

# Properties of Nitinol

## Physical Properties

Melting Point.....	1240~1310 °C
Density.....	6.4~6.5 g/cm <sup>3</sup>
Coefficient of Thermal Expansion	
austenite.....	11.0×10 <sup>-6</sup> /K
martensite.....	6.6×10 <sup>-6</sup> /K
Thermal Conductivity	
austenite.....	18 W/m.K
martensite.....	8.6 W/m.K
Specific Heat.....	470~620 J/kg.K
Corrosion Performance.....	excellent

## Mechanical Properties

Young's Modulus	
austenite.....	approx. 83 GPa
martensite.....	approx. 28 to 41 GPa
Ultimate Tensile Strength	
fully annealed.....	700~1100 MPa
work hardened.....	1300~2000 MPa
Yield Strength	
austenite.....	200 ~ 800 MPa
martensite.....	150 ~300 MPa
Elongation at Failure	
fully annealed.....	25 to 50%
work hardened.....	5 to 10%
Poisson's Ratio.....	0.33
Hot Workability.....	quite good
Cold Workability.....	difficult due to rapid work hardening
Machinability.....	difficult, abrasive techniques preferred

## Electrical and Magnetic Properties

Resistivity.....	1.0×10 <sup>-6</sup> Ωm
Magnetic Permeability.....	< 1.002
Magnetic Susceptibility.....	3.0×10 <sup>6</sup> emu/g