

## Haynes® 230® Alloy

**UNS N06230**  
**W. Nr 2.4733**

Haynes® 230® alloy is a nickel-chromium-tungsten-molybdenum alloy which combines excellent high temperature strength and oxidation resistance with superior long term stability and good fabricability. It has lower thermal expansion characteristics than most high temperature alloys and resists grain coarsening with prolonged high temperature exposure.

Industries served: aerospace, industrial heating, power generation, chemical processing.

Applications include: catalyst grid supports, gas turbine components, high temperature bellows, furnace components.

### Nominal Composition

	C	Mn	Si	P	S	Cr	Co	Mo	W	Fe	Al	La	Ni
min	0.05	0.30	0.25	-	-	20.00	-	1.00	13.00	-	0.20	0.01	
max	0.15	1.00	0.75	0.030	0.015	24.00	5.00	3.00	15.00	3.00	0.50	0.05	BAL

### Physical Properties

	At 70°F	At 20°C
<b>Density</b>	0.327 lb/in <sup>3</sup>	9.05 g/cm <sup>3</sup>
<b>Modulus of Elasticity (E)</b>	30.6 x 10 <sup>3</sup> ksi	211 GPa
<b>Coefficient of Expansion</b>	7.4 microinches/in.-°F (70-1000°F)	13.2 μm/m-°C (20-538°C)
<b>Electrical Resistivity</b>	49.2 μ ohm.in	1.25 μ ohm.cm
<b>Thermal Conductivity</b>	62 Btu-in./ft. <sup>2</sup> hr.-°F	8.9 W/m-K

### Applicable Specifications

Strip	ASTM B435, AMS 5878
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### Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	2210°F (1210°C)	115 ksi (793 MPa) min	-300°F to 2100°F (-184°C to 1149°C)

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**Phone: 1.888.843.2350**

Elgiloy Specialty Metals - Strip  
Products  
1565 Fleetwood Dr.  
Elgin, IL 60123 USA

[WWW.ELGILOY.COM](http://WWW.ELGILOY.COM)

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