Titanium Grade 5 (Ti6Al4V)

Properties of Titanium Grade 5 (Ti6Al4V)

Titanium Grade 5 is the most widely used titanium alloy, offering a broad range of applications. It provides an optimal combination of high strength, low weight, excellent corrosion resistance, and good ductility. The alloy remains mechanically stable up to approx. 400 °C and is weldable. In addition to the standard grade, an ELI (Extra-Low Interstitial) version is also available, which is used particularly for medical applications.

- High specific strength
- Excellent corrosion resistance
- Good weldability
- Temperature resistance up to approx. 400 °C
- Non-magnetic.

Applications of Titanium Grade 5 (3.7165 / Ti6Al4V)

- Aerospace: Airframe structures, engine components
- Medical technology: Implants, surgical instruments
- Automotive: High-stress components
- Offshore and energy: Seawater applications
- Chemical industry: Pressure vessels, heat exchangers
- Defence: Ballistic protection

Specification Overview

DIN	17851,17860,17862, 17864
ASTM	B265, B348, B381, F 136
SAE	AMS 4906, AMS 4907, AMS 4911, AMS 4920, AMS 4928, AMS 4931
ISO	5832-3
WL	3.7164 Part 1, 3.7164 Part 2
Böhler Grade	L531

Physical Properties

Material Density	4.45 g/cm^3
Thermal conductivity	7.1 W/m·K
Electrical Resistivity	1.71 µΩ·m
Coefficient of expansion	8.6·10^{-6}/K

Mechanical Properties

Annealed Condition

Tensile Strength Rm	900 – 1070 N/mm^2
Yield Strength Rp0.2	830 – 1000 N/mm^2
Elongation at break	≥ 10 %
Hardness	approx. 330 HV

Typical Chemical Composition

Table 1: Chem. composition (wt%) ASTM B348

	C Max	O Max	N Max	H Max	Fe Max	Al	V	Other Each Max	Other Total Max
ASTM B348	0,08	0,20	0,05	0,015	0,40	5,50 – 6,75	3,50 – 4,50	0,10	0,40

Product Portfolio

Plates: up to 30mm
Bars: up to 250.0 mm
Billets and Blocks for Forging: up to 600mm
Forged parts and machined components according to customer specification
Inspection certificates according to EN 10204 3.1/3.2