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ASME SA213 TP316L ASTM A213 TP316L Seamless Tubes | ASTM A269 TP316 316/316L Stainless Steel Tubing

RFQ

Guanyu Tube is manufacturer of **ASME SA213 TP316L**, ASTM A269 **TP316 Stainless Steel Tubing**, **ASTM A213 TP316L**, **ASME SA213 TP316L** SS Tubes, ASTM A312 TP316L Stainless Steel SMLS Pipe, 316L U bend Tubes, ASME SA 213 A269 TP316 / 316L EN 10216 – 5 1.4401 / 1.4404 Stainless Steel Tubes. A312 TP316L, A213 TP316L, SA213 316L.

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316L Stainless Steel Properties and Character

316 Stainless Steel are molybdenum-bearing austenitic stainless steel, which are more resistant to general corrosion and pitting corrosion, crevice corrosion than the conventional chromium-nickel austenitic stainless steel such as 304. 316L Stainless Steel also offers higher creep, stress-to-rupture, and tensile strength at elevated temperature. The recommended temperature range includes -425°F to 1,200°F (-255°C to 605°C). In addition to excellent corrosion resistance and strength properties, the Alloys 316 and 316L Cr-Ni-Mo alloys also provide excellent fabricability and formability which are typical of the austenitic stainless steel.

TP316L Stainless Steel is an improved version of 304 Stainless Steel, with the addition of molybdenum and higher nickel content. The resultant Chemical composition of 316 gives the stainless steel much increased corrosion resistance in an aggressive environment. Molybdenum makes the steel more resistant to pitting and crevice corrosion in chloride-contaminated media, sea water and acetic acid vapour. The lower rate of general corrosion in a mildly corrosive environment gives the steel good atmospheric corrosion resistance in polluted marine atmosphere, and because of low carbon percentage, can minimize Intergranular corrosion attack.

316 316L Stainless Steel offers higher strength and better creep resistance at higher temperature than 304. 316L Stainless Steel also possesses excellent mechanical properties and corrosion properties at sub-zero temperatures. When there is a danger of corrosion in the heat affected zones of weldments, the low-carbon variety 316L should be used. 316Ti, the titanium-stabilised version, is used for its resistance to sensitization during prolonged exposure in the 550 °C-800 °C temperature range.

316 316L (2% to 3% Mo) is the most widely used molybdenum-containing stainless steel. It is designated as a tank, pipe and heat exchanger material for food processing and pharmaceutical production. Increased molybdenum content enhances resistance to chloride in the air, so Type 316 can be used as a material of choice for offshore and coastal buildings. 316L is used to cover the Canary Wharf building in London and the tallest building in the world – the outer layer of the Petronas Tower in Kuala Lumpur, Malaysia.

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L grades have 0.035% carbon maximum (for 316L, it is 0.020% maximum). L grades are resistant to sensitization in short-term exposures or heat treatments. L-grade often have slightly lower (typically 30MPa less) minimum tensile strength and yield strength than standard stainless steel.

ASME SA213 TP 316L Stainless Steel Tubes PipeSize

OD: 3.175 – 508mm (1/8 – 20 Inch) , WT: 0.50 – 63.5mm (0,02 – 2 1/2 inch), Length: 25000mm Maximum

ASTM A269 TP316 Size:1/4" × 0.035"
ASTM A269 TP316 Size:3/8" × 0.035"
ASTM A269 TP316 Size:1/2" × 0.035"
ASTM A269 TP316 Size:5/8" × 0.035"
ASTM A269 TP316 Size:3/4" × 0.035"
Size:1" × 0.035"
Size:5/16" × 0.035"
Size:1/4" × 0.049"
Size:3/8" × 0.049"
Size:1/2" × 0.049"
Size:5/8" × 0.049"
Size:3/4" × 0.049"
Size:1" × 0.049"
Size:1/4" × 0.065"
Size:3/8" × 0.065"
Size:1/2" × 0.065"
Size:5/8" × 0.065"

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Size:1" × 0.065"
Size:1" × 0.120"

ASME SA 213 TP 316 / TP 316L EN 10216-5 1.4401 1.4404 1.4435 1.4436 Chemical Composition

