

W

183.84

Tungsten

Tungsten

Refractory Metals and Alloys

www.edfagan.com | sales@edfagan.com
toll free 800.348.6268

DESCRIPTION

Tungsten is a chemical element identified by the atomic number 74 and the symbol W. Tungsten is a refractory metal and most remarkable for its characteristic of having the highest melting point of all metals at 3420°C. In its pure form Tungsten's density is 19.25 g/cm³ which is 1.7 times that of lead. Also the element has the highest boiling point at 5555°C. Tungsten's excellent high-temperature stability and high modulus of elasticity provide it with a high creep resistance. Additional material characteristics are low coefficient of thermal expansion and low vapor pressure.

Tungsten has a body-centered cubic lattice. To improve the overall ductility of pure Tungsten, additives such as Rhenium, Nickel, Copper or Iron are added to create Tungsten Heavy Alloys or Tungsten Alloys. These alloys enhance the mechanical properties and ability to machine the material.

APPLICATIONS

High-temperature furnace components; glass-to-metal seals; electronics; medical devices; welding electrodes.

TYPICAL PHYSICAL PROPERTIES

Density @20°C	g/cm ³	19.25
Melting Point	°F	6188
	°C	3420
Electrical Conductivity @20°C	S/m	18.2 x 10 ⁶
Electrical Resistivity @20°C	(Ω·mm ²)/m	0.055
Thermal Conductivity @20°C	W/(m·K)	164
Specific Heat @20°C	J/(g·K)	0.13
Coefficient of Linear Thermal Expansion @20°C	m/(m·K)	4.4

Source: Plansee, www.plansee.com

FORMS AVAILABLE

Plate	0.1875" - 1.000"
Precision Cut Wire	0.001" - 0.125"
Round Bar Rod	0.030" - 1.5748"
Sheet	0.002" - 0.750"

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

Yield Strength	MPa	750	
Typical Hardness @20°C			
	- Stress-Relief Annealed	HV 30 (Vickers)	>460
	- Recrystallized	HV 30 (Vickers)	~360
Modulus of Elasticity	ksi (GPa)	58 (405)	
Poisson's Ratio		0.28	

Source: Plansee, www.plansee.com

TYPICAL APPLICATION



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CHEMISTRY %

99.95 Tungsten (W) Minimum | Source: ASTM B760

SPECIFICATIONS

AMS 7898/7899; ASTM B760, ASTM F288 Type 1B; CAS 7440-33-7; UNS R07005

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

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.