

NILO[®] K

Key Features

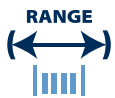
Controlled coefficient of expansion (which decreases with rising temperature to the inflection point)

Matches the expansion rate of borosilicate glasses and alumina ceramics

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[®] K 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 F15	Controlled coefficient of expansion (which decreases with rising temperature to the inflection point) Matches the expansion rate of borosilicate glasses and alumina ceramics	Glass to metal seals in applications requiring high reliability or resistance to thermal shock, ie. high power transmitting valves
Fe	53.00 nominal		Designations		
Ni	29.00 nominal				
Co	17.00 nominal		W.Nr. 1.3981 UNS K94610 AWS 094		
Mn	-	0.50			
Si	-	0.20			
C	-	0.04			
Al	-	0.10			
Mg	-	0.10			
Zr	-	0.10			
Ti	-	0.10			
Cu	-	0.20			
Cr	-	0.20			
Mo	-	0.20			

Density	8.16 g/cm ³	0.295 lb/in ³
Melting Point	1450 °C	2640 °F
Inflection Point	450 °C	840 °F
Thermal Conductivity	16.7 W/m* °C	116 btu*in/ft ² *h °F
Coefficient of Expansion	6.0 µm/m °C (20 – 100 °C) 4.6 – 5.2 µm/m °C (20 – 400 °C)	3.3 x 10 ⁻⁶ in/in °F (70 – 212 °F) 2.6 – 2.9 x 10 ⁻⁶ in/in °F (70 – 752 °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. Oxidizing time and temperature to be selected depending on required oxide thickness.

	Type	Temperature		Time (Hr)	Cooling
		°C	°F		
	Anneal	850 – 1000	1560 – 1830	0.5	Air or water
To prepare for glass to metal sealing	Decarburization	900 – 1050	1650 – 1920	1	Air or water
If a metal oxide interface is required <i>(time and temperature depend on required oxide thickness)</i>	Oxidize	600 – 1000	1110 – 1830	1	Air

Properties

Condition	Approx. tensile strength		Approx. operating temperature	
	N/mm ²	ksi	°C	°F
Annealed	<600	<87	up to +400	up to +750
Hard Drawn	700 – 900	102 – 131	up to +400	up to +750

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