

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
Sheet/plate
Bar

Size range from
0.1 mm thickness
4.75 mm diameter

Size range to
38.1 mm thickness
88.9 mm diameter

Chemical composition (%) – nominal values

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
AMS 7726, 7727, 7728

UNS K94610
DIN 17745

Physical properties

Density 8.16 g/cm³
Melting point 1450°C

Mechanical properties – typical room temperature properties (annealed)

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

Do you require further information or a quotation?
Please contact us...
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