

Alloy 230 is a nickel-chromium alloy with tungsten and molybdenum additions. It boasts excellent oxidation resistance to 2100°F and superior strength at temperature. This allows alloy 230 to excel in creep and fatigue resistance at high temperatures. Alloy 230 also exhibits excellent nitriding and carburization resistance comparable to that of alloy 600. Alloy 230 is welded using 230-W weld fillers designated ERNiCrMo-1.

Specifications

UNS: N06230 W. Nr./EN: 2.4733 AMS: 5878, 5839 ASME: SB-435 GE: B50TF246

Chemical Composition, %

	Ni	Cr	W	Mo	Co	Al	La	Mn	C	Si	P	S	B	Ti	Cu	Fe
MIN	47.0	20.0	13.0	1.0	—	0.2	0.005	0.3	0.05	0.25	—	—	—	—	—	—
MAX	65.0	24.0	15.0	3.0	5.0	0.5	0.05	1.0	0.15	0.75	0.03	0.015	0.015	0.1	0.5	3.0

Features

- Excellent oxidation resistance to 2100°F
- Superior high temperature strength
- Resistant to grain coarsening at high temperatures
- Good resistance to nitriding and carburizing

Applications

- Transition ducts on turbine engines
- Combustion linings on turbine engines
- Furnace retorts
- Flame shrouds
- Vacuum heat treat fixtures

Physical Properties

Density: 0.324 lb/in³ Melting Range: 2375 - 2500°F

Temperature, °F	70	1000	1200	1400	1600	1800
Coefficient* of Thermal Expansion, in/in°F x 10 ⁻⁶	—	7.6	8.0	8.3	8.6	8.9
Thermal Conductivity Btu • ft/ft ² • hr • °F	5.2	11.1	12.3	13.7	14.9	16.3
Modulus of Elasticity Dynamic, psi x 10 ⁶	30.6	26.4	25.3	24.1	23.1	21.9

* 70°F to indicated temperature.

Mechanical Properties

Minimum Specified Properties, AMS 5878 Sheet

Ultimate Tensile Strength, ksi	115
0.2% Yield Strength, ksi	50
Elongation, %	40
Hardness MAX, Rockwell C	25

Average Tensile Properties, Sheet

Temperature, °F	70	1000	1200	1400	1600	1800	2000
Ultimate Tensile Strength, ksi	122	102	97	78	45	25	13
0.2% Yield Strength, ksi	61	44	44	47	34	18	10
Elongation, %	47	54	57	61	75	50	37

Typical Creep-Rupture Properties, Sheet

Temperature, °F	1200	1300	1400	1500	1600	1700	1800
10,000 Hour Rupture Strength, ksi	27.0	18.5	13.2	8.4	5.6	3.2	1.1



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