

Alloy 42 is a nickel-iron alloy which is very similar to Invar 36. It has a low and nominally constant coefficient of thermal expansion from room temperature to about 300oC (570oF). It can be hot and cold processed and machined by following the similar processing that are used for austenitic stainless steel. It possesses high magnetic permeability. The alloy 42 is used in tooling for aerospace applications, thermostat rods, lead frames and bimetallic strips.

Alloy 42 Specifications:

Grade	ASTM	UNS	W.Nr
Alloy 42	F30	K94100	1.3917

Alloy 42 chemical composition:

Grade	%	C	P	S	Mn	Si	Al	Co	Ni	Fe
Alloy 42	Min								41	
	max	0.05	0.02	0.02	0.8	0.3	0.1	1.0	42.5	Bal

Alloy 42 Mechanical properties (Min Value at 20°C)

Tensile Strength σ_b /MPa	Yield Strength $\sigma_{p0.2}$ /MPa	Elongation σ_5 /%
≥ 517	≥ 276	≥ 40

Alloy 42 Size Range

- Wire: Dia 0.08-12mm
- Bar: Dia 1.0-300mm
- Strip(Coil): 0.2-20mm TCK x 10-300mm W
- Sheet: min.0.7mm TCK x 1200mm W max.
- Tube & Forging & Machine Parts: customized
- Welding wire: 0.8mm,1.0mm,1.2mm,2.0mm,2.4mm,3.2mm,3.8mm,4.0mm etc
- Welding Strip: 0.4-0.7mm TCK x 25-60mm W