

Technical datasheet

Alloy 48 / W-Nr. 1.3922

A specialized iron-nickel alloy composed of approximately 48% nickel and 52% iron that is highly regarded for its unique properties, particularly its thermal expansion characteristics.

Available products

Product form	Size range from	Size range to
Bar	0.025 mm diameter	101.6 mm diameter
Strip	0.05 mm thickness	2.5 mm thickness

Chemical composition (%)

Ni	Fe
~52.0 min	~48.0

Major specifications

ASTM F30	UNS K94800
MIL-1-23011 CL 3	DIN 17745

Physical properties

Density	8.20 g/cm ³
Melting temperature	1450°C

Mechanical properties – typical room temperature properties

Yield strength	260 MPa	Coefficient of thermal expansion (20-100°C) 8.5 µm/m•C
Tensile strength	520 MPa	
Elongation	43 %	

Key attributes

Alloy 48 is valued for its low and consistent coefficient of thermal expansion (CTE). This makes it ideal for applications where dimensional stability is critical under temperature variations.

It has good tensile strength and good machinability make it suitable for precision component.

Alloy 48 is used in industries that demand tight thermal expansion matching between metal and other materials, particularly glasses and ceramics and components that require stability in varying temperatures, such as optical mounts.

Applications

Glass-to-metal and ceramic-to-metal sealing applications
Optical mounts
Measurement devices
Vacuum devices
Bi-metallic components and thermostatic applications
Electronic circuit lead frames

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.