

**Data sheet: laser melting powder titanium alloy Ti6Al4V (grade 23)<sup>[a]</sup>  
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 <sup>[b]</sup>		Test / ISO standard where applicable
	Min	Max	
Tensile strength (UTS) / MPa <sup>*</sup>	1 155	1 197	BS EN ISO 6892-1:2009
Yield strength (0.2%) / MPa <sup>*</sup>	1 070	1 111	BS EN ISO 6892-1:2009
Elongation at break / % <sup>*</sup>	2	8	BS EN ISO 6892-1:2009
Hardness / Vickers HV0.5 <sup>*</sup>	361	376	BS EN ISO 6507-1:1998
Surface roughness in X, Y / R <sub>a</sub> μm	4	6	JIS B 0601-2001 (ISO 97)
Surface roughness in Z / R <sub>a</sub> μm	4	7	JIS B 0601-2001 (ISO 97)
<b>Generic data</b>			
Density	4.42 g/cm <sup>3</sup>		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 <sup>[c]</sup>	8 × 10 <sup>-6</sup> K <sup>-1</sup> to 9 × 10 <sup>-6</sup> K <sup>-1</sup>		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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