



# EFI Alloy 79

## Soft Magnetic Alloys

### DESCRIPTION

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. EFI 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 <sup>3</sup>	8.74-8.77
Curie Temperature	°F	734
	°C	390
Melting Range	°F	2650
	°C	1454
Electrical Resistivity	ohm-cir mil/ft	349
	Microhm-cm	58
Thermal Conductivity	BTU-in/sq.ft-hr-°F	134
	W/cm · k	0.32
Mean Specific Heat	BTU/lb/°F	0.1180
	J/kg · K	494
Linear Coefficient of Expansion	µm/m/°C (20 to 100°C)	11.5
	µm/m/°C (20 to 500°C)	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"

Listed above are our standard stock items. 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	84
	MPa	580
Yield Strength	ksi	32
	MPa	220
Elongation	% in 2"	40
Hardness	HR15T	86
	HV 1000	160

Source: ASTM A753, Table X1.3, Alloy Type 4, Mill Annealed Strip w/max. thickness of 0.100 in. |

#### TYPICAL DC MAGNETIC 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

60-Hz AC Magnetic Requirements	Minimum AC Impedance Permeability (µ <sub>z</sub> ) At A Peak Magnetic Flux Density		
	4 mT (40 G)	20 mT (200 G)	200 mT (2000 G)
	35,000	40,000	50,000

Source: ASTM A753, Table 5, Alloy Type 4, UNS N14080, Thickness 0.51 mm / 0.020 in.

### CHEMISTRY %

Nickel 79-82, Molybdenum 3.5-6.0, Manganese .80 Max., Iron Bal.  
Source: ASTM A753, Table 2, Alloy Type 4, UNS N14080

### SPECIFICATIONS

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

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# Special Purpose Alloys & Metals From Stock

## Controlled Expansion | Glass Sealing

Ed Fagan Inc. 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, 50;  
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 and Alloys

Ed Fagan Inc. 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, Wire

### 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

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

### EFI Alloy 50

Forms: Round Bar/Rod, Square Bar, Strip/Coil, Wire Rod  
Trade Names: High Permeability 49®, Magnifer® 50

### EFI 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

### Carpenter VimVar Core Iron

Forms: Round Bar/Rod

## Electrical & Electronic Nickels

Ed Fagan Inc. supplies select, commercially pure grades of Nickel in various forms and sizes.

### Electronic Nickels

200/201/205/233/270

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

## Alloys and Metals We Distribute

Corrosion Resistant Alloys • High-Temperature Alloys • Stainless Steel  
• Titanium – CP, 6 Al-4V

## Ed Fagan Inc. Services

Slitting, Shearing, Saw Cutting, Grinding, Water Jet Cutting, Laser 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.