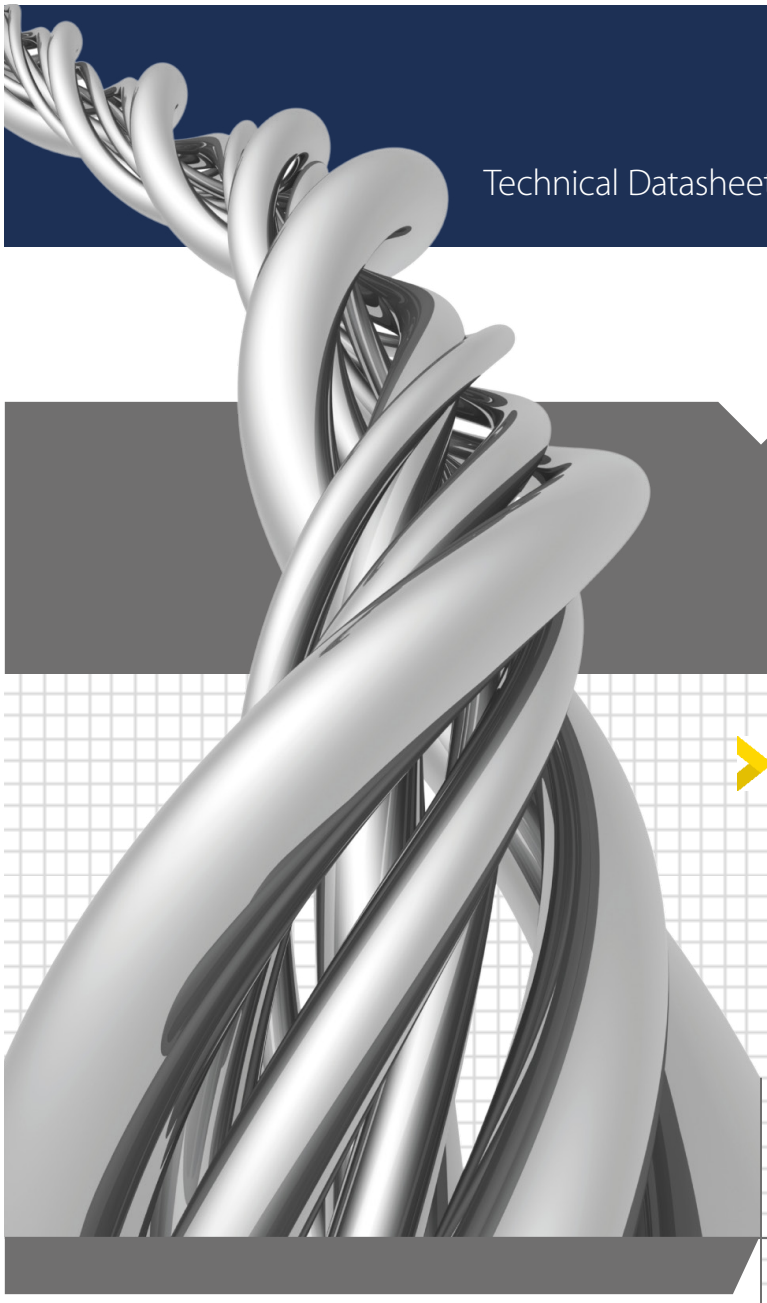

NILO® 42

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*

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

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

DELIVERY 3 WEEKS
Delivery:
within 3 weeks

Wire to your spec

E.M.S available

HOW CAN I HELP?
Technical support

NILO® 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.

Technical Datasheet **AWS 091 Rev.2**

NILO® 42

alloy wire international

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		**Designations**		
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			

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

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