

Ultrahigh-Purity Stainless Steel Tubing

Imperial Sizes



Features

- 316L stainless steel
- Available in sizes from 1/4 to 4 in. OD; metric sizes available upon request
- Coaxial tubing available in sizes from 1/4 to 1 in. OD
- Electropolished internal surface finish of 10 $\mu\text{in.}$ (0.25 μm) R_a max.
- Ends prepared for orbital welding
- Rinsed with 18M Ωcm DI water
- Purged with filtered nitrogen
- Cleaned and sealed in an ISO Class 4/Federal Class 10 cleanroom
- Marked to indicate size, material type, and heat code

Pressure Ratings

See *Swagelok® Tubing Data* for pressure ratings.

Technical Data

Material Standards

Grade	UNS Designation	ASTM	ASME
316L	S31603	A269 ^①	SA213 ^①

^① Nominal wall thickness, not minimum wall thickness.

Chemical Composition Percentages

Grade	Chromium	Nickel	Molybdenum	Manganese	Silicon	Carbon	Sulfur
316L	16.0 to 18.0	10.0 to 15.0	2.00 to 3.00	2.00 max	0.75 max	0.035 max ^②	0.005 to 0.012 (seamless) 0.005 to 0.017 (welded)

^② Tubing sizes less than 1/2 in. OD contain up to 0.040 % carbon.

Ordering Information and Dimensions

Tubing

Tube OD in.	Nominal Wall Thickness in.	Basic Ordering Number	Nominal Length m (ft)	Weight kg/m
316L Seamless				
1/4	0.035	6L-T4-S-035-6M-	6 (19.7)	0.12
3/8	0.035	6L-T6-S-035-6M-		0.19
1/2	0.049	6L-T8-S-049-6M-		0.35
3/4	0.065	6L-T12-S-065-6M-		0.71
1	0.065	6L-T16-S-065-6M-		1.2
1 1/2	0.065	6L-T24-S-065-6M-		1.5
2	0.065	6L-T32-S-065-6M-		2.0
316L Welded				
1 1/2	0.065	6L-T24-W-065-6M-	6 (19.7)	1.5
2	0.065	6L-T32-W-065-6M-		2.0
3	0.065	6L-T48-W-065-6M-		3.0
4	0.083	6L-T64-W-083-6M-		5.2

Select a basic ordering number. Add a process designator from the table to the basic ordering number.

Example: 6L-T4-S-035-6M-E3

Process	Packaging	Individual Certificates	Process Designator
Ultrahigh-purity	Ends are faced and protected with polyamide nylon film and polyethylene caps; packed in double polyethylene bags.	Mill Test Reports Certificate of Conformance ^①	E2
		Mill Test Reports Surface Roughness Dimensional Tolerances	E3

NOTE: Process specifications are available upon request. Contact your local independent Swagelok sales and service representative.

① Certificate of Conformance for:
 Surface roughness
 Dimensional tolerances
 Helium leak test for welded fittings
 Purity test for moisture and particulates
 SEM pits, inclusions, or other raw material defects
 XPS minimum chromium to iron and chromium oxide to iron oxide ratios
 DI water cleaning for effluent resistivity

Coaxial Tubing

Process tube is 316L seamless. Containment tube is 316L welded.

Process Tube OD in.	Containment Tube OD in.	Process Tube Nominal Wall Thickness in.	Containment Tube Nominal Wall Thickness in.	Basic Ordering Number	Nominal Length m (ft)	Weight kg/m
316L						
1/4	1/2	0.035	0.049	6L-CXT4-S-035-6M-	6 (19.7)	0.48
3/8	5/8	0.035	0.049	6L-CXT6-S-035-6M-		0.73
1/2	3/4	0.049	0.065	6L-CXT8-S-049-6M-		1.1
3/4	1	0.065	0.065	6L-CXT12-S-065-6M-		1.9
1	1 1/4	0.065	0.065	6L-CXT16-S-065-6M-		2.3

Chemically Cleaned and Passivated and Thermocouple Cleaned Tubing

See the *Swagelok Stainless Steel Tubing, Imperial Sizes* catalog for information.

Tools and Accessories

See the *Swagelok Tools and Accessories* catalog for more information.



Tube Fittings

See the *Swagelok Gaugeable Tube Fittings and Adapter Fittings* catalog for information.

Swagelok Welding System

See the *Swagelok Welding System* catalogs for information.



Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.