

NITINOL SUPERELASTIC WIRE

Nitinol Wire Material Data

All values are typical, at room temperature. Nitinol is a binary alloy suitable for superelastic applications at room and/or body temperature.

Alloy Composition

Nickel (nominal)	54,5 - 57 wt.-%
Titanium	balance
Oxygen	max. 0,05 wt.-%
Carbon	max. 0,02 wt.-%

Physical Properties

Melting Point	1310° C
Density	6,5 g/cm ³
Electrical Resistivity	82 μ Ohm x cm
Coefficient of Thermal Expansion	11 x 10 ⁻⁶ /°C
Modulus of Elasticity	41-75 x 10 ³ MPa

Mechanical Properties

Ultimate Tensile Strength (UTS)	min. 1100 MPa
Total Elongation	min. 10%

Superelastic Properties

Loading Plateau Stress (at 3% strain)	min. 380 MPa
Permanent Set (after 6% strain)	max. 0,2%
Transformation Temperature A _f	max. 18° C

Comments

These values should only be used as guidelines for developing material specifications. Properties of Nitinol are strongly dependent on processing history and ambient temperature. The mechanical and superelastic properties shown here are typical for standard superelastic straight wire at room temperature tested in uniaxial tension. Bending properties differ, and depend on specific geometries and applications. Modulus is dependent on temperature and strain. Certain shapes or product configurations may require custom specifications. Materials are also available in the cold-worked or annealed conditions.

