

316 / 316L STAINLESS STEEL TUBING



With the addition of molybdenum, grades 316 and 316L stainless steel were developed to offer improved corrosion resistance compared to alloy 304/L. The increased performance of this austenitic chromium-nickel stainless steel makes it better suited for environments rich in salt air and chlorides. Additionally, the low carbon content makes the alloy 316/L easy to weld.

PRODUCT SPECIFICATIONS

ASTM A269, ASTM A213/ ASME SA213 (SEAMLESS)

ASTM A269, ASTM A249/ ASME SA249 (WELDED)

Domestic tube is bright annealed. Imported tube is solution annealed and O.D. polished to a 320-grit finish.

SIZE RANGE

Outside Diameter (OD)	Wall Thickness
.063"–4.00"	.010"–.375"

CHEMICAL REQUIREMENTS

T316/L (UNS S31600/UNS S31603)
COMPOSITION %

ELEMENTS	UNS S31600	UNS S31603
C Carbon	0.080 max 2.00	0.030 max 2.00
Mn Manganese	max 0.045 max	max 0.045 max
P Phosphorous	0.030 max 1.00	0.030 max 1.00
S Sulfur	max 16.0–18.0 2	max 16.0–18.0 2
Si Silicon	10.0–14.0 2	10.0–15.0 2
Cr Chromium	.00–3.00	.00–3.00
Ni Nickel		
Mo Molybdenum		

DIMENSIONAL TOLERANCES

OD	OD Tolerance	Wall Tolerance
≤ .500"	± .005" ±	± 10% ± 10% ±
.500"–1.500" excl	.005" ± .010"	10% ± 10%
1.500"–3.500" excl	± .015"	
3.500"–5.500" excl		

MECHANICAL PROPERTIES

Yield Strength	30 ksi min 75
Tensile Strength	ksi min 35%
Elongation (2" min)	90 HRB max
Hardness (Rockwell B Scale)	

FABRICATION

316/L is harder to machine than 304/L and more prone to work hardening. Special tools and methods are usually required to fabricate 316/L.

OD	Wall	ID	Lbs/Ft	OD	Wall	ID	Lbs/Ft
1/16" (.063")	.010	.043	.0057		.083	.709	.7 113
	.016	.031	.0081		.095	.685	.8018
	.020	.023	.0093		.120	.635	.9803
1/8" (.125")	.010	.105	.0124	1" (1.000")	.035	.930	.3654
	.020	.085	.0227		.049	.902	.5042
	.028	.069	.0294		.065	.870	.6576
	.035	.055	.0341		.083	.834	.8235
	.049	.027	.0403		.095	.810	.9302
3/16" (.188")	.020	.148	.0364		.109	.782	1.0510
	.028	.132	.0485		.120	.760	1.1430
	.035	.118	.0579		.134	.732	1.2560
	.049	.090	.0737		.156	.688	1.4250
1/4" (.250")	.020	.210	.0498		.188	.624	1.6520
	.028	.194	.0673		.250	.500	2.0290
	.035	.180	.0814	1-1/8" (1.125")	.035	1.055	.4128
	.049	.152	.1066		.065	.995	.7455
	.065	.120	.1301		.109	.907	1.1980
	.083	.084	.1500		.120	.885	1.3050
	.095	.060	.1593		.188	.749	1.9060
5/16" (.313")	.020	.273	.0634		.035	1.180	.4601
	.028	.257	.0863		.049	1.152	.6367
	.035	.243	.1053	1-1/4" (1.250")	.065	1.120	.8334
	.049	.215	.1400		.083	1.084	1.0480
	.065	.183	.174 4		.095	1.060	1.1870
	.083	.147	.2066		.109	1.032	1.3460
	.095	.123	.2 241		.120	1.010	1.4 670
3/8" (.375")	.020	.335	.0768		.134	.982	1.6180
	.028	.319	.1051		.156	.938	1.8470
	.035	.305	.1288		.188	.874	2.1600
	.049	.277	.1728		.250	.750	2.7050
	.065	.245	.2180		.065	1.24 5	.92 13
	.083	.209	.262 2	1-3/8" (1.375")			
	.095	.185	.2878				
	.120	.135	.3311	1-1/2" (1.500")	.049	1.402	.7693
	.134	.107	.3494		.065	1.370	1.0090
	.035	.368	.1526		.083	1.334	1.2 730
	.049	.340	.2062		.095	1.310	1.4440
7/16" (.438")	.065	.308	.2623		.109	1.282	1.6410
	.020	.460	.1039		.120	1.260	1.7920
	.028	.444	.1430		.134	1.232	1.9810
1/2" (.500")	.035	.430	.1761		.156	1.188	2.2690
	.049	.402	.2391		.188	1.124	2.6690
	.065	.370	.3059		.250	1.000	3.3810
	.083	.334	.3745		.065	1.495	1.0970
	.095	.310	.4163	1-5/8" (1.625")			
	.109	.282	.4611				
	.120	.260	.4934	1-3/4" (1.750")	.065	1.620	1.1850
	.156	.188	.5 806		.120	1.510	2.1160
	.188	.124	.6347	2" (2.000")	.049	1.902	1.0340
	.035	.493	.2000		.065	1.870	1.3610
	.065	.433	.3502		.083	1.834	1.7220
9/16" (.563")	.035	.555	.2 234		.095	1.810	1.9580
	.049	.527	.3054		.109	1.782	2.2300
	.065	.495	.3938		.120	1.760	2.4 410
5/8" (.625")	.083	.459	.4867		.134	1.732	2.7050
	.095	.435	.5448		.156	1.688	3.1130
	.120	.385	.6557		.188	1.624	3.6860
	.035	.680	.2708		.250	1.500	4.7340
	.049	.652	.3717		.313	1.374	5.7 130
	.065	.620	.4818		.375	1.250	6.5930
3/4" (.750")	.083	.584	.5990	2-1/2" (2.500")	.065	2.370	1.7 130
	.095	.560	.6733		.083	2.33 4	2.1710
	.109	.532	.7560		.120	2.260	3.0900
	.120	.510	.8180		.188	2.124	4.7030
	.134	.482	.8931		.250	2.000	6.0860
	.156	.438	1.0030		.065	2.870	2.0640
	.188	.374	1.1430	3" (3.000")	.120	2.760	3.7390
	.250	.250	1.3530		.188	2.624	5.7200
	.035	.805	.3181		.250	2.500	7.4390
	.049	.777	.4379		.065	3.870	2.7670
	.065	.745	.5697	4" (4.000")	.083	3.834	3.5180
7/8" (.875")					.120	3.760	5.0380
					.250	3.500	10.140

