

Datenblatt | Data sheet

Titanium ball

Ball with low weight, good mechanical and heat transfer properties and optimum corrosion resistance. Used in the aesthetic field (jewelry/piercings) and in surgery (implants). TiAl6V4 (grade 5) is the most commonly used titanium alloy in the world. Grade 23 contains fewer impurities (TiAl6V4 ELI: Extra Low Interstitial). The balls are supplied in passivated condition.

Field of application

Aerospace, military, chemical and petrochemical industries, medical/surgical applications, jewelry and piercing manufacturing, precision instruments.

Corrosion resistance

Resistant in salt water and marine environments, in contact with oxidizing acids and chlorides (in the presence of water). Good strength in a variety of acids, alkalis and industrial atmospheres. Satisfactory strength in sulfuric acid and sodium hydroxide. Unstable in reducing acids and chloride gases. Grade 23 has slightly higher corrosion resistance in seawater compared to Grade 5.

Material

TiAl6V4 (Grade 5)	3.7164	R56400
TiAl6V4 ELI (Grade 23)	3.7165	R56401

Chemical composition in %

Typ	C	N	Ti	Al	V	Fe	O	H
TiAl6V4	≤ 0,08	≤ 0,05	balance	5,50-6,75	3,50 - 4,50	≤ 0,30	≤ 0,20	≤ 0,015
TiAl6V4 ELI	≤ 0,08	≤ 0,08	balance	5,50-6,75	3,50 - 4,50	≤ 0,25	≤ 0,13	≤ 0,012

Physical / mechanical / thermal / electrical / magnetic characteristics

Characteristic	Symbol	Unit	Type	Note	Value
Density	δ	g/cm ³	Physical	Environmental temp.	4,45
Modulus of elasticity	E	GPa	Mechanical	-	114
Specific heat	C	J/kg*K	Thermal	Environmental temp.	523
Coefficient of linear thermal expansion	α	10 ⁻⁶ /°C	Thermal	(DT = 0 - 100 °C)	9,4
Thermal conductivity	λ	W/(m*K)	Thermal	Environmental temp.	6,7
Electrical resistivity	ρ	Ω *m ⁻⁹	Electrical	-	1780
Relative magnetic permeability	μ	-	Magnetical	paramagnetic	1,0001

Technical characteristics

Characteristic	Type	Unit	Value	Unit	Value
Hardness	Mechanical	HRC	28 - 42	HV	285 - 415
Ultimate compressive strength	Mechanical	MPa	625 - 830	psi*10 ³	90 - 120
Operating temperature	Thermal	°C	-196 / 400	°F	-320,8 / 752

Available with

Diameter min/max (mm)	Diameter min/max (in)	Precision grade
1,000 - 100,000	3/64 - 4	G100 / G200 / G500 / G1000

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