

# HIGH PERFORMANCE SOLUTIONS FOR THE AEROSPACE MARKET

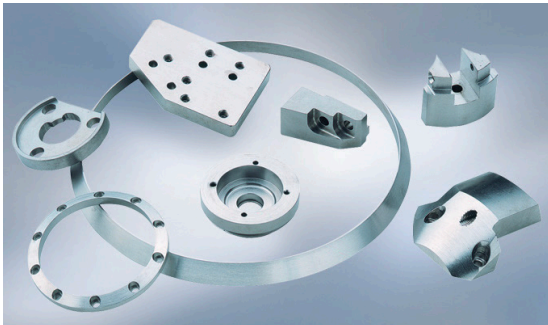
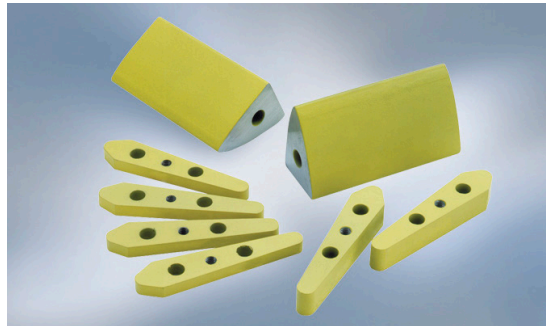


## TUNGSTEN ALLOYS MACHINED FOR AEROSPACE APPLICATIONS

Elmet Technologies, a worldwide manufacturer of refractory metals and fabricated products, provides high performance solutions to customers in the aviation industry. Refractory metals like tungsten alloys have been the choice material for machined and fabricated products in critical aerospace applications.

Our machineable high-density tungsten alloys, with a density over 60 % higher than lead, help stabilize helicopter rotor blades and aircraft wings, winglets, ailerons, elevators, and rudders:

- > Aircraft and Helicopter Balance Weights
- > Vibration Dampening
- > Instrumentation Balance Weights
- > Produced and Certified to AMS-T-21024, AMS 7725 and ASTM B777



## CUSTOMER COLLABORATION WITH TIGHTER PROCESS CONTROLS

To meet the rapidly growing demands of the aviation market, Elmet Technologies works closely with its customers in developing and producing custom products per customer specifications. With over 30 years of experience in manufacturing high performance materials for various applications, Elmet Technologies consistently delivers materials and products of exceptional quality.

As a vertically integrated manufacturer, we exercise tight control of all our processes from refining the raw materials to delivering high purity finished products. Elmet Technologies has a unique global reach allowing for close contact and collaboration with our customers. Our experienced Research and Development department allows us to constantly be at the forefront of technological advancement and development of new products together with our partners in the industry.

**ELMET TECHNOLOGIES SUPPLIES THE FOLLOWING TUNGSTEN ALLOYS:**

ALLOY DESIGNATION		K1700	K1701	K1750	K1800	K1801	K1850
Tungsten content	(%)	90	90	92.5	95	95	97
Density	(g/cm <sup>3</sup> )	17	17	17.5	18	18	18.5
	(lb/in <sup>3</sup> )	0.61	0.61	0.63	0.65	0.65	0.67
Hardness	(Rc)	23	22	24	25	24	26
Ultimate Tensile Strength	(psi)	125,000	110,000	125,000	125,000	110,000	120,000
	(N/mm <sup>2</sup> )	860	760	860	860	760	830
Yield Strength	(psi)	85,000	80,000	90,000	90,000	85,000	95,000
	(N/mm <sup>2</sup> )	590	550	620	620	590	660
Elongation	(% in 1 inch)	12	4	10	8	2	6
Modulus of Elasticity	(psi × 10 <sup>6</sup> )	45	40	46	48	45	50
	(kN/mm <sup>2</sup> )	310	280	320	330	310	345
Magnetic Properties		slight	none	slight	slight	none	slight
Magnetic Permeability	(μ)	>1.05	<1.05	>1.05	>1.05	<1.05	>1.05
Thermal Expansion Coefficient	(×10 <sup>-6</sup> /°C) (20 °C–500 °C)	5.1	5.4	4.9	4.8	5.0	4.8
Thermal Conductivity	(cgs)	0.20	0.23	0.24	0.27	0.32	0.26
Electrical Conductivity	(% IACS)	11	14	12	15	16	16
MIL-T-21014(D)	class	1	1	2	3	3	4
ASTM B777	class	1	1	2	3	3	4

Exceeds requirements of the following specifications: MIL-T-21014, ASTM B777 and AMS 7725.

## PRODUCT OFFERINGS FOR OTHER MARKETS

Elmet Technologies supplies high performance materials and alloys including molybdenum (Mo), nickel based (Ni) alloys, tantalum (Ta), niobium (Nb) and tungsten (W) to critical applications in a range of markets:



Aerospace & Defense



Chemical Processing



Electronics



Energy



Automotive



Medical

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