Ualloy-4J50 (Expansion alloy)

Common Name: 50H, N50, Vacovit 500, FeNi50

4J50 alloy is mainly composed of iron, nickel elements. It is characterized with a fixed coefficient of expansion. Increase the thermal expansion coefficient and the Curie point with increase of nickel content.

4J50 alloy is widely used the structure of the sealing material in the electric vacuum industry.

Normal composition%

Ni	49.5~50.5	Fe	Bal.	Co	1.0	Si	≤0.3
Mo	-	Cu	-	Cr	-	Mn	≤0.8
C	≤0.05	P	≤0.02	S	≤0.02	Al	≤0.1

Typical Physical properties

Density (g/cm^3)	8.21
Electrical resistivity at 20℃ ($\Omega mm^2/m$)	0.44
Thermal conductivity, λ/ W/(m*℃)	16.7
Curie point T_c/ ℃	500
Elastic Modulus, E/ Gpa	158

Coefficient of expansion

θ/℃	$\alpha_1/10^{-6}℃^{-1}$	θ/℃	$\alpha_1/10^{-6}℃^{-1}$
20~100	9.8	20~400	9.4
20~200	9.8	20~450	9.4
20~300	9.5	20~500	9.7
20~350	9.4	20~600	10.6

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Typical Mechanical properties

Tensile Strength	Elongation
Mpa	%
490	35

The heat treatment process	
Annealing	Heated to 900 ±20℃ in a hydrogen atmosphere
Holding time, h	1 hour
cooling	With speed not more than 5 ℃ / min. cooling to below 200 ℃

Style of supply

Alloys Name	Type	Dimension	
Ualloy-4J50	Wire	D= 0.1~8mm	
Ualloy-4J50	Strip	W= 5~250mm	T= 0.1mm
Ualloy-4J50	Foil	W= 10~100mm	T= 0.01~0.1
Ualloy-4J50	Bar	Dia= 8~100mm	L= 50~1000

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