabrication requirements are exacting and the environment harsh.

Product is supplied in the material type TP316L, and TP304L.

Material supplied has a consistent wall thickness.

Tube Manufactured to ASTM A554.



SIZE RANGE

19.1mm to 63.5mm rounds

76.2mm to 152.4mm 600# only

Wall thickness 1.6mm and 2.0mm

POLISHED CONDITION

800 grit +

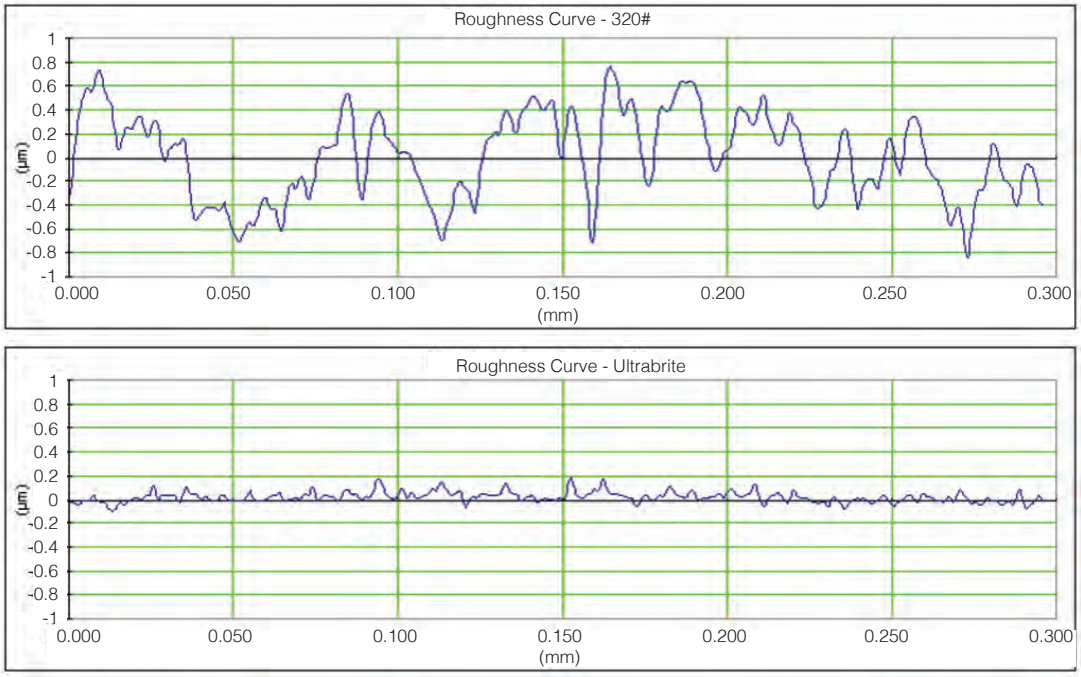
APPLICATIONS INCLUDE:

- Boating accessories
- Balustrades
- Handrails
- Furniture

WORKING CONDITIONS

- Austenitic grades provide good corrosion resistance.
- It is easily cleaned in marine environment.
- The finished surfaces perform well and look aesthetically good.

Graph indicates the typical surface roughness on UltraBrite. Compared to standard stainless tube.



Certification of test and mill compliance is issued as standard. New Zealand tube Mills is an accredited exporter.

VALUE ADDED SERVICES

We offer several in-house services to compliment our tubular product range so when you receive our products they are ready for use.

These services include:

- Cutting
- Bending
- Wire Buff
- Tube Laser Processing (on application)
- Other processes may be arranged by request

It's our philosophy to exceed our customer's expectations. We aim to supply products of the highest quality that are durable and at a competitive price.

Our knowledge and experience in designing for manufacture allows us to work with you to help you achieve your goals for specific product requirements.

We utilise 3D CAD and CNC equipment for the modification of existing products and new product design. This gives us advantages in accuracy and speed in getting the finished product to you.

PROCESS IMPROVEMENT:

We have the experience to help you with your individual projects around tube processing.

CONTACT US FOR ASSISTANCE WITH THE FOLLOWING:

- On site advice around engineering solutions.
- Tool and fixture design and manufacture.
- We work with you at your premises to ensure you receive the results you expect.

