



## Combined Metals Company, LLC Data Sheet

### 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
<b>Density</b>	0.29 lb./in <sup>3</sup>	7.99 g/cm <sup>3</sup>
<b>Modulus of Elasticity (E)</b>	28.0 x 10 <sup>3</sup> ksi in tension	193 x 10 <sup>3</sup> MPa in tension
<b>Coefficient of Expansion</b>	8.9 x 10 <sup>-6</sup> microinches/in.-°F (32-212°F)	16.0 μm/m-°C (0-100°C)
<b>Electrical Resistivity</b>	29.4 μ ohm.in	74 μ ohm.cm
<b>Thermal Conductivity</b>	9.4 Btu-in./ft. <sup>2</sup> 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:

[www.combmet.com](http://www.combmet.com)

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