

## NITINOL SHAPE MEMORY WIRE

### Nitinol Shape Memory Wire Material Data

All values are typical, at room temperature. Shape Memory is a binary alloy suitable for shape memory applications with transformation temperatures greater than 60° C.

#### Alloy Composition

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

#### Physical Properties

Melting Point	1310° C
Density	6,5 g/cm <sup>3</sup>
Electrical Resistivity	76 μOhm x cm
Coefficient of Thermal Expansion	6,6 x 10 <sup>-6</sup> /°C
Modulus of Elasticity	28.41 x 10 <sup>3</sup> MPa

#### Mechanical Properties

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

#### Shape Memory Properties

Loading Plateau Stress (at 3% strain)	min. 100 MPa
Shape Memory Strain	max. 8%
Transformation Temperature A <sub>r</sub>	min. 60° 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.



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