TUNGSTEN

The density and high-temperature extreme of the catalogue. Tungsten heavy alloy is roughly twice as dense as lead yet machinable and strong — ideal for balance weights, ballast and radiation shielding. Pure tungsten offers the highest melting point of any metal (3,422 °C) for the most demanding thermal applications, while high-purity tungsten powder feeds additive manufacturing, cemented carbide and sputter-target production.

Tungsten Heavy Alloy (WHA)

Sintered tungsten-nickel-iron/copper composites at ~17–18.5 g/cm³ — machinable, strong, radiation-opaque and excellent at vibration damping. Balance/counterweights, ballast, ordnance and shielding.

Grade	Nominal composition (wt %)	UTS / YS / El (MPa, %)	Key properties & applications
90W-Ni-Fe / 95W-Ni-Fe *Densalloy / Densimet / WHA* To-order	W 90-97, Ni 3-7, Fe/Cu 1-3	UTS 900 / YS 620 / El 10% ρ 17.0-18.5 g/cm³ 30 HRC Tmax 500°C	Machinable ~2x lead density; high strength; radiation-opaque; excellent vibration damping **Forms:** Bar, Rod, Block, Cube, Billet, Custom near-net **Use:** Balance/counterweights, radiation shielding, ordnance, damping

Pure Tungsten

Near-pure tungsten with the highest melting point of any metal (3,422 °C) and very high density and stiffness — high-temperature furnace parts, electrodes, nozzle throats and thermal management.

Grade	Nominal composition (wt %)	UTS / YS / El (MPa, %)	Key properties & applications
Pure W (rod / plate / sheet) *Tungsten metal* To-order	W >= 99.95	UTS 550-1500 / YS - / El 1-5% ρ 19.25 g/cm³ 350-500 HV Tmax 1650°C	Highest melting point of all metals (3422 C); very high density, stiffness & thermal stability **Forms:** Rod, Plate, Sheet, Bar, Electrode **Use:** High-temp furnace, electrodes, nozzles, x-ray & thermal management

Tungsten Powder

High-purity tungsten powder (to 99.99%), sized for additive manufacturing, cemented-carbide production, sputter targets and thermal spray. (Anchor line tied to a live energy-sector RFQ.)

Grade	Nominal composition (wt %)	UTS / YS / El (MPa, %)	Key properties & applications
High-Purity W Powder *W powder (AM / metallurgical)* To-order (RFQ line)	W >= 99.9 (grades to 99.99)	UTS - / YS - / El -% ρ 19.25 (bulk varies) g/cm³	Feedstock for additive manufacturing, carbide, sputter targets, alloying; grade tied to a live energy-sector RFQ **Forms:** Powder (spherical / angular, sized) **Use:** AM feedstock, tungsten carbide, sputter targets, thermal-spray

Tungsten Carbide

Cemented carbide (WC-Co): extreme hardness and wear resistance, second only to diamond among common tool materials — cutting tools, dies, drilling inserts and wear parts.

Grade	Nominal composition (wt %)	UTS / YS / El (MPa, %)	Key properties & applications
WC-Co (cemented carbide) *Cemented / hardmetal* To-order	WC 84-94, Co 6-16	UTS - / YS - / El -% ρ 14.0-15.6 g/cm³ 88-93 HRA Tmax 600°C	Extreme hardness & wear resistance; second only to diamond among common tool materials **Forms:** Rod (blank), Plate, Preform, Insert **Use:** Cutting tools, wear parts, dies, drilling inserts

Forms by industry —

Aerospace: Bar, block, rod, plate — balance weights, ballast, nozzles, thermal mass
Automotive: Bar, cube, insert — motorsport ballast, crank/flywheel weights, tooling
Oil & Gas: Bar, insert, powder — downhole ballast, drill inserts, hardfacing