

ElgiLOY Specialty Metals

Alloy 301 Stainless Steel

UNS: S30100
EN-DIN: 1.4310

Austenitic chromium-nickel stainless steel. Its high strength and corrosion resistance makes it a versatile alloy for a wide variety of applications. Typical applications include appliances, automotive applications, utensils, and high strength structural parts.

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni	N	Fe		
min	-	-	-	-	-	16.0	6.0	-	-		
max	.15	2.0	0.045	0.030	1.00	18.0	8.0	0.10	BAL		

Physical Properties

	At 70°F	At 20°C
Density	0.285 lb./in ³	7.88 g/cm ³
Modulus of Elasticity (E)	28.0 x 10 ³ ksi	193 x 10 ³ MPa
Coefficient of Expansion	9.4 x 10 ⁻⁶ microinches/in.-°F (70-600°F)	16.9 µm/m-°C (20-300°C)
Electrical Resistivity	27.4 µ ohm.in	69.5 µ ohm.cm
Thermal Conductivity	9.4 Btu-in./ft. ² hr.-°F	16.2 W/m-K

Applicable Specifications

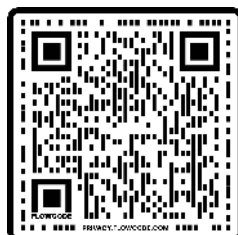
ASTM A240, ASTM A666

Typical Mechanical Properties – Typical Room Temperature Mechanical Properties

Condition	Tensile Strength (UTS)*	0.2% YS*	Elongation% in 2" (50.8 mm)	Hardness Rockwell
Annealed	120 ksi (827 MPa)	45 ksi (310 MPa)	60	86 HRBW
¼ hard	125 ksi (862 MPa)	75 ksi (517 MPa)	25	25 HRCW
½ Hard	150 ksi (1034 MPa)	110 ksi (758 MPa)	18	32 HRCW
¾ Hard	175 ksi (1207 MPa)	135 ksi (931MPa)	12	37 HRCW
Full Hard	185 ksi (1276 MPa)	140 ksi (965MPa)	9	41 HRCW

Typical mechanical properties are based, AK source on ASTM A240/A666

* Minimum- Standard practice is to produce to either minimum tensile strength, minimum yield or minimum hardness, but not to combinations of these properties. More Tempered Properties available upon request.



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