

Nickel 233

Electrical, Electronic Nickel

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28
Ni

Nickel

Nickel 233 alloy, is a commercially pure wrought nickel alloy that exhibits excellent corrosion resistance and high electrical and thermal conductivities. However, the alloy is subjected to intergranular embrittlement by sulfur compounds above 315°C.

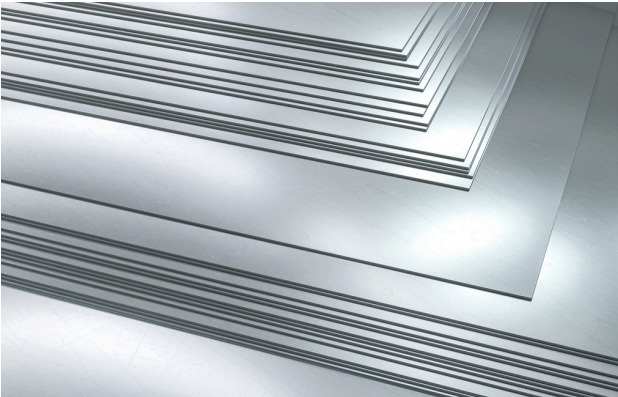
APPLICATIONS

Active cathodes; Vacuum tube anodes; Structural parts of tubes

Typical Physical Properties

Density	lb/in	0.321
		8.9
Specific Gravity		
	°F	660
Curie Temp	°C	353
Melting Point	°F	2650
	°C	1454
Electrical Resistivity	microhm-cm	7.4
	Ohm/ cir mil/ft	44.51
Thermal Conductivity	BTU-in/sq. ft-hr-68°F	7.4
Specific Heat	BTU/lb °F	0.11
Thermal Expansion	ppm /°C (100°C)	13.3

Source: Material Handbook a Concise Desktop Reference, pg. 36; EFI Data sheet 6/87



Typical Mechanical Properties*

Ultimate Tensile Strength	ksi	58.01
	MPa	400
Yield Strength (0.2% offset)	ksi	21.7
	MPa	150
Elongation in 50mm	% in 2 in.	40
Modulus of Elasticity	10 ⁶	29.6
	GPa	204
Hardness	HRB	100
	*(at room temp)	

Source: Material Handbook a Concise Desktop Reference, pg. 36; EFI Data sheet 6/87

Forms | Sizes

Sheet 0.030" - 0.125"

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.

CHEMISTRY

Nickel 99.0 min., Copper 0.10 max., Iron 0.10 max., Magnesium 0.10 max., Manganese 0.30 max., Carbon 0.10 max., Silicon 0.10 max., Sulfur 0.005 max., Titanium 0.005 max.

Source: ASTM F3, Table 3, UNS N02233 Grade 1



Specifications

ASTM F3 Grade 1 UNS N02233

Special Purpose Alloys & Metal From Stock

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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

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

Refractory 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

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

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®, Manganifer®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®

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