

**Mo**

95.95

Molybdenum

# Molybdenum

## Refractory Metals and Alloys

www.edfagan.com | sales@edfagan.com  
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### DESCRIPTION

Molybdenum is an excellent material due to its unique mechanical and chemical properties that can meet the most demanding application requirements in many diverse industries. Molybdenum is best categorized as a refractory metal due to its very high melting point, low coefficient of thermal expansion and a high level of thermal conductivity. The strength of Molybdenum increases the more the metal is cold worked. Pure Molybdenum is conducive to many applications in high-temperature furnace building because of its excellent availability, good workability and favorable high-temperature properties, such as low vapor pressure and high melting point.

### APPLICATIONS

Structural furnace members, windings and components, containers for components exposed to high temperatures, nose cones, nozzles, support vanes, heat radiation shields, cathodes, magnetron end hats, x-ray tube components, high temperature applications.

### TYPICAL PHYSICAL PROPERTIES

Density	g/cm <sup>3</sup>	10.22
Melting Point	°F	4748
	°C	2620
Specific Electrical Resistance	(Ω·mm <sup>2</sup> )/m	0.056
Specific Heat @20 °C	J/(gK)	0.254
*Recrystallization Temp		1100
Thermal Conductivity @20 °C	W/(m-K)	142
Coefficient of Linear Thermal Expansion @20 °C	m/(m-K)	5.2x10 <sup>-6</sup>

\*Temp C for 100% recrystallization. One hour annealing time. Deformation level + 90%. Source: Plansee

### FORMS | SIZES

Plate	0.1875" - 1.500"
Round Bar   Rod	0.040" - 4.00"
Sheet	0.005" - 0.125"
Coiled Sheet	0.005" - 0.015"
Threaded Rod & Hex Nuts	Various
Wire	0.001" - 0.100"

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

		Stress Relieved	Recrystallized
*Tensile Strength R <sub>m</sub>	MPa-20 °C	800	500
	MPa-1000 °C	230	150
	MPa-1400 °C	60	60
*Elongation	%-20 °C	20	50
	%-1000 °C	10	40
	%-1400 °C	40	40
Typical Hardness	HV10	>220	160 - 180
Modulus of Elasticity @20 °C	GPa	320	
	GPa		160

\*2mm sheet, longitudinal direction Source: www.plansee.com

### TYPICAL APPLICATION



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### CHEMISTRY %

C 0.010 max., O 0.0070 max., N 0.0020 max., Fe 0.010, Ni 0.005 max., Si 0.010 max., Mo Balance >99.95  
Source: ASTM B386 & B387 Type 1 Table 1 Chemical Requirements

### SPECIFICATIONS

AMS 7800, ASTM B386 Type 361 (Plate + Sheet), B387 Type 361 (Round Bar), CAS 7439-98-7, UNS R03610

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# Special Purpose Alloys & Metals From Stock

**efi** 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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