

TIMETAL[®] 367**MEDIUM-STRENGTH SURGICAL IMPLANT ALLOY**

TIMETAL 367 is a medium-strength alpha beta alloy for surgical implants. The alloy was developed specifically for the manufacture of femoral component items for hip prostheses. Its metallurgy is closely analogous to that of TIMETAL[®] 6-4 but biocompatibility is improved with the replacement of vanadium by niobium.

TABLE 1

CHEMICAL COMPOSITION

ELEMENT	WEIGHT %	
	Minimum	Maximum
Aluminum	5.50	6.50
Niobium	6.50	7.50
Tantalum	—	0.50
Iron	—	0.25
Oxygen	—	0.20
Carbon	—	0.08
Nitrogen	—	0.05
Hydrogen	—	0.009
Residual Elements, each	—	0.10
Residual Elements, total	—	0.40
Titanium	Remainder	

TABLE 2

PHYSICAL PROPERTIES

PROPERTY	VALUE	
	English	SI
Density	0.163 lb in ⁻³	4.52 g cm ⁻³
Beta Transus	1859°F	1015°C
Elastic Modulus	15.2-17.4 Msi	105-120 GPa

TABLE 3

HEAT TREATMENT

Anneal	1290°F (700°C) for 1 hour, Air Cool
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TABLE 4

TYPICAL MECHANICAL PROPERTIES

<i>Ultimate Tensile Strength</i>		<i>0.2% Yield Strength</i>		<i>Elongation 5D %</i>	<i>Reduction in Area %</i>	<i>Fatigue Limit* 10⁷ cycles ksi (MPa)</i>
<i>ksi</i>	<i>MPa</i>	<i>ksi</i>	<i>MPa</i>			
145	1000	131	900	12	35	± 72 (500)

* Rotating Bend



TABLE 5
FATIGUE PROPERTIES - ROTATING BEAM

Surface Condition	Fatigue Strength 10 ⁷ Cycles	
	ksi	MPa
Highly polished	90	620
Shot-blasted Ra = 1 μm	84	580
Corundum-blasted Ra = 3 μm	73	500
ODH-hardened plus corundum-blasted Ra = 3 μm	52	360
ODH-hardened plus highly polished	49	340

ODH = Oxygen Diffusion Hardened (to a depth of 40 μm)

The data and other information contained herein are derived from a variety of sources which TIMET believes are reliable. Because it is not possible to anticipate specific uses and operating conditions, TIMET urges you to consult with our technical service personnel on your particular applications.

For more information, please contact the TIMET Sales Office/Service Center nearest you, TIMET's Technical Laboratories or TIMET's Website @ www.timet.com

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