

**Data sheet: laser melting powder titanium alloy Ti6Al4V (grade 23)^[a]
Processed using AM250 with 200 W laser**

Powder composition / percent by mass								
Ti	Al	V	Fe	O	Residual	C	N	H
Balance	5.5 to 6.5	3.5 to 4.5	<0.25	<0.13	<0.1 each <0.4 total	<0.08	<0.03	<0.0125

Material Properties

High specific strength
High corrosion resistance
Excellent biocompatibility
Good osseointegration
Low thermal expansion
Low thermal conductivity

Applications

Medical implants
Surgical tools
Aerospace and defence
Motor sport
Jewellery and art
Maritime applications
High-end sports equipment

Mechanical data	Stress relieved ^[b]		Test / ISO standard where applicable
	Min	Max	
Tensile strength (UTS) / MPa [*]	1 155	1 197	BS EN ISO 6892-1:2009
Yield strength (0.2%) / MPa [*]	1 070	1 111	BS EN ISO 6892-1:2009
Elongation at break / % [*]	2	8	BS EN ISO 6892-1:2009
Hardness / Vickers HV0.5 [*]	361	376	BS EN ISO 6507-1:1998
Surface roughness in X, Y / R _a μm	4	6	JIS B 0601-2001 (ISO 97)
Surface roughness in Z / R _a μm	4	7	JIS B 0601-2001 (ISO 97)
Generic data			
Density	4.42 g/cm ³		Generic wrought material
Thermal conductivity at 20 °C	6 W/m·K to 8 W/m·K		Generic wrought material
Melting range	1 635 °C to 1 665°C		Generic wrought material
Coefficient of thermal expansion ^[c]	8 × 10 ⁻⁶ K ⁻¹ to 9 × 10 ⁻⁶ K ⁻¹		Generic wrought material

* Tested by Nadcap and UKAS accredited independent laboratory

Minimum and maximum values quoted are $\bar{x} \pm \sigma$, test samples were built in both horizontal and vertical directions.

[a] Also referred to as ELI, Extra Low Interstitial.

[b] 30 μm layers on AM250 and stress-relieved under argon at 730 °C for 2 hours, machined.

[c] Mean between 0 °C and 100 °C.

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Values quoted are typical values for the AM process.

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