



ED FAGAN INC.

EFI Alloy 50

Soft Magnetic Alloys



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DESCRIPTION

A soft magnetic alloy, consisting of 49% Nickel, balance Iron used where high initial permeability, maximum permeability, and low core loss is needed.

APPLICATIONS

Transformer cores, highly efficient motors, shielding, and specialized electronic devices, such as LF power transducers, chokes, relay parts, solenoids & oscillators.

AKA: Magnifer 50², Carpenter High Permeability 49¹, Alloy 47-50

Footnotes: 1. Trademark Carpenter Technology Corp., Reading PA; 2. Trademark ThyssenKrupp-VDM, Germany

TYPICAL DC MAGNETIC PROPERTIES

Saturation Induction - Gauss	14,500
Maximum Permeability	100,000
Coercive Force - Oersteds	0.06
Coercive Force - A/m	4.77

TYPICAL AC MAGNETIC PROPERTIES

Core Loss W/lb @ 400Hz & 20k G	N/A
B-40 Permeability @ 60Hz	6,500

N/A = not a typical application value

PHYSICAL PROPERTIES

Density	lb/cu in	0.295
Specific Gravity		8.18
Curie Temp	°F	840
	°C	450
Melting Point	°F	2600
	°C	1427
Electrical Resistivity	micro-ohm-cm	49
	ohm-cir mil/ft	290
Thermal Conductivity	W/cm °C	0.13
	BTU-in/sq. ft-hr-°F	90
Specific Heat	Cal/g-°C	0.12
	BTU/lbm-°F	0.12
Thermal Expansion	ppm/°F(75°F to 842°F)	5.0
	ppm/°C(25°C to 450°C)	9.0

MECHANICAL PROPERTIES

Tensile Strength	ksi	75
	MPa	518
Yield Strength	ksi	23
	MPa	159
Elongation	% in 2 in.	40
Typical Hardness	Rockwell	HRB 80
Modulus of Elasticity	Mpsi	24
	kMPa	166

FORMS AVAILABLE

Rod	6.350mm - 101.60mm
Sq. Bar	26.162mm - 51.562mm
Strip/Coil Annealed	0.050mm - 1.270mm
Strip/Coil Rotor Grade	0.177mm - 0.355mm
High Permeability 49	
Square Bar	45.237mm - 61.976mm

Strip/Coil can be slit to customer requirements down to 4mm widths

CHEMISTRY - maximum % unless noted

Iron	49	Silicon	0.35
Nominal Nickel	50	Vanadium	-
Nominal Cobalt	-	Niobium	-
Molybdenum	-	Phosphorus	-
Carbon	0.02	Sulfur	-
Manganese	0.5		

SPECIFICATIONS

ASTM A753, MIL N-14411C



Ed Fagan Inc also specializes in locating exotic materials. So, if you can't locate that hard-to-find material you need... Put EFI's material locator service to work for you!

www.material-locator.com

**THE MATERIALS YOU NEED,
WHEN YOU NEED THEM**



www.edfagan.eu
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Glass Sealing/ Controlled Expansion Alloys

EFI provides the highest quality materials including materials from Carpenter Technology Corp.

ASTM F15 Alloy:

aka Kovar & Pernifer 2918
Coil/Strip, Sheet, Plate,
Bar, Wire

Invar 36:

Bar, Sheet, Plate

42/46/48/52 Alloy:

Coil/Strip, Sheet, Plate, Bar

Electronic Nickel

200/201/233/270:

Coil/Strip, Rod, Sheet, Plate

Soft Magnetic Alloys/ EMI Shielding & Laminations

EFI is a distributor of magnetic shielding alloys for the world's leading producer of these alloys – ThyssenKrupp VDM.

EFI Alloy 79: aka Magnifer 7904,

Moly-Permalloy & HyMu 80
Sheet, Coil/Strip

EFI 50:

aka Magnifer 50 & High Perm 49
Bar, Coil/Strip

Carpenter VimVar Core Iron:

Rod, Bar

Carpenter Hiperco 50:

Coil/Strip, Billet

Radiometal 4550: Rod, Coil/Strip

Refractory Metals/Alloys

EFI is a stocking distributor of Molybdenum & Tungsten products, as well as many other refractory metals and alloys, providing the highest quality materials available.

Molybdenum:

Bar, Sheet, Plate, Coil/Strip

TZM Molybdenum Alloy:

Sheet, Bar

Tungsten:

Bar, Coil/Strip, Sheet

Tantalum: Sheet, Tubing

Niobium: Strip

Tungsten Alloy: Rod, Shapes

Rhenium: Sheet

Hard-to-Find Special Purpose Metals, Alloys and Materials

Are you spending too much of your valuable time trying to locate suppliers of specialty metals and materials? Use EFI's Material Locator (see below) to source it for you so you can get back to doing what you do best.

- Coil/Strip
- Sheet
- Plate
- Rod
- Tube
- Pipe
- Wire

JUST IN TIME DELIVERY

All standard stock items can be **shipped within 24 hours** – and are often **shipped the same day**. All materials are certified with shipment.

METALS WE DISTRIBUTE

Titanium
Zirconium

High Temperature Alloys
Corrosion Resistant Alloys
Stainless Steel

Copper – OFE, OFHC
Brass & Bronze
Beryllium Copper

SERVICES WE OFFER

Slitting, Shearing, Saw Cutting, Centerless Grinding, Water-jet Cutting, Laser Cutting,
Custom Stocking Programs • Consignment Programs



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