



Combined Metals of Chicago Bellwood Service Center

Alloy 316L Stainless Steel

UNS: S31603
EN-DIN: 1.4404

Industries supplied include: exhaust manifolds, furnace parts, heat exchangers, jet engine parts, pharmaceutical and photographic equipment, valve and pump trim, chemical equipment, digesters, tanks, evaporators, pulp, paper and textile processing equipment, parts exposed to marine atmospheres and tubing. 316 is an austenitic chromium nickel stainless steel containing molybdenum. This addition increases general corrosion resistance, improves resistance to pitting from chloride ion solutions, and provides increased strength at elevated temperatures. Properties are similar to those of Type 304 except that this alloy is somewhat stronger at elevated temperatures. Corrosion resistance is improved, particularly against sulfuric, hydrochloric, acetic, formic and tartaric acids; acid sulfates and alkaline chlorides. Type 316L is an extra-low carbon version of Type 316 that minimizes harmful carbide precipitation due to welding.

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni	Mo	N	Fe
min	-	-	-	-	-	16.0	10.0	2.00	-	-
max	.030	2.0	0.045	0.030	0.75	18.0	14.0	3.00	0.10	BAL

Physical Properties

	At 70°F	At 20°C
Density	0.29 lb./in ³	7.99 g/cm ³
Modulus of Elasticity (E)	28.0 x 10 ³ ksi in tension	193 x 10 ³ MPa in tension
Coefficient of Expansion	8.9 x 10 ⁻⁶ microinches/in.-°F (32-212°F)	16.0 μm/m-°C (0-100°C)
Electrical Resistivity	29.4 μ ohm.in	74 μ ohm.cm
Thermal Conductivity	9.4 Btu-in./ft. ² hr.-°F (100°C)	16.2 W/m-K (100°C)

Applicable Specifications

AMS 5507, ASTM A240, ASTM A 666

Typical Mechanical Properties – Typical Room Temperature Mechanical Properties

Condition	Tensile Strength (UTS)	0.2% YS	Elongation% in 2" (50.8 mm)	Hardness Rockwell
Annealed (Min)	81 ksi (558 MPa)	42 ksi (290 MPa)	50	79 HRBW (Max)

Typical mechanical properties are based on AK source, ASTM A240

Tempered Properties available upon request

For further information email:
cmcinfo@combmet.com or call:
(800) 323-0758

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The information and data in this product data sheet are accurate to the best of our knowledge and belief, but are intended for general information only. Applications suggested for the materials are described only to help readers make their own evaluations and decisions, and are neither guarantees nor to be construed as express or implied warranties of suitability for these or other applications. Data was obtained from our melt sources with data referring to mechanical properties and chemical analyses are the result of tests performed on specimens obtained from specific locations with prescribed sampling procedures; any warranty thereof is limited to the values obtained at such locations and by such procedures. There is no warranty with respect to values of the materials at other locations. Further information should be sought from the melt sources.