Grade	TP316	TP 316L	TP316H	1.4401	1.4404	1.4436
UNS Designation	S31600	S31603	S31609			
Carbon (C) Max.	0.08	0.035	0.04-0.1	0.07	0.030	0.05
Manganese (Mn) Max.	2.00	2.00	2.00	2.00	2.00	2.00
Phosphorous (P) Max.	0.045	0.045	0.045	0.040	0.040	0.040
Sulphur (S) Max.	0.030	0.030	0.030	0.015	0.015	0.015
Silicon (Si) Max.	1.00	1.00	1.00	1.00	1.00	1.00
Chromium (Cr)	16.0 – 18.0	16.0 – 18.0	16.0 – 18.0	16.5 – 18.5	16.5 – 18.5	16.5-18.5
Nickel (Ni)	10.0 – 14.0	10.0 – 14.0	10.0 – 14.0/ 11.0 -14.0	10.0 – 13.0	10.0 – 13.0	10.5-13.0
Molybdenum (Mo)	2.0 – 3.0	2.0 – 3.0	2.0 -3.0	2.0 – 2.5	2.0 – 2.5	2.5-3.0
Nitrogen (N) Max.	–	–	–	0.11	0.11	0.11

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Other Elements	–	–	–	–	–

* Maximum carbon content of 0.04% acceptable for drawn tubes General Properties

Mechanical Properties of ASTM A213 TP316L / TP316H Stainless Steel SMLS Pipe in the Annealed Condition

			Tensile Strength	Yield Strength					
Alloy	UNS	Spec.	MPa	ksi	ksi	MPa	Elongation in 2 inch (min.) %	Grain Size Req.	Max. Hardness HRB Rockwell
TP316	S31600	A312	515	75	30	205	35	—	90 HRB
TP316L	S31603	A213	485	70	25	170	35	—	90 HRB
TP316H	S31609	—	—	—	—	—	—	7 or coa rser	—

Physical Properties of ASTM A213 TP 316/316L/316H Stainless Steel

Alloy	UNS	Spec.	Density Specific Gravity kg/dm³	Modulus of Elasticity (x106 psi)	Mean Coeff icient of Thermal Expansion (IN./IN ./°F x 10-6)	Thermal Cond uctivity (BTU-in/ft2-h-°F)
316	S31600	A312	7.98	28.0	9.2	116
316L	S31603	A213	7.98	28.0	9.2	116
316H	S31609	—	7.98	—	—	—

Weight calculation coefficient: 0.02507

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- ASTM/ASME: UNS S31600 / S31603
- EURONORM: X1 CrNiMo 17 12 2 / X3 CrNiMo 17 12 2
- AFNOR: Z 6 CND 17-11 / Z 2 CND 17-12
- DIN: 1.4401 / 1.4404

Alloy	UNS Designation	Werkstoff NR.	Specifications
316	S31600	EN 10216 – 5 1.4401	A269, A/SA249, A/SA312, A1016, A632, A/SA688
316L	S31603	EN 10216 – 5 1.4404	A269, A/SA249, A/SA312, A1016, A632, A/SA688

Standard Specification:	EN 10216-5, DIN 17456, DIN 17458, DIN 2462, DIN 17455
	GB/T14975, T14976, T13296, GB5310;
	ASTM A213, A269, A312, A511, A789, A790, A928, A999, A1016, ASTM B161, ASTM B163, ASTM B165, ASTM B167, ASTM B338, ASTM B407, ASTM B423, ASTM B444,ASTM B619, ASTM B622, ASTM B626, ASTM B668, ASTM B677, ASTM B829
	JIS G3459, JIS G3463, JIS G3446, JIS G3447, JIS G3448, JIS G3468
	GOST 9940, GOST 9941;

