

NITINOL SUPERELASTIC WIRE

Nitinol Wire Material Data

All values are typical, at room temperature. Nitinol is a binary alloy suitable for super-elastic 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 µOhm 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 Alloys 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.