

## NITINOL SUPERELASTIC TUBING

### Nitinol Tubing, ASTM F 2633 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 according to ASTM F 2063

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

#### Physical Properties

Melting Point _____	1310° C
Density _____	6,5 g/cm <sup>3</sup>
Electrical Resistivity _____	82 $\mu$ Ohm x cm
Coefficient of Thermal Expansion _____	11 x 10 <sup>-6</sup> /° C
Modulus of Elasticity _____	41-75 x 10 <sup>3</sup> MPa

#### Mechanical Properties according ASTM F 2633 Table 1

Ultimate Tensile Strength (UTS) _____	min. 1000 MPa
Uniform Elongation _____	min. 10 %

#### Superelastic Properties according ASTM F 2633

Loading Plateau Stress (at 3% strain) _____	min. 380 MPa
Permanent Set (after 6% strain) _____	max. 0,3 %
Transformation Temperature A <sub>f</sub> _____	max. 15° 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 tubes at room temperature tested in uniaxial tension. Bending properties differ, and depend on specific geometries and applications. Modulus is dependent on temperature and strain. Larger tubes (> 3,9 mm OD) may require custom specifications.