



ASM Aerospace Specification Metals Inc.



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AISI Type 316L Stainless Steel, annealed and cold drawn bar

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

Key Words: UNS S31603, AISI 316L, ISO 2604-1 F59, ISO 2604-4 P57, ISO 2604-4 P58, ISO 4954 X2CrNiMo17133E, ISO 683/13 19, ISO 683/13 19a, biomaterials, biomedical implants, biocompatible materials

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

Material Notes:

Similar to Type 316 for superior corrosion resistance, but also has superior resistance to intergranular corrosion following welding or stress relieving. Good corrosion resistance to most chemicals, salts, and acids and molybdenum content helps resistance to marine environments. The low carbon content of 316L reduces the possibility of in vivo corrosion for medical implant use. High creep strength at elevated temperatures. 316L has fabrication characteristics similar to Types 302 and 304.

Applications: biomedical implants, chemical processing, food processing, photographic, pharmaceutical, textile finishing, marine exterior trim.

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

Mechanical Properties

Hardness, Brinell	190	190	
Hardness, Knoop	212	212	Converted from Brinell hardness.
Hardness, Rockwell B	91	91	
Hardness, Vickers	199	199	Converted from Brinell hardness.
Tensile Strength, Ultimate	<u>585 MPa</u>	84800 psi	
Tensile Strength, Yield	<u>380 MPa</u>	55100 psi	
Elongation at Break	<u>45 %</u>	45 %	in 50 mm
Modulus of Elasticity	<u>193 GPa</u>	28000 ksi	in tension

Charpy Impact	103 J	76 ft-lb	V-notch, 30°C
Izod Impact	150 J	111 ft-lb	21°C

Electrical Properties

Electrical Resistivity	7.4e-005 ohm-cm	7.4e-005 ohm-cm	at 20°C
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Thermal Properties

Specific Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Melting Point	1375 - 1400 °C	2510 - 2550 °F	
Solidus	1375 °C	2510 °F	
Liquidus	1400 °C	2550 °F	
Maximum Service Temperature, Air	870 °C	1600 °F	Intermittent Service
Maximum Service Temperature, Air	925 °C	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.