



ED FAGAN INC.

Hiperco 50' and Hiperco 50A' Soft Magnetic Alloys

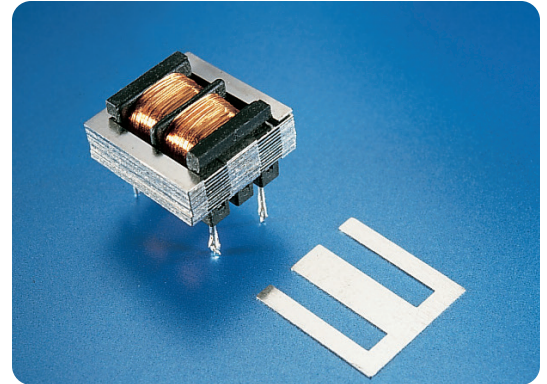
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DESCRIPTION

An alloy of 49% Cobalt, and 2% Vanadium, balance Iron, Hiperco 50 and Hiperco 50A have the highest magnetic saturation of all soft-magnetic alloys and excels in applications where this attribute is needed. Hiperco 50 maintains its strength after heat treating making it your best choice for applications that experience high forces (e.g. rotating parts).

APPLICATIONS

Special Motors for the Aerospace Industry (e.g. applications where high magnetic saturation and high strength is required with as little weight as possible); Electromagnets for medical applications (e.g. to focus beams for radiation therapy in medical radiology applications); Electrical Generators; Specialty Transformers (e.g. electrical circuits and magnetic circuits where frequencies must be varied); Pole Pieces for Electromagnets; Magnetic Bearings (e.g. applications where rotating parts are levitated); High Magnetic Flux Devices and Instruments.



TYPICAL DC MAGNETIC PROPERTIES - 0.014" STRIP

	Hiperco 50	Hiperco 50A
Saturation Induction - Gauss	24,000	24,000
Maximum Permeability	12,000	15,000
Coercive Force - Oersteds	0.9	0.4
Coercive Force - A/m	72	32

TYPICAL AC MAGNETIC PROPERTIES - 0.014" STRIP

	Hiperco 50	Hiperco 50A
Core Loss W/lb @ 400Hz & 20k G	34	30
B-40 Permeability @ 60Hz	N/A	N/A

N/A = not a typical application value

PHYSICAL PROPERTIES (Hiperco 50 & 50A)

Density	lb/cu in	0.293
Specific Gravity		8.12
Curie Temp	°F	1720
	°C	938
Melting Point	°F	2600
	°C	1427
Electrical Resistivity	micro-ohm-cm	41
	ohm-cir mil/ft	240
Thermal Conductivity	W/cm °C	0.29
	BTU-in/sq. ft-hr-°F	200
Specific Heat	Cal/g -°C	0.10
	BTU/lb-°F	0.10
Thermal Expansion	ppm/°F(75°F to 932°F)	5.6
	ppm/°C(25°C to 500°C)	10.2

MECHANICAL PROPERTIES ANNEALED CONDITION

		Hiperco 50	Hiperco 50A
Tensile Strength	ksi	118	104
	MPa	814	717
Yield Strength	ksi	63	53
	MPa	435	365
Elongation	% in 2 in.	9	7
Typical Hardness Anld.	Rockwell Rc	20	20
Modulus of Elasticity	Mpsi	30	30
	kMPa	207	207

CHEMISTRY - maximum % unless noted

	Hiperco 50	Hiperco 50A		Hiperco 50	Hiperco 50A
Iron	Bal	Bal	Silicon	0.15	0.15
Nickel*	0.25	0.25	Vanadium	1.9 nom.	1.9 nom.
Cobalt	49 nom.	49 nom.	Niobium	0.05	na
Chromium	0.15	0.15	Phosphorus	0.015	0.015
Carbon	0.025	0.025	Sulfur	0.010	0.010
Manganese	0.15	0.15			

*Nominal

FORMS AVAILABLE

Hiperco 50 Strip/Coil	0.004" - 0.020"
Hiperco 50 Plate	0.50" - 5.0"
Hiperco 50A Rod	0.50" - 3.0"

Hiperco 50 & 50A supplied unannealed. If you do not see the size or form you require listed above, please call us. We add new stock material frequently, and may have the size and form you need.



SPECIFICATIONS

ASTM A801 Alloy Type 1



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

1. Hiperco 50 and Hiperco 50A Trademark Carpenter Technology Corp., Reading PA

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



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efi
ED FAGAN INC.

1/2017

Glass Sealing / Controlled Expansion Alloys / Electrical & Electronic Nickel

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

ASTM F15 Alloy:

aka Kovar, Pernifer 2918, NILO K & Dilvar P1

Coil/Strip, Sheet, Plate, Round Bar

Invar 36:

aka Pernifer 36, NILO 36 & Invar Steel

Round Bar, Sheet, Plate

Super Invar 32-5:

Round bar, Sheet, Plate

42/*46/48/52 Alloy:

aka Pernifer 40, 46, 48 & 50;

NILO 42, 46, 48 & 50;

Glass Seal 42, 46, 48 & 50

Coil/Strip, Sheet, Plate, Round Bar

Electronic Nickel

200/201/233/270:

Coil/Strip, Round Bar, Sheet

**Products listed in Italics are special order and not standard stock items. Please call for availability.*

Soft Magnetic Alloys/ EMI Shielding & Laminations

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

EFI Alloy 79:

aka Magnifer 7904, Moly-Permalloy,

HyMu 80, Hypernom & Permalloy 80

Round Bar, Sheet, Coil/Strip

EFI Alloy 50:

aka Magnifer 50, High Permeability 49 & Alloy 47-50

Round & Square Bar, Coil/Strip

Carpenter VimVar Core Iron:

Round Bar

Carpenter Hiperco 50:

Plate, Coil/Strip

Carpenter Hiperco 50A:

Round Bar

Radiometal 4550:

Round Bar, 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:

Round Bar, Sheet, Plate,

Threaded Rod & Nuts

**Foil/Coil/Strip, Wire*

TZM Molybdenum Alloy:

Round Bar, Sheet, Plate

Tungsten:

Round Bar, Plate, **Sheet, *Wire*

Tungsten Alloy:

Round Bar, **Sheet, *Plate,*

**Shapes, *Flat Blanks*

**Tantalum: Round Bar, Sheet*

**Niobium: Foil/Coil/Strip*

**Rhenium: Sheet*

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METALS WE DISTRIBUTE

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

JUST IN TIME DELIVERY: All **standard stock** items can be **shipped within 24 hours** – and are often **shipped the same day**. For **special order** materials, EFI has long relationships with the manufacturers of these materials, so please contact a sales rep to discuss price and delivery options. All materials can be certified with shipment.

SERVICES WE OFFER

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



Are you spending too much of your valuable time trying to locate specialty metals and materials? If you can't locate the hard-to-find materials you need, use EFI's Material Locator to source them for you.

www.material-locator.com

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



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