

EFINEA ALLOY 79

Soft Magnetic Alloys

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EFINEA

Capabilities Beyond Infinity

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Fe

Iron

Ni

Nickel

EFINEA 79, A soft magnetic, unoriented, nickel-iron-molybdenum alloy consisting of approximately 79% Nickel and the balance Iron. This alloy provides extremely high initial permeability and maximum permeability with minimum hysteresis loss. EFINEA Alloy 79 alloy is also known by the following manufacturer's trade names: Magnifer® 7904, HyMu "80"®, Moly-Permalloy.

APPLICATIONS

Electro-magnetic shielding; Specialty transformer laminations; Toroidal tape wound cores; High-quality motor laminations; Stepping motors.

Typical Physical Properties

Density	g/cm ³	g/cm ³ : 8.74-8.77
Curie Temp	°F °C	734 390
Melting Point	°F °C	2650 1454
Electrical Resistivity	ohm-cir mil/ft Microhms-cm	349 58
Thermal Conductivity	BTU-in/sq.ft-hr-°F W/cm-K	134 0.32
Mean Specific Heat	BTU/lb-°F J/kg-K	0.1180 494
Linear Coefficient of Expansion	µm/m/°C (20 to 100°C) µm/m/°C (20 to 500°C)	11.5 14.0

Source: ASTM A753, Table X1.1, Alloy Type 4, (Annealed) | Carpenter Electrification HyMu "80"® Data Sheet v. 5/20

Forms | Sizes Available

Round Bar Rod	0.625"-2.000"
Sheet (Annealed)	0.010-0.125"
Strip Coil (Annealed)	0.004"-0.020"

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

Typical Mechanical Properties

Ultimate Tensile Strength	ksi MPa	84 580
Yield Strength	ksi MPa	32 220
Elongation	% in 2 in.	40
Hardness	HR15T HV 1000	86 160

Source: ASTM A753 | Carpenter Electrification high Permeability 49 Data sheet v. 5/20

Typical DC Magnetic Properties

Properties	Sheet & Strip
Permeability at 4 mT (40 G), min.	55,000
Permeability at 10 mT (100 G), min.	70,000
Maximum Permeability, min.	250,000
Coercive Field Strength A/m (Oe), max.*	1.2 (0.015)

The coercive field strength is determined from a maximum magnetic flux density of 0.5 T (5 kG).
Source: ASTM A753, Table 4, Alloy Type 4, Sheet and Strip (0.020 ≤ d < 0.060 in.)

Typical AC Magnetic Properties

	Minimum AC Impedance Permeability (µz) At A Peak Magnetic Flux Density		
	4 mT (40 G)	20 m T (200G)	2 mT (2000 G)
60-Hz AC Magnetic Requirements	35,000	40,000	50,000

CHEMISTRY

Nickel 79-82, Molybdenum 3.5-6.0, Manganese 0.80 Max., Iron Bal.
Source: ASTM A753, Table 2, Alloy Type 4, UNS N14080



Specifications

ASTM A753 Alloy 4 • MIL N-14411C • UNS N14080

Special Purpose Alloys & Metal From Stock

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EFINEA Services

Slitting, Sheering, Grinding, Water Jet Cutting, Laser Cutting, Saw Cutting, Custom Stocking and Consignment Programs

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