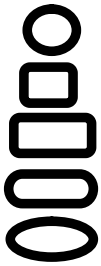
NZTM-Q15 - Carbon Steel Tube General Specification

General Information

Specification Scope : Carbon Steel Tube for general application

Equivalent Standard : *AS 1450* Note: Tube is not tensile tested unless otherwise requested.

Tube size availability



Round	*- Refer NZTM-Q09A for individual size*
Square	*- Refer NZTM-Q09A for individual size*
Rectangle	*- Refer NZTM-Q09A for individual size*
Flat Sided Oval	*- Refer NZTM-Q09A for individual size*
Oval	*- Refer NZTM-Q09A for individual size*

Material type availability : *Mild Steel - **MOD-T** (cold-rolled), Semi bright- **Tube 300** (hot-rolled & pickled).*

4D (moderate strength).

High strength (SANC490 or **SPFH590**). Note: SANC490 is not currently available.

Galvanised (**G250/Z275**, **G310/Z450** & **G450/Z450**).

Aluminium Coated (**Aliclad**) Drawing Quality.

Manufacturing Method : *Cold forming, induction welding with no addition of filler metal.*

Grades of Materials

Reference Spec Sheet No. for mechanical & chemical analysis

Mild Steel : ***NZTM-Q05A***

Semi Bright (Tube300) : ***NZTM-Q05F***

Galvanised Grade 250 : ***NZTM-Q06A*** *- Zinc coating weight of **Z275 g/m²***
Galvanised Grade 310 : ***NZTM-Q06B*** *- Zinc coating weight of **Z450 g/m²***
Galvanised Grade 450 : ***NZTM-Q06C*** *- Zinc coating weight of **Z450 g/m²***

NZCC-4D : ***NZTM-Q05D***

High Strength (SANC490) : ***NZTM-Q05C1*** Note: SANC490 is not currently available.
High Strength (SPFH590) : ***NZTM-Q05C2*** Note: Contact sales for availability.

Aluminium Clad (Commercial) : ***NZTM-Q07B (Drawing Quality)***

Sectional Properties

Round Tube - NZTM-Q28A
Square Tube - NZTM-Q28B
Rectangular tube - NZTM-Q28C

Material Tests

Chemical Composition

Chemical tests are from raw coil supplied by the steel manufacturer.
C, Si, P, S, Mn, V - refer material specs

Mechanical Tests

Tensile tests are from raw coil supplied by the steel manufacturer.

Yield Strength (coil) : *Refer coil specification*

Tensile Strength (coil) : *Refer coil specification*

Elongation (coil) : *Refer coil specification*

Hardness (coil) : *Refer coil specification*

Tube Weld Integrity Tests

Reverse Bend Test	:	*Flatten to 2 times material thickness.*
Flare / Cone Test	:	*Minimum 1.2 tube diameter (60 deg included angle).*
Expansion Test	:	*Minimum 1.2 tube diameter*
Rotary Flare Test	:	*Minimum 1.2 tube diameter.*
Flattening Test	:	*Minimum 1.2 tube diameter.*

Dimensional Tolerances

Outside dimensions :
9.53 to 15.88 mm dia +/- 0.12 mm
19.05 to 28.58 mm dia +/- 0.15 mm
31.75 to 47.62 mm dia +/- 0.20 mm
50.8 to 69.85 mm dia +/- 0.25 mm
76.2 to101.6 mm dia +/- 0.30 mm
*Refer **NZTM-Q02** for standard mill tolerances*

Wall thickness : *+/- 10% of stated tube thickness*

Ovality for Round : *Difference between maximum and minimum diameters at any one cross section to be within max & min sizes as above (Max - Min ≤2 x Tolerance)*

Weld Bead Position : *On long side unless otherwise specified - Fig-1*

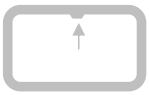


Fig-1

Twist for Rectangle / Square : *Maximum of 5 mm over 5500 mm length - Fig-2*

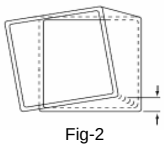


Fig-2

Concavity / Convexity for Rectangle & Square : *-0.03 / + 0.1 - Fig-3a & 3b*

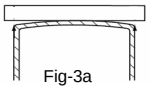


Fig-3a

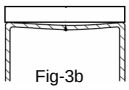


Fig-3b

Squareness for Rectangle / Square : *90 +/ 1 deg - Fig-4*

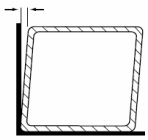


Fig-4

Corner Radius for Rectangle / Square : *2 x material thickness +0, -1.7 mm*

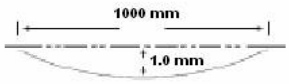


Fig-5

Straightness : *Maximum of 1.0 mm in any 1000 mm (1.0 m) length - Fig-5*

Standard Mill lengths : *5500 mm or 6100 mm (tolerance +6 / -0 mm).*
(If there is any tube end shape distortion the mill length will be longer to compensate)

Cut to specific length : *Up to 28.6 mm = +/- 1.0 mm, from 31.8 to 101.6 mm = +/- 3 mm.*
(Note tighter tolerances may be negotiated prior to production run)

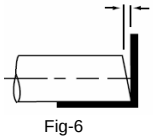


Fig-6

Cut End Squareness for Rectangle / Square : *0.07 mm per 10 mm of OD (equivalent to 0.4 deg). Apply only to cut length up to 1000 mm*

Finish

End finish	:	*Double shear, less than 0.5 mm burr, (round & square tube ex-mill only).*
Finish internal	:	*Maximum internal weld bead height 50% of material thickness.*
Finish external	:	*External weld bead is removed, (On-line Weld surface repair - Galvanised only)*
Documentation	:	*Test Certification must be negotiated prior to mill run.*
Additional Testing	:	*Negotiated at time of order.*