

316 Stainless Steel, annealed bar

Categories: [Metal](#); [Ferrous Metal](#); [Stainless Steel](#); [T 300 Series Stainless Steel](#)

Material Notes: Molybdenum content increases resistance to marine environments. High creep strength at elevated temperatures and good heat resistance. Biocompatible. Fabrication characteristics similar to Types 302 and 304.


Applications: food and pharmaceutical processing equipment, marine exterior trim, surgical implants, and industrial equipment that handles the corrosive process chemicals used to produce inks, rayons, photographic chemicals, paper, textiles, bleaches, and rubber.

Corrosion Resistance: better corrosion resistance than 302 and 304; resists sodium and calcium brines; hypochlorite solutions, phosphoric acid; and the sulfite liquors and sulfurous acids used in the paper pulp industry.

Key Words: UNS S31600, SS316, 316SS, AISI 316, DIN 1.4401, DIN 1.4408, DIN X5CrNiMo17122, TGL 39672 X5CrNiMo1911, TGL 7143X5CrNiMo1811, ISO 2604-1 F62, ISO 2604-2 TS60, ISO 2604-2 TS61, ISO 2604-4 P60, ISO 2604-4 P61, ISO 4954 X5CrNiMo17122E, ISO 683/13 20, ISO 683/13 20a, ISO 6931 X5CrNiMo17122, JIS SUS 316

Vendors: [Click here to view all available suppliers for this material.](#)

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Physical Properties	Metric	English	Comments
Density	8.00 g/cc	0.289 lb/in ³	
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	149	149	
Hardness, Knoop	169	169	Converted from Brinell
Hardness, Rockwell B	80	80	
Hardness, Vickers	155	155	Converted from Brinell
Tensile Strength, Ultimate	550 MPa	79800 psi	
Tensile Strength, Yield	240 MPa	34800 psi	
Elongation at Break	60 %	60 %	in 50 mm
Modulus of Elasticity	193 GPa	28000 ksi	
Izod Impact	129 J	95.1 ft-lb	
Charpy Impact	105 J	77.4 ft-lb	V-notch
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000740 ohm-cm	0.0000740 ohm-cm	at 20°C
Magnetic Permeability	1.008	1.008	at RT
Thermal Properties	Metric	English	Comments
CTE, linear 	16.0 µm/m-°C	8.89 µin/in-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	16.2 µm/m-°C	9.00 µin/in-°F	
	@Temperature 0.000 - 315 °C	@Temperature 32.0 - 599 °F	
	17.5 µm/m-°C	9.72 µin/in-°F	
	@Temperature 0.000 - 540 °C	@Temperature 32.0 - 1000 °F	
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	16.3 W/m-K	113 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
Melting Point	1370 - 1400 °C	2500 - 2550 °F	
Solidus	1370 °C	2500 °F	

Liquidus	1400 °C	2550 °F	
Maximum Service Temperature, Air	870 °C	1600 °F	Intermittent
	925 °C	1700 °F	Continuous Service

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.080 %	<= 0.080 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	61.8 - 72 %	61.8 - 72 %	As Remainder
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	2.0 - 3.0 %	2.0 - 3.0 %	
Nickel, Ni	10 - 14 %	10 - 14 %	
Phosphorus, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

[References](#) for this datasheet.

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