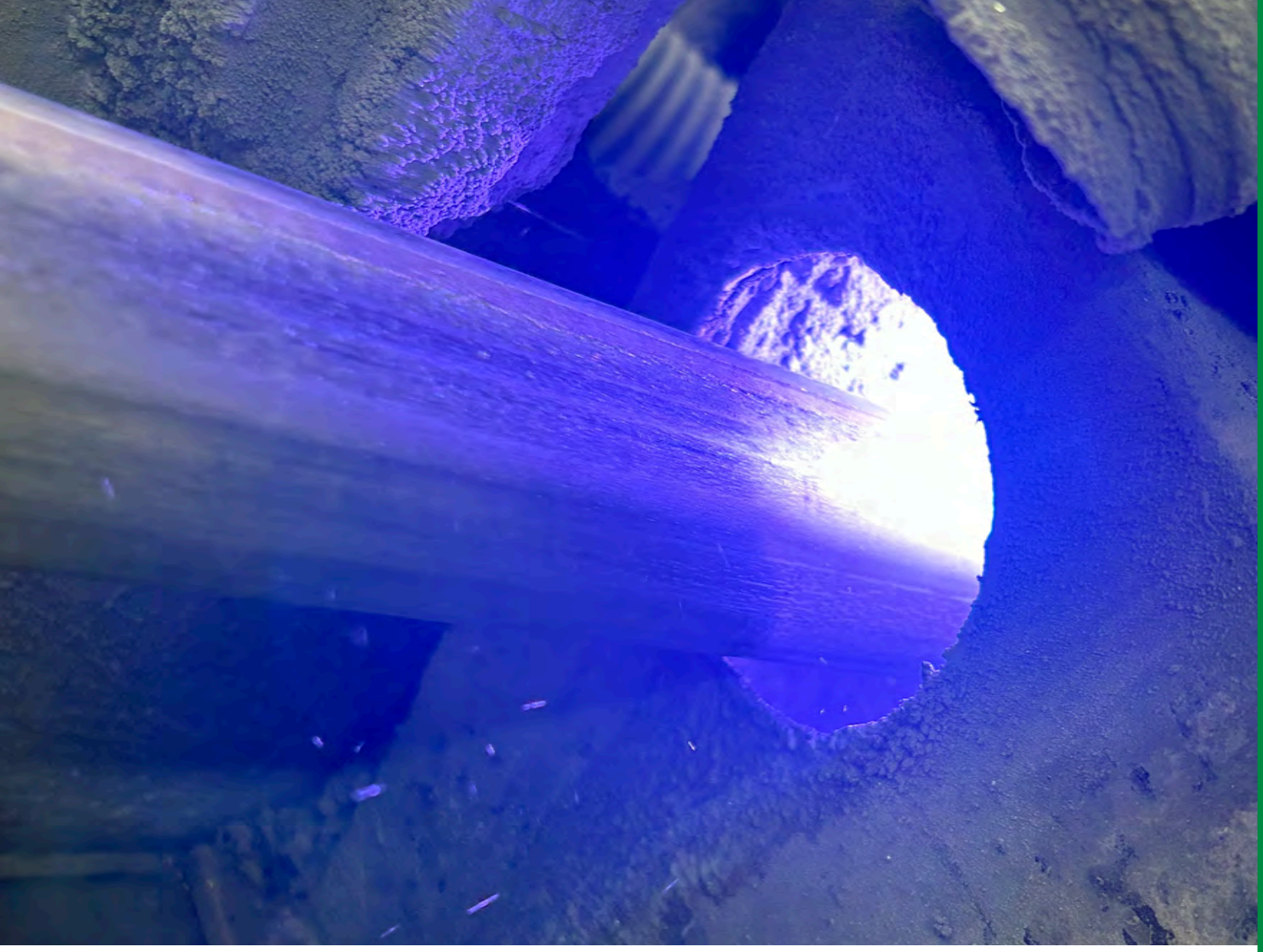
ACCREDITATION:

NZTM is accredited to ISO 9001. We have an active quality department ensuring a quick resolution to any problems and driving continuous improvement throughout the company.

