

# NATIONAL ELECTRONIC ALLOYS INC.

Specialty Metal Service Center  
Dedicated to Customer Service & Quality



ISO 9001 Certified

## Nickel Iron Alloys Comparison Chart

### Physical Properties

Property	Unit	Kovar	52 Alloy	48 Alloy	46 Alloy	42 Alloy	36 Alloy
Density	Lbs/in <sup>2</sup>	0.302	0.3	0.298	0.295	0.293	0.291
Specific Gravity		8.36	8.3	8.25	8.17	8.12	8.05
Specific Heat	B.T.U lb./°F	0.11	0.12	0.12	0.12	0.12	0.123
Curie Temperature	°F	815	986	880	860	716	535
Melting Point	°F	2640	2600	2600	2600	2600	2600
Electrical Resistivity	Ohm-cir mil/ft	294	260	290	277	430	495
Thermal Conductivity	BTU/in/ft <sup>2</sup> /hr/ °F	120	97	90	79.2	74.5	72.6
Typical Coefficients of Thermal Expansion X 10(-6)°F	75°F to 200°F			4.7	4.4	3.19	0.8
	300°F	2.9	5.6	4.7	4.3	3.11	1.1
	500°F	2.8	5.6	4.7	4.1	2.98	2.3
	700°F	2.7	5.5	4.7	4	3.16	4

### Mechanical Properties (As Annealed)

Tensile Strength	PSI x 1000	75	80	79	80	82	65
Yield Strength	PSI x 1000	50	40	36	35	40	40
Elongation	% in 2"	30	35	30	30	30	35
Hardness	Rockwell B	80	80	80	80	80	80
Elastic Modulus	psi x 10(-6)	30	24	24	21	21.5	20.5

Please note that these properties are typical and not defined as actuals

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