

# MP35N®

## Melt Practice

This superalloy is typically double melted to remove impurities.

Typical Chemistry		
	FWM Avg. Wt. %	ASTM F562
Carbon	.010	.025
Manganese	.060	.150
Silicon	.030	.150
Phosphorus	.002	.015
Sulphur	.001	.010
Chromium	20.580	19-21
Nickel	34.820	33-37
Molybdenum	9.510	9-10.500
Cobalt	Balance	Balance
Titanium	.430	1
Iron	.520	1
Boron	.010	.015

FWM chemistry is for reference only, and is not to be used for specification purposes.

## Physical Properties

Density	.304 lbs/in <sup>3</sup>
Modulus of Elasticity	33.76-34.05 psi x 10 <sup>6</sup>
Electrical Resistivity	1033 μohms-mm
Thermal Conductivity	11.2 W/m K (100°C)

## Thermal Treatment

A reducing atmosphere is preferred for thermal treatment but inert gas can be used. MP35N will fully anneal at 1010-1177°C in just a few minutes. For optimum mechanical properties, cold worked MP35N should be aged at 583-593°C for four hours.

## Applications

MP35N is an excellent combination of strength and corrosion resistance. Typically used in the cold-worked condition, tensile strengths are typically comparable to 304. End uses in the medical field are: pacing leads, stylets, catheters and orthopaedic cables.

Mechanical Properties		
% Cold Work	U.T.S. (psi)	% Elongation (10" gage length)
0%	152,000	50%
20%	201,000	7%
37%	253,000	3%
50%	285,000	2.5%
60%	303,000	3.2%
68%	319,000	3.0%
75%	329,000	3.1%
80%	332,000	3.3%
84%	339,000	3.2%
90%	345,000	3.4%
93%	346,000	2.2%
95%	362,000	2.8%

Values are typical and may not represent all diameters. Test method will affect results.

## Surface Conditions

Cobalt based alloys develop a highly polished appearance as they are drawn to fine diameters. Surface roughness can be less than 5 RMS when processed using SCND\* dies and measured with a profilometer. Diameters over .040" will not have as smooth a finish because of polycrystalline dies. Diameters over .100" have an even rougher surface because they are drawn with carbide dies. Additional finish treatments can enhance the surface of the wire.

\*SCND means single crystal natural diamond.