CAPABILITIES AND CAPACITIES

Processing	Min-Max Diameter (mm)	Min-Max Length	Wall Thickness (mm)
Bending	12.7 to 50.8		1.2 to 2.5
Cutting Handsaw	9.5 to 101.6	150mm to 8.5 metres	
Cold Saws Auto	9.5 to 101.6	30mm to 8.5 metres	0.9 to 3
De-burring			
Semi-Auto Wire Brush	12.7 to 63.5	250mm to 2.2 metres	
Hand Wire Brush	12.7 to 50.8	150mm to 3.0 metres	

*Depending on profile
All refer to carbon steel products. Other materials can be processed on application.



MILD STEEL TUBE
SPECIFICATION

MATERIAL

CARBON STEEL	
Uncoated Steel	Galvanised Coated Steel
Mild Steel	G250/Z275
NZTM-Q05A	NZTM-Q06A
Tube 300 (Hot rolled pickled & oiled)	G310/Z450
NZTM-Q05F	NZTM-Q06B

PRODUCT

CARBON TUBE	SPECIFICATIONS
Mill Tolerance	NZTM-Q02
Available Sizes	NZTM-Q09A
General Application (Round / Square / Rectangle / FSO / Oval)	NZTM-Q15
Roll Cage Application (Round /Tube) Tensile Strength 350 MPa min	NZTM-Q29
Colour Coding	NZTM-Q32
Storage Guidelines for Galvanised Tube	NZTM-Q31

STAINLESS STEEL TUBE
SPECIFICATION
NZTM Q12A

GENERAL INFORMATION

Specification scope This specification applies to general tube and food / milk processing industry (FQ).

Equivalent standards AS1528.1 - *Food / Milk Processing Industry and* ASTM A554 - *General & Architectural*

Available sizes Tube sizes range from 7.94 mm to 152.4 mm outside diameter. Refer **NZTM-Q08B** for available Tubes sizes.

Grades of material 304L, 316L stainless steel

Manufacture Automatic welding with no addition of filler metal.

Heat treatment Tube is not post weld heat treated except for Standards ASTM A269 & A249 where tube is annealed.

MATERIAL TESTS

CHEMICAL COMPOSITION (%) (COIL) Unless specifically requested otherwise chemical tests are from coil manufactured to ASTM A240 / A480

Grades	C Max	Mn Max	P Max	S Max	Si Max	Cr	Ni	N Max	Mo
TP 304	0.75	2.00	0.045	0.03	0.75	17.5-19.5	8-10.5	0.10	-
TP 304L	0.03	2.00	0.045	0.03	0.75	17.5-19.5	8-10.5	0.10	-
TP 304	0.03	2.00	0.045	0.03	0.75	16-18	10-14	0.10	2-3

MECHANICAL TESTS Except tube made to ASTM A249 and specifically requested otherwise Yield stress , Tensile tests & Hardness tests are from coil manufactured to ASTM A240 / A480.

Yield stress (coil)

TP 304 & TP 316	205 MPa min
TP 316L	170 MPa min

Tensile stress (coil)

TP 304 & TP 316	515 MPa min
TP 316L	485 MPa min

Elongation (coil) 40% Minimum (50mm test piece)

Hardness tests (coil)

TP 304 & TP 316	92 HRB / 202 HV30 max
TP 316L	95 HRB / 217 HV30 max

Note:

- MPa – Megapascal
- HRB – Rockwell B
- HV30 – Vickers 30

TUBE WELD INTEGRITY TESTS

Reverse Flatening Test Reverse flatten with the weld at the point of maximum bend

Flare / Cone Test Minimum 1.2 times tube diameter (60 deg included angle)

Flange Test Minimum 1.2 times tube diameter

Eddy current test Tubes are 100% on-line eddy-current tested.

TUBE DIMENSIONAL TOLERANCES

Outside diameter (OD)

O/D (D)	Tolerance (V)
O/D <= 31.9mm	+/0.13mm
31.8 < O/D < = 76.2mm	+/0.25mm
O/D <= 101.6mm	+/0.38mm
O/D <= 152.4mm	+/0.76mm

Ovality Difference between maximum and minimum diameters at any one cross section to be within max & min sizes as above.

Thickness tolerance +/-10% of nominal tube thickness.

Weld bead Weld bead of tube without cold work controlled to 110% of wall thickness.

Straightness Maximum bend 2.0 mm / 1000mm length as measured against a straight edge.

Length tolerance Standard length 6 meters 0/+35 mm. Cut to exact length jobs, by agreement (-0.0 / +3.0 mm).

