



Grade	Code	UNS	Titanium
Ti6Al7Nb	-	R56700	

General Properties

Ti6Al7Nb, is an $\alpha+\beta$ titanium alloy combining high strength, low density, good fatigue resistance and excellent corrosion resistance. Developed as a vanadium-free alternative in which niobium acts as the principal β -stabilizing element, it is particularly suitable for long-term medical implant applications where biocompatibility is essential. Its favorable mechanical performance and high strength-to-weight ratio make it widely used for orthopedic, dental and other surgical implant components.

Chemical Composition (Ti6Al7Nb)

Ti %	Al %	Nb %	Ta %	Fe %	O %	C %	N %	H %	Other, each %	Other, total %
Bal.	5.50–6.50	6.50–7.50	≤0.50	≤0.25	≤0.20	≤0.08	≤0.05	≤0.009	≤0.10	≤0.40

Mechanical Properties (Annealed)

Product Form	Rp0.2 [MPa]	Rm [MPa]	Elongation [%]	Hardness [HB]	Density [g/cm ³]
Round Bar	≥800	≥900	≥10	—	4.52
Plate					
Sheet					

Applications

Application Area	Typical Products
Orthopedics	Hip prosthesis components, knee prosthesis components, joint implants
Trauma Surgery	Bone plates, bone screws, intramedullary nails
Spinal Surgery	Pedicle screws, spinal rods, interbody cages
Dental	Dental implants, abutments, implant connection screws
Maxillofacial / Craniofacial Surgery	Mandibular reconstruction plates, craniofacial plates, maxillofacial screws
Prosthetic and Reconstructive Surgery	Long-term bone implants, patient-specific implants, prosthetic connection components

Description

Ti6Al7Nb, with its $\alpha+\beta$ microstructure, provides a balanced combination of mechanical performance and formability. Niobium stabilizes the β phase and also contributes to the chemical stability of the passive oxide film formed on the surface. Hot and cold forming operations require controlled process conditions, while machining should be carried out with suitable cutting tools and effective cooling because of the



BH DÖVME METAL SANAYİ ve TİCARET LTD. ŞTİ.

Hatip Mah. Viawest 5 Sanayi Sitesi

Gündüz Sefası Sok. No:8/11, İç Kapı: E-11

Çorlu/Tekirdağ

info@bhmetal.com.tr

www.bhmetal.com.tr

alloy's low thermal conductivity. Its compatibility with surface treatments and coating technologies also allows wear behavior, surface roughness and interaction with bone tissue to be tailored to the requirements of the intended implant application.

Grade Designations

Ti6Al7Nb, Ti-6Al-7Nb, R56700

Standards

Product Form	ASTM Standard	UNS
Round Bar	ASTM F1295-24	R56700
Plate	ASTM F1295-24	R56700
Sheet	ASTM F1295-24	R56700

Other Grades to Consider

1. Ti Grade 23 ELI, Ti6Al4V ELI
2. Ti Grade 5, Ti6Al4V