

# HM Wire International, Inc.

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## Alloy 57 - UNS N02200 - Nickel Super Alloy

<b>Description:</b>	Commerically pure wrought Nickel with good mechanical properties over a wide range of temperature and excellent resistance to many corrosives, in particular hydroxides. Good resistance to corrosion in acids and alkalis is most useful under reducing conditions. This Alloy is Ferromagnetic.
<b>Applications:</b>	Production of viscose rayon. Manufacture of soap and vinyl chloride monomer. Aniline Hydrochloride production and in the chlorination of aliphatic hydrocarbons such as benzene and methane.

### Chemical Composition

Nominal Composition	Cu%	Ni%	C%	Fe%	Si%	Mn%	S%
	0.020	99.8	<= 0.15	0.050	0.050	0.020	0.0020

**Ni as Balance; includes Co**

### Physical Properties

Physical Properties	Metric	English
Density	8.90 g/cc	0.322 lb/in <sup>3</sup>

### Mechanical Properties

Mechanical Properties	Metric	English	Comments
Hardness Rockwell B	45	45	Typical Annealed
Tensile Strength, Ultimate	462 MPa	67000 psi	Typical Annealed
Tensile Strength, Yield	148 MPa	21500 psi	0.2% Offset; Typical Annealed
Elongation at break	47.0%	47.0%	Typical in 2"; Annealed
Modulus of Elasticity	207 GPa	30000 ksi	
Poissons Ratio	0.310	0.310	
Shear Modulus	81.0 GPa	11700 ksi	

### Electrical Properties

Electrical Properties	Metric	English
Electrical Resistivity	0.00000850 Ohms-cm	0.00000850 Ohms-cm

### Thermal Properties

Thermal Properties	Metric	English
CTE, Linear	@ 27 - 93°C	@ 80.6 - 199°F
	@ 27 - 316°C	@ 80.6 - 601°F
Specific Heat Capacity	0.456 J/g-°C	0.109 BTU/lb-°F
Thermal Conductivity	@ 100 °C	@ 212 °F
Max Service Temp, Air	316°C	601 °F*

\*Ductility loss due to carbon phase precipitation above this temperature.

\*To be used as a guideline only.

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