

Prince & Izant Company

12999 Plaza Drive
Cleveland, Ohio 44130
T: 216-362-7000
F: 216-362-7456
princeizant.com



NITINOL-1

TECHNICAL DATA

NOMINAL COMPOSITION	Nickel	55.75% ± 1.25%
	Titanium	Remainder
	Carbon	0.05% max.
	Cobalt	0.05% max.
	Copper	0.01% max.
	Chromium	0.01% max.
	Hydrogen	0.005% max.
	Iron	0.05% max.
	Niobium	0.025% max.
	Nitrogen plus Oxygen	0.05% max.
PHYSICAL PROPERTIES	Trace elements, each	0.1% max.
	Trace elements, total	0.25% max.
	Color	Dark Grey
	Melting Point	2370°F (1300°C)
	Density (g/cm ³)	6.45
	Ultimate Tensile Strength (psi)	
	Cold Worked:	200,000 psi min.
	Super-elastic:	180,000 psi
	Elongation at break	
	Cold Worked:	4% min.
DESCRIPTION	Super-elastic:	10% min.
	Specific Heat Capacity (J/g•°C)	0.32
	Thermal Conductivity (W/m•K)	10.0
	Medical-grade shape memory alloy with good electrical and mechanical properties, extended fatigue life and excellent corrosion resistance.	
	Guidewires, stents, stylets, forming mandrels, stone retrieval baskets, orthodontic files	
	Light Oxide (LO): Gold to brown color – diamond drawn surface	
	Dark Oxide (DK): Blue to black color – diamond drawn surface	
	Black Oxide (BLK): Shiny black color – diamond drawn surface	
	Etch (E): Chemical removal of oxide layer – will maintain smooth surface	
	Pickled (P): Chemical removal of oxide layer along with a slight amount of base metal – surface will have rough texture	
SURFACE FINISH CHARACTERISTICS	Etched and Mechanically Polished (EMP): Chemical removal of oxide layer followed by mechanical polish – surface will have stainless steel appearance although at > 40x magnification micro scratches are present	

**TRANSFORMATION
PROPERTIES**

The fully annealed ingot austenite start (A_s) temperature shall be -35°C to -10°C when measured by Differential Scanning Calorimetry in accordance with ASTM F2004.

Transformation Temperature	-200 – 110 $^{\circ}\text{C}$
Latent Heat of Transformation	5.78 cal/g
Hysteresis	30 – 50 $^{\circ}\text{C}$

SPECIFICATIONS

Nitinol-1 conforms to: ASTM F2063

AVAILABLE FORMS

Wire, Powder, Paste

Individuals requiring further information and Engineering Specification Documents may wish to contact the Engineering Society for Advanced Mobility, Land Sea Air and Space, The Society of Automotive Engineers <http://www.sae.org/> (SAE AMS) or The American Welding Society (AWS) <http://aws.org/>

NOTE:**DISCLAIMER**

The information and recommendations contained in this publication have been provided without charge & compiled from sources believed to be reliable and to represent the best information available on the subject at the time of issue. No warranty, guarantee, or representation is made by the Prince and Izant Company, Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Prince and Izant Company, Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.