

# ELGILOY Specialty Metals – Wire Products

## MP35N®

UNS R30035  
W.Nr 2.4999

MP35N® is a non-magnetic Cobalt- Nickel-Chromium-Molybdenum alloy having an excellent combination of very high strength, excellent corrosion resistance and high fatigue strength. MP35N® is highly resistant to sulfide stress corrosion cracking and provides excellent performance in the most demanding sour well environments. In seawater MP35N® is virtually immune to crevice and stress corrosion and pitting even at the highest strength levels and can operate at cryogenic temperatures up to 850°F (454°C).

Applications include springs, torsion bars, fasteners, seals, medical devices & implants.

Industries supplied include: Oil & Gas Extraction, Medical & Dental, Aerospace, Defense and Space Exploration.

### Nominal Composition

	Co	Ni	Cr	Mo	C	Fe	Mn	P	S	Si	Ti
min		33	19	9							
max	balance	37	21	10.5	0.025	1.0	0.15	0.015	0.01	0.15	1.0

### Physical Properties

	At 70°F	At 20°C
<b>Density</b>	0.304 lb/in <sup>3</sup>	8.42 g/cm <sup>3</sup>
<b>Modulus of Elasticity (E)</b>	33.8 x 10 <sup>3</sup> ksi	233 GPa
<b>Modulus of Rigidity (G)</b>	12.1 x 10 <sup>3</sup> ksi	83.4 GPa
<b>Coefficient of Expansion</b>	8.2 microinches/in.-°F (70-600°F)	14.8 x μm/m-°C (20-300°C)
<b>Electrical Resistivity</b>	40.6 μ ohm.in	103 μ ohm.cm
<b>Thermal Conductivity</b>	78 Btu-in./ft. <sup>2</sup> hr.-°F	11.2 W/m-K

### Applicable Specifications

Wire & Bar | AMS 5844, 5845, 5758, ASTM F562, NACE MR0175 (ISO 15156-3), NACE MR0103, ISO 5832-6

### Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1904°F (1040°C)	120 – 140 ksi (827 – 965 MPa)	-300°F to 800°F (-184°C to 427°C)
Solution Heat Treated	1900 – 1925°F (1038-1052°C) for 4 to 8 hours	115 – 140 ksi (793 – 965 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper		220 – 280 ksi (1517 – 1931 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper + Aged	After spring coiling. 1000 - 1200°F (538 - 649°C) for 4 hours.	240 – 320 ksi (1655 – 2206 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper + Aged	After spring coiling age. 1200°F (649°C) minimum for 4 hours	240 – 300 ksi (1655 – 2068 MPa)	-300°F to 800°F (-184°C to 427°C)

MP35N® is a registered trade mark of SPS Technologies.

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