Core Iron (Vim Var)

Request A Quote

Soft Magnetic Alloys

EFINEA
Capabilities Beyond Infinity
1-800-348-6268 | efineametals.com

26
Fe
Iron

Core Iron (Vim Var) , a low-carbon magnetic iron produced through vacuum induction melting combined with vacuum arc remelting processes. Elements typically found in low-carbon irons are carefully minimized to maintain optimal DC magnetic properties.
The dual melting method effectively controls nonmetallic inclusions, minimizing their size and frequency, thereby ensuring thin-walled components remain free of leaks caused by internal discontinuities. This alloy is commercially recognized as Carpenter Consumet Core Iron®.

APPLICATIONS
Ideal for soft magnetic components that require vacuum integrity, including power tubes, microwave devices, relays, solenoids, and magnetic pole pieces used in scientific instrumentation.

Typical Physical Properites

Density	lb/in	0.284
Specific Gravity		7.86
Curie Temperature	°F °C	1418 770
Melting Point	°F °C	2800 1538
Electrical Resistivity	µ ohms-cm ohm-cir mil/ft	13 78
Thermal Conductivity	W/cm °C BTU-in/sq.ft-hr-°F	0.73 508
Specific Heat	Cal/gm °C J/kg-K	0.108 452
Thermal Expansion	ppm/°C (25°C to 200°C)	12.6

Source: EFINEA Master Carpenter VIM VAR Core Iron

Typical Mechanical Properties

Tensile Strength	ksi MPa	50 345
Yeild Strength	ksi MPa	27 190
Elongation	% in 2"	45
Typical Hardness. Ann.	Rockwell HRB	65
Modulus of Elasticity	ksi MPa	30207

Typical DC Magnetic Properties

Saturation Induction- Gauss	21,500
Maximum Relative Permeability	9,400
Coercive Force- Oersteds	1.5
Coercive Field Force- A/m	68
Residual Induction (T)	1.44

Annealed at 843°C for four hours in wet hydrogen. Residual induction (Br) and coercive field strength, (Hcb) are measured from a maximum flux density of 1.5T.

Source: ASTM A848-17 Table X1.1

Forms | Sizes Available

Round Bar | Rod	0.500"-10.250"

Our inventory fluctuates based on market demands. If you do not see the size or form you require, please call us.

Typical AC Core Loss by Heat Treatment

Temp Range 25°C to	Coefficient ppm per °C	Temp Range 25°C to	Coefficient ppm per °C
100°	12.2	500°	15.5
200°	12.6	600°	15.5
300°	13.6	700°	15.8
400°	14.5		

CERTIFIED BY SCB AS9100D ISO 9001

CHEMISTRY

Commercially Pure, Low Carbon Magnetic Iron
Vanadium, titanium, and aluminum are not required but may be added to suppress magnetic aging; if present, they shall be analyzed and reported.

Specifications

ASTM A848 Type 1

Special Purpose Alloys & Metal From Stock

Request A Quote

EFINEA

Capabilities Beyond Infinity

1-800-348-6268 | efineametals.com

CERTIFIED BY SCB AS9100D ISO 9001

EFINEA Services

Slitting, Sheering, Grinding, Water Jet Cutting, Laser Cutting, Saw 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

Controlled Expansion | Glass Sealing

EFINEA 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; 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

Refratory Metals & Alloys

EFINEA 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

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

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

EFINEA Alloy 50

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

Trade Names: High Permeability 49®,Mangnifer®50

EFINEA 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

Core Iron (Pure Iron)

Forms: Round Bar/Rod, Plate

Trade Names: Electrical Iron®, Alliedpureiron®

Electrical & Electronic Nickels

EFINEA supplies select, Commercially pure grades of Nickel in various forms and sizes.

Electronic Nickels

200/201/205/233/270

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

Copper Metals

EFINEA supplies select, Commercially pure grades of Copper in Coil Form

Copper OFHC 101/102

Nickel-Silver 770

Cupro-Nickel 715 (CuNi 70/30)

Forms: Coil

Stainless Steels & Other Alloys

EFINEA supplies select aircraft quality grades of Stainless Steel available in various forms and sizes.

17-4PH (Type 630)

15-5PH Vac Melt

300 Grade Stainless Steel Coils

Forms: Round Bar/Coils