

MP35N SuperAlloy

Product Data Sheet

Nickel Cobalt Chromium & Molybdenum

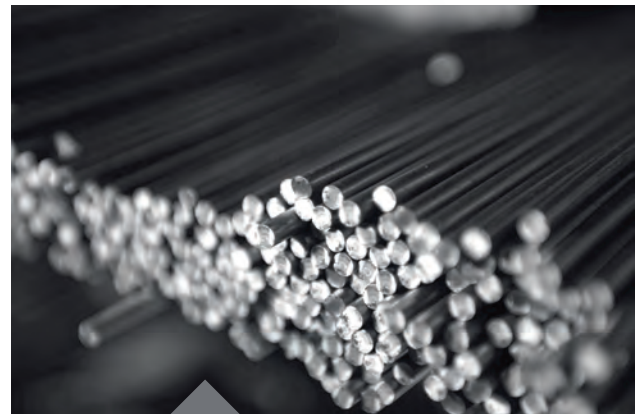
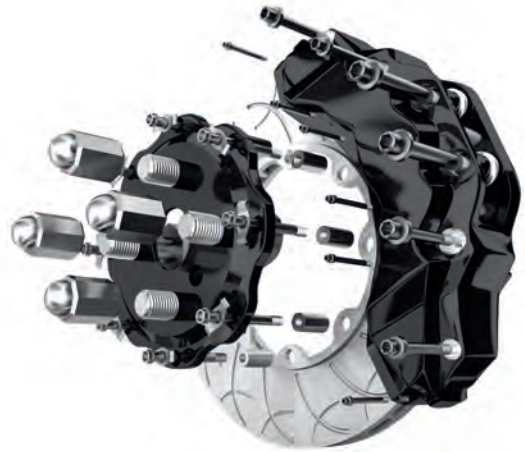
An attractive combination of ultra high strength, toughness & corrosion resistance

MP35N is a vacuum induction, and arc remelted quaternary alloy based on nickel and cobalt with substantial additions of chromium and molybdenum.

The alloy possesses an unusually attractive combination of ultra high strength, toughness and outstanding corrosion resistance. MP35N alloy may be employed in the annealed condition but can easily be work strengthened to tensile strength levels over 260 ksi (1,793 MPa) with the retention of good ductility.

Ageing of worked material causes precipitation hardening and can raise the tensile strength by an additional 40 ksi (276 MPa). The density of MP35N alloy is 8.43 g/cc.

Smiths High Performance offers MP35N from stock in round bar ready for immediate supply. In-house processing options are also available.



MP35N is held ex-stock in round bars and plate

Typical Applications:

- Components in Autosport
- Downhole pump shafts & tools
- Springs
- Aerospace components
- High strength marine components
- Valve stems & pump shafts - oil & gas sector
- Pins, tension bolts, shear bolts & tie rods
- Non-magnetic electrical components

About Smiths High Performance

Smiths High Performance is a leading stockholder and supplier of high-performance engineering materials to the global motorsport sector. We are supply partners in a range of specialist motorsport markets including Formula 1, Formula E, NASCAR, MOTO GP, WEC & WRC.

Further technical data available on the reverse of this Datasheet

Chemical Composition

Weight %	Ni	Co	Cr	Mo
	35	35	20	10

Mechanical Properties

	Solution Annealed MP35N	AMS 5844 aged 4 hr. @ 566°C
UTS, MPa (ksi)	896 (130)	2000 (290)
0.2% PS, MPa (ksi)	379 (55)	1931 (280)
Elongation on 4D, %	65	10
R of A, %	75	45
Hardness	90 HRB	51 HRC

Corrosive Resistance

MP35N alloy offers outstanding resistance to general corrosion, crevice corrosion and stress corrosion at all strength levels. The four alloying elements in **MP35N** are the basis for corrosion resistance in almost every stainless steel, nickel and cobalt-based alloys currently on the market. The alloy resists corrosion in hydrogen sulphide salt, saltwater and other chloride solutions, as well as the mineral acids (nitric, hydrochloric, sulphuric). The alloy is also resistant to hydrogen embrittlement.

Working, Machining & Joining

MP35N alloy can be hot and cold worked and formed by a wide variety of processes. Work strengthening can be accomplished by extruding, rolling, swaging, drawing or a combination.

Material Specifications

- AMS 5758, 5844, & 5845
- ASTM F562 & ASTM F688

...where performance matters...

When you purchase high-performance materials from **Smiths High Performance**, you will be joining some of the biggest and best global engineering companies. We are a Tier 1 supply chain partner to the world's leading motorsport companies. Our unique business structure and ethos allows us to offer services which are otherwise unavailable in this market sector.