

Die Legierung Ti-6Al-4V ist die am meisten verwendete der Alpha-Beta Gruppe und ist die bekannteste aller Titanlegierungen. Bearbeitetes Material wird in der Luftfahrtindustrie, Medizin und anderen Anwendungen eingesetzt, bei denen eine gute Festigkeit im Verhältnis zum Gewicht, sowie gute korrosionsbeständige Eigenschaften gefordert werden. Weiter ist sie giesbar und findet vermehrt Anwendungen auch bei Sportgeräten.

Ti-6Al-4V alloy is the most widely used titanium alloy of the alpha-plus-beta class, and is also the most common of all titanium alloys. The alloy is castable and is utilized "as cast" in sporting goods. The wrought material is used in aerospace, medical, and other applications where moderate strength, good strength to weight, and favorable corrosion properties are required.

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| Produktformen Product Forms | Blech, Band, Stab, Draht, Gussteile, Schmiedestücke, Ringe und Knüppel | Sheet, Plate, Strip, Bar, Rod, Wire, Castings, Forgings, Rings and Billet |
| Normen und Bezeichnungen Major Specifications | UNS R56400 W-Nr.: 3.7165 ASTM B 265 / AMS 4911 (Blech, Band), ASTM B 348 / AMS 4928 (Stab) MIL-T-9046 | UNS R56400 W-Nr.: 3.7165 ASTM B 265 / AMS 4911 (plate, sheet, strip), ASTM B 348 / AMS 4928 (bar) MIL-T-9046 |
| Chem. Zusammensetzung Chemical Composition, % | Grenzwerte Ti Rest O 0.20 V 3.5 - 4.5 Fe 0.40 AL .. 5.50 - 6.75 H.... max. 0.015 N 0.05 C 0.08 | Limiting Ti Balance O 0.20 V 3.5 - 4.5 Fe 0.40 AL .. 5.50 - 6.75 H.... max. 0.015 N 0.05 C 0.08 |
| Physikalische und thermische Eigenschaften Physical Constants and Thermal Properties | Dichte, lb/in ³ 0.160 g/cm ³ 4.43 Schmelzbereich, etwa. °F 3000 °C 1648 Beta Transus °F +/- 25 1784 °C +/- 4 980 Ausdehnungsbeiwert, 10 ⁻⁶ in/in • F 32 - 212°F 5.0 32 - 1200°F 5.9 32 - 600°F 5.3 32 - 1500°F 6.1 32 - 1000°F 5.6 um/m • °C 0 - 100°C 9.1 0 - 649°C 10.7 0 - 316°C 9.6 0 - 816°C 11.0 0 - 538°C 10.1 Elastizitätsmodul, 10 ⁶ psi 16.5 Torsionsmodul, 10 ⁶ psi 6.1 Spezifische Wärme, Btu/lb•°F 0.135 J/kg•°C 565.2 Glühtemperatur ganz °F ... 1300-1525°/15 min., -2 Std., AC °C 704-838°/15 min., -2 Std., AC spannungsarm °F 900-1200°/1-4 Std., AC °C 495-659°/1-4 Std., AC Schmiedetemperatur Vorschmieden °F 1750 - 1800° °C 962 - 989° Fertigschmieden °F 1650 - 1750° °C 812 - 962° | Density, lb/in ³ 0.160 g/cm ³ 4.43 Melting Range, approx. °F 3000 °C 1648 Beta Transus °F +/- 25 1784 °C +/- 4 980 Coefficient of Expansion 10 ⁻⁶ in/in • F 32 - 212°F 5.0 32 - 1200°F 5.9 32 - 600°F 5.3 32 - 1500°F 6.1 32 - 1000°F 5.6 um/m • °C 0 - 100°C 9.1 0 - 649°C 10.7 0 - 316°C 9.6 0 - 816°C 11.0 0 - 538°C 10.1 Elasticity-Tension Modulus, 10 ⁶ psi 16.5 Elasticity-Torsion Modulus, 10 ⁶ psi 6.1 Specific Heat, Btu/lb•°F 0.135 J/kg•°C (565.2) Annealing Temp full °F 1300-1525°/15 min., -2 hrs, AC °C 704-838°/15 min., -2 hrs, AC stress relief °F 900-1200°/1-4 hrs, AC °C 495-659°/1-4 hrs, AC Forging Temp Blocking °F 1750 - 1800° °C 962 - 989° Finishing °F 1650 - 1750° °C 812 - 962° |
| Typische mechanische Eigenschaften Typical Mechanical Properties | (Geglüht) Zugfestigkeit, RT min. 130 895 Streckgrenze, RT min. 120 828 Dehnung, min. 10 % Brucheinschnürung, min. 25 % | (Annealed) Tensile Strength, RT min. 130 895 Yield Strength, RT min. 120 828 Elongation, min. 10 % Reduction of Area, min. 25 % |

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