BH DÖVME METAL SANAYİ ve TİCARET LTD. ŞTİ.
Hatip Mah. Viawest 5 Sanayi Sitesi
Gündüz Sefası Sok. No:8/11, İç Kapı: E-11
Çorlu/Tekirdağ
info@bhmetal.com.tr
www.bhmetal.com.tr

Grade	W. Nr.	UNS	Nickel Alloys
Invar 42	1.3917	K94100	

Nickel Alloy Properties

Invar 42 is a special-purpose alloy known for controlled thermal expansion. It maintains dimensional stability during temperature changes and helps reduce stress, cracking and mismatch when used with other materials. Its value is based on reliable performance in precision parts where tight tolerances and controlled expansion are required.

Chemical Analysis

Ni %	Fe %	C %	S %	Mn %	Si %	Cr %	Al %	Co %	P %
41.00 - 42.00	Balance	0.05 max.	0.025 max.	0.80 max.	0.30 max.	0.25 max.	0.15 max.	1.00 max.	0.025 max.

Mechanical Properties (Soft Annealed)

Material form	Rp0.2, MPa	Rm, MPa	Elong., %	Hardness, HB	Density, g/cm³
Sheet / Strip	≈ 250	≈ 490	≈ 43	≈ 140 HB max.	8.11

Application Area

Invar 42 is mainly used in electronics, semiconductor, glass-to-metal and ceramic-to-metal sealing applications. Typical products include lead frames, hermetic package parts, pin/grommet feedthroughs, vacuum device components, lamp connection parts and precision thermostat-bimetal components.

Description

Invar 42 maintains low and controlled thermal expansion especially from room temperature up to approximately 300 °C. It is preferred for thermal expansion compatibility and dimensional stability rather than high-temperature strength. In annealed condition, it offers good formability, pressability and machinability; it can also be welded with suitable filler metal and controlled process parameters.

Specification

Invar 42, NILO® 42, Alloy 42, FeNi42, Ni42, 1.3917, UNS K94100

Norm

Form	ASTM	AMS	Note
Sheet	**ASTM F30, ASTM B753**	**SAE AMS-I-23011 Class 5**	Reference for sheet/strip/coil used in electronic, lead-frame and hermetic sealing components.

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Alternative Grades

1. Invar 36

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