

Mo
95.95

Molybdenum

| | | |
|--------------------------|---------------------------|-----------------------|
| 22 | 40 | 6 |
| Ti 47.867 Titanium | Zr 91.224 Zirconium | C 12.011 Carbon |

Molybdenum TZM

Refractory Metals and Alloys

efi ED FAGAN INC.
Special Purpose Alloys
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toll free 800.348.6268

DESCRIPTION

Molybdenum TZM, a refractory alloy, comprised of 0.5% titanium (Ti), 0.08% zirconium (Zr), 0.01 - 0.04% carbon (C), and the balance being the element molybdenum. This alloy is produced by powder metallurgy techniques with the addition of particle-strengthened carbides and oxides to inhibit grain growth at high temperatures. This combination provides increases in the alloy's ductility and creep strength. One of molybdenum TZM most significant improvements is that above 2000°F its tensile strength is approximately twice that of pure molybdenum. TZM is best used for applications where components are subjected to both high temperature environments and high mechanical loading.

APPLICATIONS

Components for HIP, sintering and heat treatment furnaces; Base bodies for X-ray targets; Boats for annealing and sintering processes (temperatures up to 1400°C); Forming tools: hot runner nozzles for plastic injection molding; Billets for isothermal forging; Die inserts for casting aluminum.

TYPICAL PHYSICAL PROPERTIES

| | | |
|---|---------------------------------|-------|
| Density | lb/in ³ | 0.37 |
| | gm/cm ³ | 10.22 |
| Melting Point | °F | 4753 |
| | °C | 2623 |
| Electrical Resistivity | Micro-ohm-cm | 6.85 |
| Thermal Conductivity | Cal/cm ² /cm°C /sec | 0.48 |
| Specific Heat | Cal/gm / °C | 0.073 |
| Recrystallization Temp | °C | 1400 |
| Coefficient of Linear Thermal Expansion | Micro-in/ °F x 10 ⁻⁶ | 2.50 |
| | Micro-in/ °C x 10 ⁻⁶ | 5.20 |

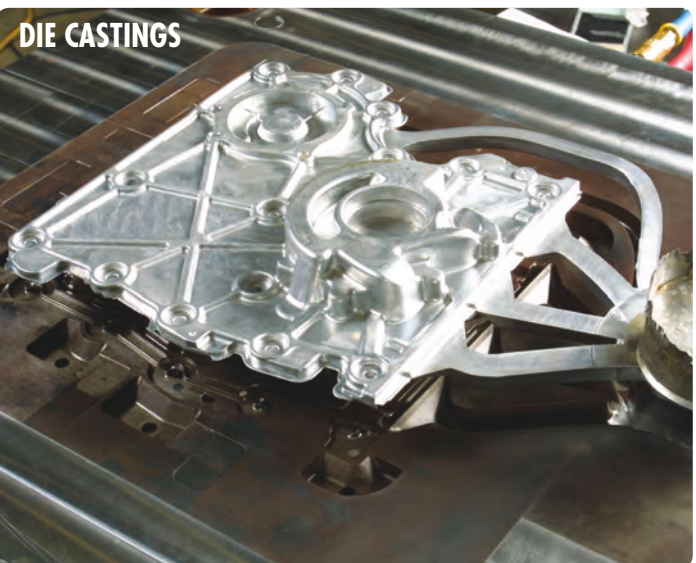
FORMS AVAILABLE

- Plate
- Round Bar | Rod
- Sheet

Please call us at 800-348-6268 with your form and size requirements.
No order is too small.

TYPICAL MECHANICAL PROPERTIES

| | | |
|-----------------------|--------------|-----------|
| Tensile Strength | KSI (MPa) RT | 110 (760) |
| Elongation | % in 1.0" | 15 |
| Typical Hardness | DPH/RC | 220 |
| Modulus of Elasticity | KSI (GPa) | 48 (320) |



CHEMISTRY %

99.2 Molybdenum (Mo) Minimum
0.50 Titanium (Ti), 0.08 Zirconium (Zr), 0.01 – 0.04 Carbon (C)

SPECIFICATIONS

ASTM B386 Type 364, ASTM B387 Type 364, UNS R03630

769 Susquehanna Avenue, Franklin Lakes, NJ 07417
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Special Purpose Alloys & Metals From Stock

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Kovar® | ASTM F15 Alloy

Forms: Plate, Round Bar, Sheet, Strip/Coil, Wire
Trade Names: Kovar®, Pernifer® 2918, NILO K®, DilverP1®

Alloy 42/46/48/52

Forms: Plate, Round Bar, Sheet, Strip/Coil, Wire
Trade Names: Pernifer®40, 46, 48, 50; NILO® 42, 46, 48, 50; Glass Seal 42, 46, 48, 50

Free-Cut Invar "36"® Alloy

Forms: Round Bar, Wire

Invar "36"® Alloy

Forms: Plate, Sheet
Trade Names: Pernifer® 36, NILO® 36, Invar

Super Invar 32-5®

Forms: Plate, Round Bar, Sheet

Refractory Metals and Alloys

Ed Fagan Inc. is your leading source for quality refractory metals and alloys. We stock Tungsten, Molybdenum and its alloys in various forms and sizes manufactured from Plansee Group.

Molybdenum

Forms: Plate, Precision Cut Wire, Round Bar, Sheet/Strip, Spooled Wire, Threaded Rod/Nuts

Molybdenum Lanthanum Oxide (ML)

Forms: Sheet – Stress Relieved, Recrystallized

Molybdenum TZM

Forms: Plate, Round Bar

Niobium

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

Rhenium

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

Tantalum

Forms: Round Bar, Sheet

Tungsten

Forms: Parts (To Specification), Plate, Precision Cut Wire, Round Bar, Sheet

Tungsten Alloy

Blank Forms: 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, Square Bar, Strip/Coil, Wire
Trade Names: Alloy 4750, High Permeability 49®, Magnifer® 50

EFI Alloy 79

Forms: Rectangular Bar, Round Bar, Sheet, Strip/Coil, Wire
Trade Names: Hipernom, HyMu80®, Magnifer® 7904, Molypermalloy, Permalloy 80®

Hiperco® 50, Hiperco® 50A, Hiperco® 50 HS

Forms: Plate, Round Bar, Strip/Coil

Carpenter VimVar Core Iron

Forms: Plate, Round Bar

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, 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

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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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