	Sizes	Sizes	Sizes		Standard T
Products	OD	Wall	Lengths and/or coils	Grades	OD

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Seamless Austenitic Steel Boiler, Superheater, Heat-Exchangers & Condenser TubesSpecifications: ASTM A213, ASME-SA213, ASTM-A688, ASME-SA688, ASTM A312, ASME SA 312	0.5" (6 mm) to 12 ” (323.85 mm)Metric sizes available	0.020" (0.51 mm) to 1.312 ” (33.325 mm)	Random or cut lengths to Customer Requirement	316/316L	mm)1" (25 1-1/2" (38. ±0.006" (0. mm)>1-1/2 mm) to 2" (mm) ±0.00 mm)>2" (5 to 2-1/2" (6 ±0.010" (0. mm)>2-1/2 mm) to 3" (mm) ±0.01 mm)3" (76 4" (101.6 n ±0.015" (0.
Pressure & Corrosion Stainless steel Tube Meets or exceeds requirements for weldedSpecifications: ASTM-A269, ASTM-A1016, and ASTM-A632	1/16" (1.59 mm) to 4" (101.6 mm)Metric sizes available	0.010" (0.25 mm) to 0.220" (5.59 mm)	Random or cut lengths up to 90' (27.4 m)Coils to 1-1/2" OD	316/316L	<1-1/2" (38 ±0.005" (0. 1-1/2" (38. 3" (76.2 mı ±0.010" (0. mm)3-1/2" mm) to 4" (mm) ±0.01 mm)
Beverage Tubing	1/4"(6.35 mm) 5/16" (7.94 mm) 3/8" (9.53 mm) 1/2" (12.7 mm)Metric sizes available	0.020" (0.51 mm) to 0.028" (0.71 mm)	Random or cut lengths up to 40' (12.2 m)	316L	±0.005" (0.
Instrumentation Tubing Specifications: ASTM-A269 and ASTM-A632	1/16" (1.59 mm) to 1/2" (12.7	0.010" (0.25 mm) to 0.065" (1.65 mm)	Random or cut lengths up to 40' (12.2 m)	316/316L	±0.005" (0.

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	available				
Food/Dairy Tubing, Pharmaceutical/ BioPharmaceutical Tubing, High Purity Tubing, Ultra High Purity Tubing	1/2" (12.7 mm) to 8" (203.2 mm)	0.049" (1.24 mm) to 0.109" (2.77 mm)	20' (6.1 m) stock lengths. Other lengths available upon request.	316/316L	1/2" (12.7 0.005" (0.1 3/4" (19.1 0.005" (0.1 (25.4 mm) (0.13 mm) (38.1 mm) (0.20 mm) mm) ± 0.0(mm) 2-1/2 mm) ± 0.0' mm) 3" (76 0.010" (0.2 (101.6 mm 0.015" (0.3 (152.4 mm 0.030" (0.7 (203.2 mm (1.55 mm),

ASME SA 213 UNS S31600 / S31603 TP316L Stainless Steel Tubing Applications

- Food preparation equipment, especially in chloride environments
- Chemical processing, equipment
- Laboratory benches and equipment
- Rubber, plastics, pulp & paper machinery
- Pollution control equipment
- Boat fittings, value and pump trim
- Heat exchanger
- Pharmaceutical and textile industry
- Condensers, evaporators and tanks
- 316H Stainless Steel Reheater Tubes and Superheater Tubes for Boiler

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American standard for Process piping (ASME B31.3 : 2018)

Maximum internal pressure of ASTM A312 A269 316L Size: OD 12.7 mm WT 0.889mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Rema
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	152	152	152	143	135	128	123	A 31 and A 269 tube

Maximum internal pressure of ASTM A312 A269 316L Size: OD 12.7 mm WT 1.245mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Rema
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	217	217	217	204	192	182	175	A 31 and A 269 tube

Maximum internal pressure of ASTM A312 A269 316L Size: OD 12.7 mm WT 1.651mm Wall Thickness Tolerance: ± 10%

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	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	297	297	297	279	263	249	240	A 31 and A 269 tube

Maximum internal pressure of ASTM A312 A269 316L Size: OD 15.88mm WT 1.245mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Rema
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	171	171	171	161	151	143	138	A 31 and A 269 tube

Maximum internal pressure of ASTM A312 A269 316L Size: OD 15.88mm WT 1.651mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Rema
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	232	232	232	218	206	195	188	A 31 and A 269 tube

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Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Re
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	
TP316L	191	191	191	179	169	160	154	A 3 anc 26 tub

Maximum internal pressure of ASTM A312 A269 316L Size: OD 19.05mm WT 2.11mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Re
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	
TP316L	249	249	249	234	221	209	201	A 3 anc 26 tub

Maximum internal pressure of ASTM A312 A269 316L Size: OD 25.4mm WT 1.651mm Wall Thickness Tolerance: ± 10%

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	100°F	200°F	300°F	400°F	500°F	600°F	700°F	–
316L	141	141	141	132	125	118	114	A 31 and A 269 tube

Maximum internal pressure of ASTM A312 A269 316L Size: OD 25.4mm WT 2.11mm Wall Thickness Tolerance: ± 10%

Grade	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Pressure bar	Re
	100°F	200°F	300°F	400°F	500°F	600°F	700°F	
TP316L	183	183	183	172	162	153	148	A 3 and 26 tub

TP316 TP316L Stainless Steel Tubing Marking and Packing

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TP316 Stainless Steel Tube Export Record

Export ASME SA213 / A269 TP316 Stainless Steel Seamless Tubes finished in Bright Annealing. Size with Outside Diameter in 14.6mm, Wall Thickness in 1mm Length in 3100mm. Total in 4900KGS.

