California Metal & Supply Inc.

IS09001 & AS9100 Certified Company, Founded 1984
Titanium, Inconel, Nickel, Aluminum, A286, Stainless

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DATA SHEET: Monel K-500/K500

Monel K-500 alloy is precipitation hardenable, due to the additions of Aluminium and Titanium. It combines the corrosion resistance of Monel 400 but gives the added advantage of extra strength and hardness (as a result of its age hardening ability).

Applications: Monel K500 is typically used in pump shafts, fasteners, marine propeller shafts, oil well tools, instruments, and springs.

Specifications: Monel Alloy K-500, UNS N05500

Chemical Composition	
Ni	**63% min**
Cu	**30%**
Fe	**2% max**
Al	**2.3 - 3.15%**
Ti	**0.35 - 0.85%**

Properties		
DENSITY	**8.44 g/cm^3**	**0.305 lb/in^3**
MELTING POINT	**1350°C**	**2460°F**
COEFFICIENT OF EXPANSION	**13.7 µm/m °C (20 - 100°C)**	**7.6 x 10^{-6} in/in °F (70 - 212°F)**
MODULUS OF RIGIDITY	**66 kN/mm^2**	**9573 ksi**
MODULUS OF ELASTICITY	**179 kN/mm^2**	**25962 ksi**

CONDITION OF SUPPLY	HEAT TREATMENT (AFTER FORMING)
Annealed	Age harden at 580 - 590°C (1075 - 1095°F) for 8 - 10 hours and air cool. *
Spring Temper	Age harden at 530 - 550°C (985 - 1020°F) for 4 - 6 hours and furnace cool to 450°C (840°F) at a rate of 8 -15°C (45 - 60°F) per hour and air cool.*
Spring Temper	Age harden at 530 - 540°C (985 -1005°F) for 4 - 6 hours and air cool. *

*** Heat treating Monel K-500 in free air can have a detrimental effect on its corrosion resistant properties.**

CONDITION	APPROX TENSILE STRENGTH		APPROX SERVICE TEMPERATURE	
Annealed	**650 - 850 N/mm^2**	**94 - 123 ksi**	**-100 to +260°C**	**-150 to +500°F**
Annealed + Aged	**950 - 1050 N/mm^2**	**138 - 167 ksi**	**-100 to +260°C**	**-150 to +500°F**
Spring Temper	**1000 - 1300 N/mm^2**	**145 - 189 ksi**	**-100 to +260°C**	**-150 to +500°F**
Spring Temper + Aged	**1200 - 1500 N/mm^2**	**174 - 218 ksi**	**-100 to +260°C**	**-150 to +500°F**