



Technical Data Sheet

ATI NiTiNb™ Alloy

INTRODUCTION

- Typically used in shape memory nickel titanium alloy coupling devices that need the cryogenic martensite transformations temperatures but also need room temperature storage capability
- Transformation temperature: Austenite start (A_s) temperature range >30°C (dependent on composition)
- (Determined in the fully solution annealed condition by CLD testing at 40ksi load)

Table 1. Ingot Chemistry

Element	Typical maximum (unless noted otherwise) (weight %)
Nickel	46.0 to 50.0
Niobium	Typically 8 to 15
Carbon	0.005
Cobalt	0.005
Copper	0.005
Chromium	0.005
Hydrogen	0.002
Iron	0.005
Nitrogen + Oxygen	0.065
Titanium	Balance

Table 2. Physical Properties

Melting Point	1310°C (2390°F)
Density	6.45 g/cm ³ (0.234 lbs/in ³)
Electrical Resistivity	Austenite phase: ~80-100 μΩ-cm Martensite phase: ~70-80 μΩ-cm
Thermal Conductivity	Austenite phase: 0.18 watt/cm-°C Martensite phase: 0.085 watt/cm-°C
Thermal Expansion	Austenite: 11 x 10 ⁻⁶ /°C Martensite: ~6.6 x 10 ⁻⁶ /°C

MECHANICAL PROPERTIES

Table 3. Mechanical Properties

Ultimate strength	>100 Ksi (648 MPa)
Yield strength	> 60 ksi (414 MPa)
Elongation	≥15%

Can also be supplied in the cold worked and stress relieved condition that results in higher yield strength, cold work and stress relief anneal need to be determined based on yield strength and elongation needs.

PRODUCT FORMS AVAILABLE

- Rod: 0.1" to 2" diameters, amount of cold work, length and surface finish conditions vary depending on customer requirements
- Other forms and sizes available upon request

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Allegheny Technologies Incorporated
1000 Six PPG Place
Pittsburgh, PA 15222-5479 U.S.A.
www.ATImetals.com