Export ASME SA213 TP316 Stainless Steel Seamless Tubes finished in Bright Annealing. Size with Outside Diameter in 25.4mm / 1 inch, Wall Thickness in 1.65mm / 0.065" Length in 6096mm. Total in 4492KGS.

Export ASME SA213 TP316 Stainless Steel Seamless Tubes finished in Bright Annealing. Size with Outside Diameter in 12.7mm / 1/2 inch, Wall Thickness in 1.245mm / 0.049" Length in 6096mm. Total in 2180KGS.

ASME SA213 TP316L Stainless Steel Tube Export Countries

MIDDLE EAST	AFRICA	EUROPE	ASIA
Saudi Arabia	Nigeria	Russia	China
Iran	Algeria	Norway	Singapore
Iraq	Angola	Germany	Malaysia
UAE	South Africa	France	Indonesia

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Oman	Sudan	Spain	South Korea
Kuwait	Equatorial Guinea	Ukraine	Japan
Turkey	The Republic Of Congo	Netherland	Sri Lanka
Yemen	Gabon	Belgium	Maldives
Syria		Greece	Bangladesh
Jordan	**NORTH AMERICA**	Czech Republic	Mayanmar
Cyprus	USA	Portugal	Taiwan
	Canada	Hungary	Cambodia
	Mexico	Albania	**SOUTH AMERICA**
	Panama	Austria	Argentina
	Costa Rica	Switzerland	Bolivia
	Puerto Rica	Slovakia	Brazil
	Trinidad And Tobago	Finland	Chile
	Jamaica	Ireland	Venezuela
	Bahamas	Croatia	Colombia
	Denmark	Slovenia	Ecuador
		Malta	Guyana
			Paraguay
			Uruguay

TP316 TP316L Stainless Steel Tubes Related Links

316L Chemical Composition
316L Resistance to Corrosion
316L Physical Properties
316L Mechanical Properties
316L Oxidation Resistance
316L Heat Treatment
316L Fabrication
Comparison Grade 316 316L 316Ti
Difference Between Duplex Steel S31803/S32205 and 316L
Comparison of Composition Ranges of TP316 Stainless Steel
Selection 316L Stainless Steel for High Purity Semiconductor Gas Filter Assemblies

Previous: ASME SA213 TP310S | ASTM A213 TP310S TP310H 310S Stainless Steel Tube

Next: TP317L Stainless Steel Tube | ASTM A213 TP317L | ASME SA213 TP317L

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TP321 TP321H Stainless Steel Tubing A213 321 SS Pi…

420 Stainless Steel 420 Stainless Steel Tubing

TP304H Stainless Steel Pipe – ASME SA213 TP304H …

430 Stainless Steel 430F Stainless Steel S43000 1.40…

Martensitic Stainless Steel

A213 TP347H Stainless Steel Tubes SA213 TP347Sta…

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Ferritic Stainless Steel Tubes Ferrite Stainless Steel

ASTM A268 TP410 / ASME SA268 TP410 Stainless St...

ASME SA213 TP310S | ASTM A213 TP310S TP310H ...

ASME SA213 TP 304L Seamless Tube | ASTM A213 T...

305 1.4303 Stainless Steel Pipes and Tubes

ASTM A213 ASME SA213 Standard Specification for ...

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TP317L Stainless Steel Tube | ASTM A213 TP317L | A...

TP304 Pipe | ASME SA 213 TP304 / ASTM A213 TP 3...

304 304L 304LN 304H Stainless Steel Tubing and Pipe

254SMo Tubing 254SMo Pipe S31254 Tubing 6MO Se...

405 Stainless Steel 1.4002 Stainless Steel Pipe

409L Stainless Steel Pipes 409 Stainless Steel

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17-4 PH Stainless Steel 630 Stainless Steel ASTM A5…

416 Stainless Steel 416 Stainless Steel Tubing

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Manufacturer of Stainless Steel Tube, Stainless Steel Pipe, SS Pipe, Stainless Steel Tubing, Nickel Alloy Tubing in China.