

Technical datasheet

KOVAR / NILO K / W-Nr. 1.3981

A nickel-iron-cobalt alloy with a low and stable coefficient of thermal expansion which matches that of borosilicate glasses and alumina ceramics.

Available products

Product form	Size	Size range to
Sheet/plate	0.1 mm thickness	38.1 mm thickness
Bar	4.75 mm diameter	88.9 mm diameter

Chemical composition (%)

Ni	Fe	Co	Mn	Cr	Si	Cu	Mo	C
29	53	17	0.5 max	0.2 max	0.2 max	0.2 max	0.2 max	0.04 max

Major specifications

ASTM F15	UNS K94610
AMS 7726, 7727, 7728	DIN 17745

Physical properties

Density	8.16 g/cm ³
Melting range	1450°C

Mechanical properties – typical room temperature properties

Yield strength	340 MPa
Tensile strength	520 MPa
Elongation	42 %

Key attributes

A nickel-iron-cobalt alloy with a controlled coefficient of thermal expansion. Its coefficient of expansion decreases with increasing temperature up to the inflection point which closely matches the expansion coefficients of borosilicate glasses and alumina ceramics. It is manufactured to a close chemistry range - the composition values are nominal, they are adjusted to meet the expansion coefficient requirements. The magnetic properties of NILO K/KOVAR are governed primarily by its composition and heat treatment condition but is also affected by fabrication.

NILO K/KOVAR is highly fabricable and is readily formed by either hot or cold working processes. It is machinable and can be welded by conventional processes and procedures. Please contact us for further details on forming, fabrication and welding consumables.

Applications

Glass-to-metal seals
Electrical and electronic applications

NILO K is a trade name of Special Metals Corporation

All information is subject to change without notice. The properties correspond to the material in the heading. They may vary for other specifications. Please contact us for more details.