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High Performance Metal Solutions

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High Performance Solutions for the Aerospace Market



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Tungsten Alloys Machined for Aerospace Applications

H.C. Starck Solutions, 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.

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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

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> 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, H.C. Starck Solutions 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, H.C. Starck Solutions 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. H.C. Starck Solutions 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.

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Alloy Designation		K1700	K1701	K1750	K1800	K1801	K1850
Tungsten content	(%)	90	90	92.5	95	95	97
Density	(g/cm³)	17	17	17.5	18	18	18.5
	(lb/in³)	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/mm²)	860	760	860	860	760	830
Yield Strength	(psi)	85,000	80,000	90,000	90,000	85,000	95,000
	(N/mm²)	590	550	620	620	590	660
Elongation	(% in 1 inch)	12	4	10	8	2	6
Modulus of Elasticity	(psi × 10°)	45	40	46	48	45	50
	(kN/mm²)	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 ⁻⁶ /°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

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H.C. STARCK SOLUTIONS SUPPLIES THE FOLLOWING TUNGSTEN ALLOYS:

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

Product Offerings for other Markets

H.C. Starck Solutions 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

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Energy



Chemical Processing



Automotive



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Electronics



Medical

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USA

H.C. Starck Solutions Euclid 21801 Tungsten Road Euclid, OH 44117-1117 USA T +1 216 692 3990 F +1 216 692 0029 H.C. Starck Solutions 199 Wells Ave, #107 Newton, MA 02459 USA T +1 617 630 5800 F +1 617 630 5879

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H.C. Starck Solutions Coldwater 460 Jay Street

Coldwater, MI 49036 USA T +1 517 279 9511 F +1 517 269 9512

Japan

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H.C. Starck Fabricated Products GK 3F
Shiodome Building,
1-2-20 Kaigan,
Minato-ku, Tokyo
105-0022 JAPAN
T +81-3-6721-8177
F +81-3-6733-8896

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The values in this publication are typical values and do not constitute a specification.



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info@hcstarcksolutions.com www.hcstarcksolutions.com