



ASM Aerospace Specification Metals Inc.



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## AISI Type 316 Stainless Steel, annealed bar

**Subcategory:** Ferrous Metal; Metal; Stainless Steel; T 300 Series Stainless Steel

**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

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	0.08	Mn	2	P	0.045
Cr	17	Mo	2.5	S	0.03
Fe	65	Ni	12	Si	1

### 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.

Physical Properties	Metric	English	Comments
Density	8 g/cc	0.289 lb/in <sup>3</sup>	

### Mechanical Properties

Hardness, Brinell	149	149	
Hardness, Knoop	169	169	Converted from Brinell hardness.
Hardness, Rockwell B	80	80	
Hardness, Vickers	155	155	Converted from Brinell hardness.
Tensile Strength, Ultimate	550 MPa	79800 psi	
Tensile Strength, Yield	240 MPa	34800 psi	

Elongation at Break	<u>60 %</u>	60 %	in 50 mm
Modulus of Elasticity	<u>193 GPa</u>	28000 ksi	
Charpy Impact	<u>105 J</u>	77.4 ft-lb	V-notch
Izod Impact	<u>129 J</u>	95.1 ft-lb	

### Electrical Properties

Electrical Resistivity	<u>7.4e-005 ohm-cm</u>	7.4e-005 ohm-cm	at 20°C
Magnetic Permeability	1.008	1.008	at RT

### Thermal Properties

CTE, linear 20°C	<u>16 μm/m-°C</u>	8.89 μin/in-°F	0 - 100°C
CTE, linear 250°C	<u>16.2 μm/m-°C</u>	9 μin/in-°F	at 0-315°C (32-600°F)
CTE, linear 500°C	<u>17.5 μm/m-°C</u>	9.72 μin/in-°F	0 - 540°C
Specific Heat Capacity	<u>0.5 J/g-°C</u>	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity at Elevated Temperature	<u>16.3 W/m-K</u>	113 BTU-in/hr-ft <sup>2</sup> -°F	100°C
Melting Point	1370 - 1400 °C	2500 - 2550 °F	
Solidus	<u>1370 °C</u>	2500 °F	
Liquidus	<u>1400 °C</u>	2550 °F	
Maximum Service Temperature, Air	<u>870 °C</u>	1600 °F	Intermittent Service
Maximum Service Temperature, Air	<u>925 °C</u>	1700 °F	Continuous Service

### References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.