



**ED FAGAN INC.**

# Hiperco 50<sup>1</sup>

# Soft Magnetic Alloys



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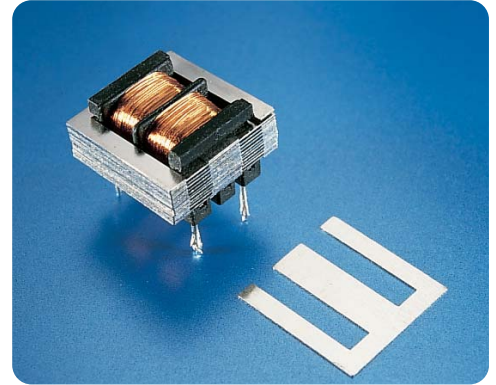
## DESCRIPTION

An alloy of 49% Cobalt, and 2% Vanadium. This alloy exhibits the highest magnetic saturation of any commercial alloy and excels in applications where this attribute is needed. This alloy has higher mechanical strength than other soft magnetic alloys.

## APPLICATIONS

Electrical generators, pole pieces for electromagnets, magnetic bearings, and high magnetic flux devices and instruments.

Footnotes: 1. Trademark Carpenter Technology Corp., Reading PA



## TYPICAL DC MAGNETIC PROPERTIES

<b>Saturation Induction - Gausses</b>	24,200
<b>Maximum Permeability</b>	10,000
<b>Coercive Force - Oersteds</b>	0.4
<b>Coercive Force - A/m</b>	31.83

## TYPICAL AC MAGNETIC PROPERTIES

<b>Core Loss W/lb @ 400Hz &amp; 20k G</b>	34
<b>B-40 Permeability @ 60Hz</b>	N/A

N/A = not a typical application value

## PHYSICAL PROPERTIES

<b>Density</b>	<b>lb/cu in</b>	0.293
<b>Specific Gravity</b>		8.12
<b>Curie Temp</b>	<b>°F</b>	1710
	<b>°C</b>	932
<b>Melting Point</b>	<b>°F</b>	2600
	<b>°C</b>	1427
<b>Electrical Resistivity</b>	<b>micro-ohm-cm</b>	41
	<b>ohm-cir mil/ft</b>	240
<b>Thermal Conductivity</b>	<b>W/cm °C</b>	0.29
	<b>BTU-in/sq. ft-hr-°F</b>	200
<b>Specific Heat</b>	<b>Cal/g-°C</b>	-
	<b>BTU/lbm-°F</b>	-
<b>Thermal Expansion</b>	<b>ppm/°F(75°F to 842°F)</b>	5.6
	<b>ppm/°C(25°C to 450°C)</b>	10.2

## MECHANICAL PROPERTIES

<b>Tensile Strength</b>	<b>ksi</b>	118
	<b>MPa</b>	814
<b>Yield Strength</b>	<b>ksi</b>	63
	<b>MPa</b>	435
<b>Elongation</b>	<b>% in 2 in.</b>	9
<b>Typical Hardness</b>	<b>Rockwell</b>	HRC 20
<b>Modulus of Elasticity</b>	<b>Mpsi</b>	30
	<b>kMPa</b>	207

## FORMS AVAILABLE

<b>Rod</b>	22.225mm – 44.450mm
<b>Strip/Coil</b>	0.050mm – 1.270mm

Strip/Coil can be slit to customers requirements, down to 4mm widths.

## CHEMISTRY - maximum % unless noted

<b>Iron</b>	49 nom.	<b>Silicon</b>	0.05
<b>Nominal Nickel</b>	-	<b>Vanadium</b>	1.9
<b>Nominal Cobalt</b>	49 nom.	<b>Niobium</b>	0.05
<b>Molybdenum</b>	-	<b>Phosphorus</b>	-
<b>Carbon</b>	0.01	<b>Sulfur</b>	-
<b>Manganese</b>	-		

## SPECIFICATIONS

**ASTM A801, MIL A47182, AMS A47182**



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](http://www.material-locator.com)

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



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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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