

# Stainless Steel Metric Tube & Fittings Guide

## What are Metric Tube & 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 & Paper
- ◆ Food & Drink (Pre-Process)
- ◆ Pharmaceutical (Bulk Handling)
- ◆ Chemicals
- ◆ Construction
- ◆ Semi Conductor and other Clean Room Facilities

## What are the advantages?

- ◆ Lightweight
- ◆ Demountable & 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 & Flanges
- ◆ Clips & 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 & O/D mean?

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

## What grades are available?

- ◆ EN 1.4432 (316L High Molybdenum)
- ◆ EN 1.4307 (304L)
- ◆ EN 1.4571 (316 Ti = 316 Titanium)
- ◆ In addition, Backing Flanges may be:
  - 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

## What markings will be on the fittings?

Typically:

- ◆ Manufacturer's Name or Symbol
- ◆ Size
- ◆ Grade

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