

## NILO<sup>®</sup> 42

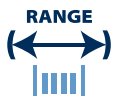
### Key Features

Low and nominally constant coefficient of thermal expansion from room temperature to about 300 °C (570 °F)

### IMPORTANT

We will manufacture to your required mechanical properties.

## key advantages to you, *our customer*



0.025mm to 21mm  
(.001" to .827")



Order 3m to 3t  
(10 ft to 6000 Lbs)



Delivery:  
within 3 weeks



Wire to your spec



E.M.S available



Technical support

### NILO<sup>®</sup> 42 available in:-

- Round wire
- Bars or lengths
- Flat wire
- Shaped wire
- Rope/Strand

### Packaging

- Coils
- Spools
- Bars or lengths



\*Trade name of Special Metals Group of Companies.

Chemical Composition			Specifications	Key Features	Typical Applications
Element	Min %	Max %	ASTM F30	Low and nominally constant coefficient of thermal expansion from room temperature to about 300 °C (570 °F)	Semiconductor lead frames Thermostat rods Various glass to metal seals
Ni	41.00 nominal				
Fe	BAL		<b>Designations</b>		
Mn	-	0.80	W.Nr. 1.3917 UNS K94100 AWS 091		
Si	-	0.30			
C	-	0.05			
Cr	-	0.25			
P	-	0.03			
S	-	0.03			
Al	-	0.10			

<b>Density</b>	8.11 g/cm <sup>3</sup>	0.293 lb/in <sup>3</sup>
<b>Melting Point</b>	1435 °C	2615 °F
<b>Inflection Point</b>	370 °C	700 °F
<b>Thermal Conductivity</b>	10.5 W/m*°C	72.8 btu*in/ft <sup>2</sup> *h °F
<b>Coefficient of Expansion</b>	5.3 µm/m °C (20 – 100 °C) 4.5 – 6.5 µm/m °C (20 – 300 °C)	2.9 x 10 <sup>-6</sup> in/in °F (70 – 212 °F) 2.5 – 3.6 x 10 <sup>-6</sup> in/in °F (70 – 572 °F)

**Heat Treatment of Finished Parts**

*The Nilo alloys are usually supplied and used in the annealed condition (residual cold work distorts the coefficients of thermal expansion).  
Annealing times may vary due to section thickness.*

Type	Temperature		Time (Hr)	Cooling
	°C	°F		
Anneal	850 – 1000	1560 – 1830	0.5	Air or water

**Properties**

Condition	Approx. tensile strength		Approx. operating temperature	
	N/mm <sup>2</sup>	ksi	°C	°F
Annealed	<600	<87	up to +300	up to +570
Hard Drawn	700 – 900	102 – 131	up to +300	up to +570

The above tensile strength ranges are typical. If you require different please ask.