

26

Fe

Iron

28

Ni

Nickel

27

Co

Cobalt

Super Invar. An austenitic, magnetic iron-nickel-cobalt alloy consisting of 32% nominal Nickel, 5% Cobalt and the balance iron. Super Invar 32-5 provides thermal expansion rates approximately less than half of Invar (36% nickel-iron) when used in the -67/203°F temperature range. The slightly narrower application temperature range is due too a lower Curie temperature.

APPLICATIONS

In structural components, support and substrates requiring precision measurements such as optical and laser systems, telescopes, laser bench tops, and ring gyroscopes.

Typical Physical Properties

Density	lb/cu in	0.294
Specific Gravity		8.15
Curie Temp	°F °C	500 260
Poisson's Ratio	°F	0.230
Electrical Resistivity (73°F)	ohm-cir mil/ft microhm-cm	481.3 80
Thermal Conductivity	BTU-in/sq. ft-hr °F W/cm °C	72.6 10
Specific Heat	Cal/g °C	0.12

Source: CarTech Free-Cut Invar "36" Alloy Data Sheet v.3/15/04

Forms | Sizes Available

Plate	0.38"-2.00"
Round Bar Rod	0.50"-3.543"
Sheet	0.0394"-0.1181"

Our inventory fluctuates based on market demands. If you do not see the size or form you require, please call us.

Typical Mechanical Properties

Tensile Strength	ksi MPa	70 483
Yield Strength(.2%)	ksi MPa	40 276
Elgonation	% in 2"	40
Hardness Ann.	Rockwell B	75
Modulus of Electricity	ksi (MPa)	23 (159)

Mean Coefficient of Thermal Expansion

Temperature Range, °C Heat Treatment 30 °C to	UNS NO. K93500 871 °C, 1 h, Furnace Cool µm/m °C
100	0.84
150	1.17.
200	1.72
250	2.53
300	4.16
350	5.74
400	7.03
500	8.99
600	10.56
700	11.56
800	12.21
900	12.96

Source: ASTM F168 xX 2.1



CHEMISTRY

Nickel 32.0 Nom., Cobalt 5.0 Nom., Iron Balance Nom.

Source: ASTM F1684

Specifications

ASTM F1684 - UNS K93500

Special Purpose Alloys & Metal From Stock

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EFINEA Services

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Just-In-Time-Delivery

All of our standard stock items can be shipped within 24-hours of your order confirmation and most are shipped the same day. All materials certified with shipment. For special orders and non-stock materials, contact our sales team for our competitive pricing and delivery lead times

Controlled Expansion | Glass Sealing

EFINEA Supplies the highest quality metals and alloys including materials from Carpenter Technology Corp.

Kovar® | ASTM F15® Alloy

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil

Trade Names: Kovar, Pernifer®, 2918, NILO K®, DilverP1®

Alloy 42 / 46 / 48 / 52

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil

Trade Names: Pernifer®40, 46, 48, 50, NILO®42, 46, 48; Glass Sealing 42, 46, 48, 52

Free-Cut Invar "36"® Alloy

Forms: Round Bar/Rod

Invar "36" Alloy

Forms: Plate Sheet

Trade Names: Pernifer® 36, NILO®36, Invar

Super Invar 32-5®

Forms: Plate, Round Bar/Rod, Sheet

Refractory Metals & Alloys

EFINEA is your leading source for quality refractory metals & alloys. We stock DFARS Molybdenum, ML/MLS/MLR, Molybdenum TZM Tantalum & Tungsten manufactured from Plansee

Molybdenum

Forms: Plate, Round Bar/Rod, Sheet/Coiled Sheet, Threaded Rod/Nuts, Wire

Molybdenum Lanthanum Oxide (ML)

Forms: Sheet-Stress Relieved, Recrystallized

Molybdenum TZM

Forms: Plate, Round Bar/Rod, Sheet

Niobium

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil

Rhenium

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil

Tantalum

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil, Wire

Tungsten

Forms: Plate, Precision Cut wire, Round Bar/Rod, Sheet

Tungsten Alloys

Forms: Blanks, Flats, Parts, Plate/Sheet, Rod, Shapes

Soft Magnetic Alloys | EMI Shielding & Laminations

EFINEA is a distributor of "EMI shielding alloys" for VDM Metals GmbH the world's leading producer of these alloys.

EFINEA Alloy 50

Forms: Round Bar/Rod, Square Bar, Strip/Coil, Wire Rod

Trade Names: High Permeability 49®, Mangnifer®50

EFINEA Alloy 79

Forms: Rectangular Bar, Round Bar/Rod, Sheet, Strip/Coil

Trade Names: Hipernom, HyMu80 Magnifer®7904, Molypermalloy, Permalloy 80®

Hiperco®50

Forms: Strip/Coil

Hiperco®50A

Forms: Plate, Round Bar/Rod, Strip/Coil

Hiperco®50 HS

Forms: Strip/Coil

Core Iron (Pure Iron)

Forms: Round Bar/Rod, Plate

Trade Names: Electrical Iron®, Alliedpureiron®

Electrical & Electronic Nickels

EFINEA supplies select, Commercially pure grades of Nickel in various forms and sizes.

Electronic Nickels

200/201/205/233/270

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil, Wire

Copper Metals

EFINEA supplies select, Commercially pure grades of Copper in Coil Form

Copper OFHC 101/102

Nickel-Silver 770

Cupro-Nickel 715 (CuNi 70/30)

Forms: Coil

Stainless Steels & Other Alloys

EFINEA supplies select aircraft quality grades of Stainless Steel available in various forms and sizes.

17-4PH (Type 630)

15-5PH Vac Melt

300 Grade Stainless Steel Coils

Forms: Round Bar/Coils