



**ED FAGAN INC.**

# Tungsten

## Refractory Metals and Alloys



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### DESCRIPTION

Many practical applications of tungsten are based on its high melting point and density and its low vapor pressure. Tungsten is an excellent material for high vacuum technology, dimensional stability, glass seals and furnace construction. In addition, tungsten's high density gives it a capacity to absorb radioactive radiation. Tungsten has found wide use as additives to steel to enhance physical properties and an alloy with nickel, copper and iron to provide high density machinable materials.

### APPLICATIONS

High temperature furnace components; glass to metal seals; heavy metal alloys; medical devices; welding electrodes.



**Welding Electrodes**

### MECHANICAL PROPERTIES

<i>Tensile Strength</i>	<b>KSI(Mpa)-RT</b>	250(1725)
	<b>KSI(Mpa)-500°C</b>	150(1035)
	<b>KSI(Mpa)-1000°C</b>	75(515)
<i>Elongation</i>	<b>% in 1.0"</b>	-
<i>Hardness</i>	<b>DPH</b>	300
<i>Modulus of Elasticity</i>	<b>KSI</b>	58000
	<b>Gpa</b>	400

### PHYSICAL PROPERTIES

<i>Density</i>	<b>lb/in<sup>3</sup></b>	0.70
	<b>gm/cm<sup>3</sup></b>	19.27
<i>Melting Point</i>	<b>°F</b>	6170
	<b>°C</b>	3410
<i>Thermal Conductivity</i>	<b>cal/cm<sup>2</sup>/cm°C/sec</b>	0.48
<i>Specific Heat</i>	<b>Cal/gm/°C</b>	0.032
<i>Coefficient of Linear Thermal Expansion</i>	<b>micro-in/°F x 10<sup>6</sup></b>	4.30
	<b>micro-in/°C x 10<sup>6</sup></b>	2.40
<i>Electrical Resistivity</i>	<b>micro-ohm-cm</b>	5.50

### FORMS AVAILABLE

<b>Rod</b>	0.030" - 2.00"
<b>Sheet</b>	0.005" - 0.187"
<b>Plate</b>	0.187" - 1.00"
<b>Precision Cut Wire*</b>	0.001" - 0.125"

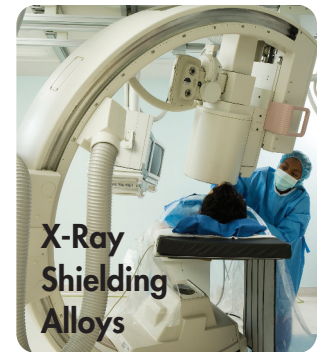
If you do not see the size you require listed above please call us at 800-348-6268. New stock sizes are added often.

\*Wire cut to length to your tolerance, concentricity, and straightness.

**CHEMISTRY - Minimum %** 99.95



**Vacuum Technology**



**X-Ray Shielding Alloys**

### SPECIFICATIONS

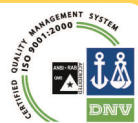
**AMS 7898 / 7899**



Ed Fagan Inc also specializes in locating exotic materials. So, if you can't locate that hard-to-find material you need... Put EFI's material locator service to work for you!

**www.material-locator.com**

**THE MATERIALS YOU NEED,  
WHEN YOU NEED THEM**



toll free 800.348.6268  
[www.edfagan.com](http://www.edfagan.com)  
[sales@edfagan.com](mailto:sales@edfagan.com)

**efi**  
ED FAGAN INC.

## Glass Sealing/ Controlled Expansion Alloys

EFI provides the highest quality materials including materials from Carpenter Technology Corp.

### ASTM F15 Alloy:

aka Kovar & Pernifer 2918  
Coil/Strip, Sheet, Plate,  
Bar, Wire

### Invar 36:

Bar, Sheet, Plate

### 42/46/48/52 Alloy:

Coil/Strip, Sheet, Plate, Bar

### Electronic Nickel

### 200/201/233/270:

Coil/Strip, Rod, Sheet, Plate

## Soft Magnetic Alloys/ EMI Shielding & Laminations

EFI is a distributor of magnetic shielding alloys for the world's leading producer of these alloys – ThyssenKrupp VDM.

### EFI Alloy 79: aka Magnifer 7904,

Moly-Permalloy & HyMu 80  
Sheet, Coil/Strip

### EFI 50:

aka Magnifer 50 & High Perm 49  
Bar, Coil/Strip

### Carpenter VimVar Core Iron:

Rod, Bar

### Carpenter Hiperco 50:

Coil/Strip, Billet

**Radiometal 4550:** Rod, Coil/Strip

## Refractory Metals/Alloys

EFI is a stocking distributor of Molybdenum & Tungsten products, as well as many other refractory metals and alloys, providing the highest quality materials available.

### Molybdenum:

Bar, Sheet, Plate, Coil/Strip

### TZM Molybdenum Alloy:

Sheet, Bar

### Tungsten:

Bar, Coil/Strip, Sheet

**Tantalum:** Sheet, Tubing

**Niobium:** Strip

**Tungsten Alloy:** Rod, Shapes

**Rhenium:** Sheet

## Hard-to-Find Special Purpose Metals, Alloys and Materials

Are you spending too much of your valuable time trying to locate suppliers of specialty metals and materials? Use EFI's Material Locator (see below) to source it for you so you can get back to doing what you do best.

- Coil/Strip
- Sheet
- Plate
- Rod
- Tube
- Pipe
- Wire

**JUST IN TIME DELIVERY:** All standard stock items can be **shipped within 24 hours** – and are often **shipped the same day**. All materials are certified with shipment.

## METALS WE DISTRIBUTE

Titanium

Zirconium

High Temperature Alloys

Corrosion Resistant Alloys

Stainless Steel

Copper – OFE, OFHC

Brass & Bronze

Beryllium Copper

## SERVICES WE OFFER

Slitting, Shearing, Saw Cutting,

Centerless Grinding, Water-jet Cutting,

Laser Cutting, Custom Stocking Programs,

Consignment Programs



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WHEN YOU NEED THEM**



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