FINISH

End finish Sizes to 152.4 chamfered both ends.

Finish internal Tubes with diameter greater than or equal to (≥) 31.8 are internally cold worked (Internal weld beaded to tube surface). Tubes with diameter less than (<) 31.8 are in as welded condition and internal weld height is controlled to a minimum height.

Finish external Available as follows

1) **As welded** condition (external weld bead removed). May have forming, straightening and weld polish cross hatch marking.

2) Standard Polished equivalent to **320 Grit** - typical Ra = 0.25 to 0.5µm. Minor form marks may be visible.

3) **UltraBrite (mirror) Polished** equivalent to **800 Grit** - Ra value = 0.05µm. Refer **NZTM-Q21** for polished tube finish in details.

DOCUMENTATION & PACKAGING

Packaging Polished Tube is individually plastic sleeved in a bundle with corrugated steel protection

Traceability Controlled batch traceability from raw material to finished tube.

Test certificate For traceability purpose the tube is either inkjet marked or attached with label identifying sizes, batch & trace numbers. Raw material test certificates are available on request.

Certificate of Test of Finished Tube is provided for the tue dispatched.

CONVERSION FACTORS

WALL THICKNESS GAUGE CONVERSION			
mm	Gauge	Inch	Fraction
0.6	23	0.024	
0.8	22	0.032	1/32”
0.9	20	0.036	
1.2	18	0.048	3/64”
1.4	17	0.056	
1.6	16	0.063	1/16”
2.0	14	0.080	5/64”
2.5	12	0.098	
3.0	10	0.118	

TO CONVERT	INTO	MULTIPLY BY
Length (Linear)		
Inches (“)	Millimetres (mm)	25.4
Millimetres (mm)	Inches (“)	0.03937
Mass		
Kilograms (kg)	Pounds (Lb)	2.20462
Pounds (Lb)	Kilograms (kg)	0.45359
Pressure / Strength		
PSI	Bar	0.0068948
Mega Pascal	PSI	145.0377
Bar	PSI	14.50377

IMPERIAL EQUIVALENT	
IMPERIAL	MM
5/16”	7.94
3/8”	9.53
1/2”	12.70
5/8”	15.88
3/4”	19.05
7/8”	22.23
1	25.40
1 1/8”	28.58
1 1/4”	31.75
1 3/8”	34.93
1 1/2”	38.10
1 3/4”	44.45
1 7/8”	47.63
2	50.80
2 1/8”	53.98
2 1/4”	57.15
2 3/8”	60.33
2 1/2”	63.50
3	76.20
3 1/2”	88.90
4	101.60
6	152.40

Note:

- MPa – Megapascal
- 1MPa – Nmm^{-2}
- KSI – Kilopound per square inch

  1 KSI = 6.89476 MPa

COLOUR CODING

TUBE GAUGE COLOUR CODING (STOCK TUBE)
(Used for Mild Steel, Galvanised Tube)

mm	inch	gauge		
0.6	0.024	23		**GREY**
0.8	0.032	22		**DARK GREEN**
0.9	0.036	20		**ORANGE**
1.2	0.048	18		**CREAM**
1.4	0.056	17		**RED**
1.6	0.063	16		**PURPLE**
2.0	0.080	14		**YELLOW**
2.5	0.098	12		**HOT PINK**
3.0	0.118	10		**COPPER**

MATERIAL TYPE COLOUR CODING
(Not used for M/S or G250 Galv)

SEMIBRIGHT		**ROYAL BLUE**
GALV-G310		**BLACK**

QUALITY ASSURANCE DEPARTMENT

It is our company policy to exceed customer's expectations by supplying products to the highest levels of quality and durability at a competitive price.

Our in-house Quality Assurance department are responsible for coordinating process control methods throughout the organisation.

SPC (Statistical Process Control) techniques are widely employed to monitor processes and assist with the continuous improvement program.

We house a fully equipped laboratory in Wellington to test and monitor products manufactured by the group. Qualified personnel are able to assist with ongoing research and development.

ISO 9001 reinforce our commitment to customer satisfaction.

TERMS AND CONDITIONS OF SALE

NZTM standard Terms and Conditions of Sale apply to all purchases. For a copy please contact your local sales office or representative.

Telarc. Registered TM
Quality ISO 9001

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