26	27
Fe	Co
55.845	58.933194
Iron	Cobalt
23	41
V	Nb
50.9415	92.90637
Vanadium	Niobium

Hiperco® 50 HS
Soft Magnetic Alloys

ED FAGAN INC.
Special Purpose Alloys
THE MATERIALS YOU NEED, WHEN YOU NEED THEM
www.edfagan.com | sales@edfagan.com
toll free 800.348.6268

DESCRIPTION

An iron-cobalt-vanadium soft magnetic alloy that exhibits high magnetic saturation, high yield strength and moderate core loss. Niobium is added for grain refinement during mill processing and final heat treating to improve yield strength properties found in traditional Hiperco® 50.

APPLICATIONS

In the manufacture of rotor laminations Hiperco 50 HS strip is applicable in aircraft power generation applications and for magnetic bearings. These laminations are stamped from cold rolled strip and must be final annealed in a protective atmosphere or vacuum environment at a temperature that provides both magnetic and mechanical properties that withstand the high stresses. High-speed motors.

TYPICAL PHYSICAL PROPERTIES

Density	lb/in^3		0.293
Specific Gravity	68° F		8.12
*Curie Temperature	°F		1720
	°C		938
Electrical Resistivity			
(70° F)	ohm-cir mil/ft		253.0
(21° C)	ohm-m		42.1
Elastic Modulus	ksi		30x10^3
	GPa		206.8
Thermal Conductivity	Btu-in/hr/ft^2/°F		206.8
	W/m /°C		29.83
Mean Coefficient of Thermal Expansion	77 to 392°F	5.3x10^{-6}	length/length/°F
	77 to 752°F	5.6x10^{-6}	length/length/°F
	77 to 1112°F	5.8x10^{-6}	length/length/°F
	77 to 1472°F	6.3x10^{-6}	length/length/°F

*Curie temperature is phase transition from magnetic to non-magnetic phase.
Source: Carpenter Electrification data sheet 5/20

FORMS | SIZES AVAILABLE

Strip	Coil	0.006" - 0.014"

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 - 0.006 IN STRIP

HEAT TREATMENT TEMPERATURE

°F	°C	TIME, HR	0.2% YIELD STRENGTH ksi	0.2% YIELD STRENGTH MPa	ULTIMATE TENSILE STRENGTH ksi	ULTIMATE TENSILE STRENGTH MPa	ELONGATION IN 2 IN (50.8 MM) %
1328	720	1	99	683	185	1280	15
1328	720	2	94	648	177	1220	14
1328	720	4	87	600	156	1080	11
1364	740	1	86	593	168	1160	13
1364	740	2	83	572	167	1150	13
1364	740	4	78	538	158	1090	12
1400	760	1	76	524	149	1030	11
1400	760	2	76	524	166	1140	14
1400	760	4	73	503	145	1000	11
1472	800	4	64	441	142	979	11

The tensile properties are for strips heat treated and tested at room temperature. All heat treatments conducted in batch type furnaces (1 hour heat up time) in dry hydrogen followed by cooling rate of 180°F/hr.
Source: Carpenter Electrification data sheet 5/20

TYPICAL DC MAGNETIC PROPERTIES

1.50 IN O.D. X 1.25 IN I.D. RING LAMINATIONS
ASTM METHOD A596/A596M

0.2% YIELD STRENGTH		FLUX DENSITY AT INDICATED MAGNETIC FIELD STRENGTH									
		10 Oe 800 A/m		20 Oe 1600 A/m		50 Oe 4000 A/m		100 Oe 8000 A/m		200 Oe 16000 A/m	
ksi	MPa	kG	T	kG	T	kG	T	kG	T	kG	T
73	503	19.3	1.93	20.7	2.07	21.9	2.19	22.3	2.23	23.0	2.30
86	593	19.0	1.90	20.3	2.03	21.8	2.18	22.3	2.23	22.9	2.29
99	683	18.2	1.82	19.9	1.99	21.5	2.15	22.3	2.23	22.9	2.29

Source: Carpenter Electrification data sheet 5/20

CHEMISTRY

% (Single figures are nominal except where noted.)
Cobalt 48.75, Vanadium 1.90, Niobium 0.30, Carbon 0.01, Iron Balance

SPECIFICATIONS

ASTM A801 Alloy Type 1

769 Susquehanna Avenue, Franklin Lakes, NJ 07417
PH: 201.891.4003 | Toll Free: 800.335.6827

10537 Humbolt Street, Los Alamitos, CA 90720
PH: 562.431.2568 | Toll Free: 800.782.9657

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Special Purpose Alloys & Metals From Stock

ED FAGAN INC.
Special Purpose Alloys

www.edfagan.com | sales@edfagan.com

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.

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