

Stainless Steel 316L Fact Sheet

Do you need custom fasteners created with Stainless Steel 316L? Since our inception, Elgin Fastener Group has met every challenge of providing Quality, Timely, Costeffective solutions for specialty fastener applications. Every product is built to your specifications, using your prints if necessary.

Below are the technical specifications of the Stainless Steel 316L Bar Stock we have available to meet your needs.

Allegheny Ludlum Type 316L Stainless Steel, UNS S31603

Component	Wt. %
С	0.03
Cr	16 - 18
Fe	62 - 69
Mn	2
Мо	2 - 3
Ν	0.1
Ni	10 - 14
Р	0.045
S	0.03
Si	0.75

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

Material Notes:

Iron content above calculated as remainder.

This is a molybdenum-bearing austenitic stainless steels which is more resistant to general corrosion and pitting/crevice corrosion than the conventional chromium-nickel austenitic stainless steels such as Type 304. These alloys also offer higher creep, stress-to-rupture and tensile strength at elevated temperature. Types 317 and 317L containing 3 to 4% molybdenum are preferred to Types 316 or 316L which contain 2 to 3% molybdenum in applications requiring enhanced pitting and general corrosion resistance. Austenitic stainless steels with higher molybdenum or molybdenum plus nitrogen content which provide even greater resistance to pitting, crevice corrosion an general corrosion are also available in flat-rolled products from Allegheny Ludlum. Properties of these alloys are described in separate technical data publications available from Allegheny Ludlum. In addition to excellent corrosion resistance and strength properties, this alloy also provides the excellent fabricability and formability. This is available in the form of sheet, strip and plate to ASTM A240 and ASME SA-240 and other pertinent specifications.

Information provided by Allegheny Ludlum

Physical Properties	Metric	English	Comments
Density	8.027 g/cc	0.29 lb/in ³	
Mechanical Properties			
Hardness, Brinell	Max 217	Max 217	Annealed; Max required by ASTM A 240 and ASME SA-240
Hardness, Rockwell B	Max 95	Max 95	Annealed; Max required by ASTM A 240 and ASME SA-240
Tensile Strength, Ultimate	Min 485 MPa	Min 70300 psi	Annealed; Min required by ASTM A 240 and ASME SA-240
Tensile Strength, Yield	Min 170 MPa	Min 24700 psi	Annealed; 0.2% Offset; Min required by ASTM A 240 and ASME SA-240
Elongation at Break	Min 40 %	Min 40 %	Annealed; 2 in (51 mm); Min required by ASTM A 240 and ASME SA-240
Modulus of Elasticity	200 GPa	29000 ksi	
Charpy Impact	88 - 134 J	64.9 - 98.8 ft-lb	typical annealed
Shear Modulus	82 GPa	11900 ksi	
Electrical Properties			
Electrical Resistivity	7.4e-005 ohm- cm	7.4e-005 ohm-cm	
Thermal Properties			
CTE, linear 20°C	16.5 µm/m-°C	9.17 µin/in-°F	20-100°C
CTE, linear 500°C	18.2 µm/m-°C	10.1 µin/in-°F	20-500°C
CTE, linear 1000°C	19.5 µm/m-°C	10.8 µin/in-°F	20-1000°C
Heat Capacity	0.45 J/g-°C	0.108 BTU/lb-°F	
Thermal Conductivity	14.6 /m-K	101 BTU-in/hr- ft²-°F	
Melting Point	1390 - 1440 °C	2530 - 2620 °F	
Solidus	1390 °C	2530 °F	
Liquidus	1440 °C	2620 °F	
Maximum Service Temperature, Air	899 °C	1650 °F	Excellent oxidation and scaling resistance to this temp.