

Haynes® 230® alloy

UNS N06230
W. Nr 2.4733

Applicable Specifications

Wire & Bar | AMS 5878 & ASTM B435 (chemistry only)

Description: Haynes® 230® alloy is a nickel-chromium-tungsten-molybdenum alloy which combines excellent high temperature strength and oxidation resistance up to 2100°F 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 heat exposure. Haynes® 230® also exhibits excellent low cycle fatigue properties at high temperatures and is one of the most nitriding resistant materials available.

Applications include: Heat treatment baskets, Catalyst grid supports, Gas turbine components, Heat exchangers, Bellows, Wire mesh belts, Heat treating fixtures, Basket liners, Muffles/retorts, Dampers, Thermocouple sheathing, Flame shrouds

Industries supplied include: Industrial Heat Treating, Power Generation, Aerospace, Chemical Processing

Nominal Composition

| | C | Mn | Si | P | S | B | Ni | Cr | Co | Mo | La | W | Al | Fe |
|-----|------|------|------|-------|-------|-------|-----|-------|------|------|-------|-------|------|------|
| min | 0.05 | 0.30 | 0.25 | - | - | - | Bal | 20.00 | - | 1.00 | 0.005 | 13.00 | - | - |
| max | 0.15 | 1.00 | 0.75 | 0.030 | 0.015 | 0.015 | - | 24.00 | 5.00 | 3.00 | 0.05 | 15.00 | 0.50 | 3.00 |

Physical Properties

| | At 70°F | At 20°C |
|---------------------------|----------------------------------|--------------------------|
| Density | 0.324 lb/in ³ | 8.97 g/cm ³ |
| Modulus of Elasticity (E) | 30.3 x 10 ³ ksi | 209 GPa |
| Modulus of Rigidity (G) | 11.5 x 10 ³ ksi | 79 GPa |
| Coefficient of Expansion | 8.9 µin/in-°F (70-1800°F) | 16.1 µm/m-°C (25-1000°C) |
| Electrical Resistivity | 49.2 µohm-in | 125.0 µohm-cm |
| Thermal Conductivity | 62 Btu-in/ft ² -hr-°F | 8.9 W/m-°C |

Typical Mechanical Properties

| Condition | Heat Treatment | Tensile Strength | Suggested Operating Conditions |
|-----------|---------------------------|---------------------------|--------------------------------|
| Annealed | 2048-2246°F (1120-1230°C) | 110-140 ksi (758-965 MPa) | Up to 2100°F (1150°C) |

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