

Stainless Steel Seamless Tubing

Fractional Sizes

- Standard instrumentation tubing
- Chemically cleaned and passivated tubing
- Thermocouple-cleaned tubing

Features

- Available in sizes from 1/8 to 2 in. outside diameter; metric sizes available upon request
- Marked to indicate size, material, specifications, and heat number

Pressure Ratings

See Swagelok® *Tubing Data*, MS-01-107, for complete pressure ratings.

Standard Instrumentation Tubing

Material Standards

Grade	UNS	ASTM	ASME
316 / 316L	S31600 / S31603	A213 ^① / A269	SA213 ^①
304 / 304L	S30400 / S30403	A213 ^① / A269	SA213 ^①

① Nominal wall thickness, not minimum wall thickness.

Chemical Composition

Element	Material Grade	
	316 / 316L	304 / 304L
	Composition, wt. %	
Chromium	16.0 to 18.0	18.0 to 20.0
Nickel	11.0 to 14.0	8.0 to 11.0
Molybdenum	2.00 to 3.00	—
Manganese	2.00 max	2.00 max
Silicon	0.75 max	0.75 max
Carbon	0.035 max ^①	0.035 max ^①
Sulfur	0.030 max	0.030 max

① Tubing sizes smaller than 1/2 in. outside diameter contain up to 0.040 wt. % carbon.



Ordering Information and Dimensions

Select an ordering number.

Tube OD in.	Nominal Wall Thickness in.	Ordering Number	Nominal Length ft	Weight lb/ft
316 / 316L Seamless				
1/8	0.028	SS-T2-S-028-20	20	0.029
1/4	0.035	SS-T4-S-035-20		0.080
	0.049	SS-T4-S-049-20		0.105
	0.065	SS-T4-S-065-20		0.128
3/8	0.035	SS-T6-S-035-20		0.127
	0.049	SS-T6-S-049-20		0.171
	0.065	SS-T6-S-065-20		0.215
1/2	0.035	SS-T8-S-035-20		0.174
	0.049	SS-T8-S-049-20		0.236
	0.065	SS-T8-S-065-20		0.302
5/8	0.065	SS-T10-S-065-20		0.389
3/4	0.065	SS-T12-S-065-20		0.476
1	0.083	SS-T16-S-083-20		0.813
1 1/4	0.095	SS-T20-S-095-20		1.187
	0.120	SS-T20-S-120-20		1.473
1 1/2	0.120	SS-T24-S-120-20		1.792
	0.134	SS-T24-S-134-20	1.981	
2	0.134	SS-T32-S-134-20	2.705	
	0.188	SS-T32-S-188-20	3.686	
304 / 304L Seamless				
1/4	0.035	304L-T4-S-035-20	20	0.080
3/8	0.035	304L-T6-S-035-20		0.127
1/2	0.035	304L-T8-S-035-20		0.174

Chemically Cleaned and Passivated and Thermocouple-Cleaned Tubing

Material Standards

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

^① Nominal wall thickness, not minimum wall thickness.

Chemical Composition

Element	Composition, wt. %
Chromium	16.0 to 18.0
Nickel	10.0 to 15.0
Molybdenum	2.00 to 3.00
Manganese	2.00 max
Silicon	0.75 max
Carbon	0.035 max ^①
Sulfur (chemically cleaned and passivated)	0.005 to 0.012 (seamless) 0.005 to 0.017 (welded)
Sulfur (thermocouple-cleaned)	0.030 max

^① Tubing sizes smaller than 1/2 in. outside diameter contain up to 0.040 wt. % carbon.

Tubing Tools and Accessories

See the Swagelok *Tubing Tools and Accessories* catalog, MS-01-179, for more information.



Tube Fittings

See the Swagelok *Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-01-140, for information.



Swagelok Orbital Welding System

See the Swagelok *Welding System M200 Power Supply* catalog, MS-02-342, for more 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.

Cleaning and Packaging

Chemically Cleaned and Passivated Tubing

This tubing complies with ASTM G93, Level A requirement for nonvolatile residue levels and also meets requirements of CGA G4.1. Tubing ends are protected with polyamide nylon film and polyethylene caps. Tubing is packed in single polyethylene, heat-sealed bags.

Thermocouple-Cleaned Tubing

This tubing meets the cleanliness requirements of ASTM A632-S3. Tubing ends are protected with polyethylene caps. Tubing is bulk packaged in polyethylene, heat-sealed bags.

Product	Inside Diameter Finish	Process Designator	External Finish
Chemically cleaned and passivated	20 μ in. R_a max	G20	Satin
	32 μ in. R_a max	G30	
Thermocouple-cleaned	Standard finish (see ASTM A269)	G	

Ordering Information and Dimensions

To order, add a process designator from the table above to a basic ordering number.

Tube OD in.	Nominal Wall Thickness in.	Basic Ordering Number	Nominal Length ft	Weight lb/ft
316L Seamless				
1/8	0.020	6L-T2-S-020-20-	20	0.022
	0.028	6L-T2-S-028-20-G ^①		0.029
1/4	0.035	6L-T4-S-035-20-		0.080
	0.049	6L-T4-S-049-20-		0.105
3/8	0.035	6L-T6-S-035-20-		0.127
	0.049	6L-T6-S-049-20-		0.171
1/2	0.035	6L-T8-S-035-20-		0.174
	0.049	6L-T8-S-049-20-		0.236
	0.065	6L-T8-S-065-20-		0.302
5/8	0.065	6L-T10-S-065-20-		0.389
3/4	0.065	6L-T12-S-065-20-		0.476
	0.065	6L-T16-S-065-20-G20 ^②		0.649
1	0.065	6L-T16-S-065-20-G20 ^②	0.649	
	0.083	6L-T16-S-083-20-G ^①	0.813	

^① Available thermocouple-cleaned only. Use ordering number shown.

^② Available with G20 process only. Use ordering number shown.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.