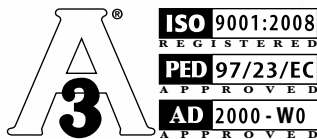


# True15™

## Electropolished Stainless Steel Tubing

High Purity Tubing for pharmaceutical, semiconductor, biotechnology, and other processes requiring finishes to 15  $\mu$ -in Ra ID maximum.

RathGibson's True15™ tubing is manufactured to ASME BPE and ASTM A270 S2 standards, making it ideal for ultra high purity applications. By utilizing RathGibson's Micro-Weld™ technology and proprietary electropolishing process, ID surface anomalies are minimized, providing an ultra-smooth, corrosion resistant, chromium enriched surface where contaminants cannot hide. This electropolished tubing is processed and packaged in a certified ISO Class 5 Cleanroom (Fed 209E), a must for manufacturing tubing intended for use in today's ultra high purity environments. Sizes available are 1/2" (12.7 mm) to 6" (152.4 mm) OD in stock 20' (6.1 m) lengths.



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# Electropolished Stainless Steel Tubing

## Materials

- 316L available from stock.

## Mechanical Tests

To ensure the highest surface quality in all of our sanitary tubing, RathGibson goes beyond the requirements of ASTM A269 and A270 by performing the full battery of ASTM bend and deformation tests required by ASME SA249 as well as additional deformation tests developed by RathGibson. The tests, combined with specific raw material requirements, Eddy Current testing at the tube mill, 100% bore-scoping prior to mechanical polish, and tighter OD and wall tolerances allow RathGibson to provide a more consistent superior quality product.

## Annealing

- Hydrogen bright annealed in line to 1900°F (1040°C) minimum and rapidly quenched.

## Cleaning

All RathGibson True15™ Electropolished tubing utilizes a state of the art deionized water system that guarantees less than 50 ppb TOC with an average of 10 ppb and a resistivity up to 18 MΩ. RathGibson also utilizes 99.9999% pure Nitrogen which is filtered to 0.003 μm at the point of use. Cleaning and packaging are performed in a certified ISO Class 5 Cleanroom.

## Surface Finish

Surface finish is 15 μ-in Ra (0.4 μm) ID maximum, 30 μ-in Ra (0.8 μm) OD maximum measured per ASME/ANSI B46.1 with the profilometer reading at 90 degrees to major polishing pattern.

## Packaging

As a final step in maintaining clean standards, RathGibson electropolished tubing is packaged using protective 6 mil

poly sleeving along with air tight plastic end caps over a polyamide patch. The tubing is then placed in wood boxes for maximum protection during shipment.

## Specification

Tubing shall be RathGibson True15™ Electropolished 316L ASME BPE SF4 tubing. Surface finish is 15 μ-in Ra (0.4 μm) ID maximum, 30 μ-in Ra (0.8 μm) OD maximum measured per ASME/ANSI B46.1 with the profilometer reading at 90 degrees to major polishing pattern.

## Chemical Composition

Elements	316L (wt%)
(C) Carbon, Max.	0.035
(Mn) Manganese, Max.	2.00
(P) Phosphorus, Max.	0.040
(S) Sulfur	0.005-0.017
(Si) Silicon, Max.	0.75
(Ni) Nickel	10.0-15.0
(Cr) Chromium	16.0-18.0
(Mo) Molybdenum	2.0-3.0

## Dimensional Tolerances

all dimensions in inches (mm)

Size OD	Nominal Wall	Outside Diameter	Length	Wall
1/2" (12.7)	0.065" (1.65)	+/-0.005 (0.13)	+1/8" (3.18) - 0	+/-10.0%
3/4" (19.1)	0.065" (1.65)	+/-0.005 (0.13)	+1/8" (3.18) - 0	+/-10.0%
1" (25.4)	0.065" (1.65)	+/-0.005 (0.13)	+1/8" (3.18) - 0	+/-10.0%
1-1/2" (38.1)	0.065" (1.65)	+/-0.008 (0.20)	+1/8" (3.18) - 0	+/-10.0%
2" (50.8)	0.065" (1.65)	+/-0.008 (0.20)	+1/8" (3.18) - 0	+/-10.0%
2-1/2" (63.5)	0.065" (1.65)	+/-0.010 (0.25)	+1/8" (3.18) - 0	+/-10.0%
3" (76.2)	0.065" (1.65)	+/-0.010 (0.25)	+1/8" (3.18) - 0	+/-10.0%
4" (101.6)	0.083" (2.11)	+/-0.015 (0.38)	+1/8" (3.18) - 0	+/-10.0%
6" (152.4)	0.109" (2.77)	+/-0.030 (0.76)	+1" (25.4) - 0	+/-10.0%

The information herein was correct at the time of publication and is subject to change without notice.

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