

6Al-4V (Grade 5)

Smiths Advanced Metals

Rev: SAM/datasheets/titanium/ti-6al-4v-bar/feb-2022

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Alpha-Beta Alloy

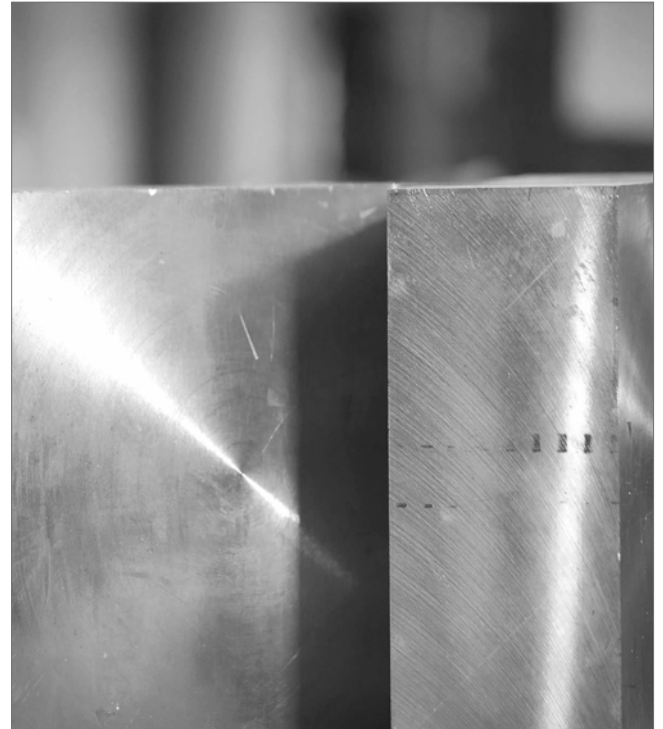
6Al-4V is one of the most commercially used high strength titanium alloys available.

The alloy combines excellent corrosion resistance, good mechanical strength and low density (4.42 kg/dm³).

Grade 5 is a heat-treatable titanium product for sections up to 25mm (solution heat-treatment plus ageing), with an elevated temperature operating limit of up to 400°C. With good formability, the material offers good strength to weight ratios and therefore finds use in aerospace and motorsport applications. **6Al-4V (Grade 5)** is so popular, it accounts for around 50% of all titanium purchases, worldwide.

Grades / Specifications

■ ABS5453	■ ASTM B348
■ AIMS 03-18-010	■ BS 3TA11
■ AMS4928	■ 3.7164
■ AMS6931	■ UNS R56400
■ AMS-T-9047, MIL-T-9047	



Benefits

- Excellent corrosion resistance
- Excellent fatigue strength
- Good machinability
- Good strength to weight ratio

Key Applications

- Medical components
- Chemical processing components
- Marine components
- Motorsport components

*Chemical Composition (weight %)

	Ti	N	C	H	Fe	O	Al	V	Y	Others (each)	Others (total)
min.	Bal						5.50	3.50			
max.	Bal	0.05	0.08	0.0125	0.30	0.20	6.75	4.50	0.005	0.10	0.30

* As per AMS 4928

*Mechanical Properties

	Minimum
UTS, MPa	896
0.2% PS, MPa	827
Elongation, % in 4D	10
Reduction of Area, %	25

* Properties as per AMS 4928, 50.8mm - 101.6mm (longitudinal)

Other Characteristics

Weldability of the alloy is generally good if performed on the material in the annealed or solution/partially aged condition. **6Al-4V (Grade 5)** benefits from excellent corrosion resistance, particularly in marine and oil & gas working environments, offering resistance to a wide range of acids and oxidising acids.

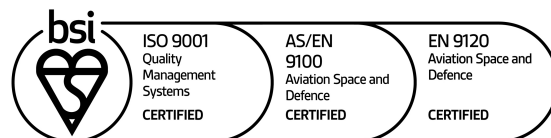
As a non-toxic material, the alloy also finds extensive use in the medical sector for implants and surgical instruments.

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