

ADDITIVE MANUFACTURING POWDER

TI64 GD.5 AMPO / TI-BASED ALLOYS

Application Segments

Additive Manufacturing Application

Available Product Variants

20 - 63 µm

Product Description

Titan64 is a multifunctional and well-established material on the market, which has a balanced property profile due to its alpha, beta alloy. The material is a high demanded and researched alloy in additive manufacturing due to its low weight combined with high specific strength. An additional advantage of the alloy is its corrosion resistance and biocompatibility. Therefore it is also used in medical applications in addition to aerospace and motor sports.

Properties

- > High strength
- > High corrosion resistance
- > Lightweight

Comparison to a Gd.23

- > Higher hardness compared to a Gd. 23

Process Melting

EIGA

Applications

- > 3D Printing - selective laser melting
- > Automotive Racing
- > Other Components
- > Powder for additive manufacturing
- > Medical
- > 3D Printing - direct metal deposition
- > Aerospace
- > Mechanical Engineering

Technical data

Material designation	
Ti6Al4V Gd.5	Market grade
3.7164	SEL
R56400	UNS
Ti6Al4V	EN

Chemical composition (wt. %)

C	V	Ti	Al	Fe	N	O	H
≤ 0.08	4	> 87.00	6.13	≤ 0.30	≤ 0.05	≤ 0.20	≤ 0.02

Powder Properties

Particle Size Distribution 15-45µm*

Typical Values	D10	D50	D90
[µm]	18-24	31-41	53-67

* Measurement of particle size distribution is based on ISO 13322-2 (Dynamic image analysis methods);

Apparent density** | min. 2 g/cm³

** Flowability and apparent density are based on DIN EN ISO 4490 resp. DIN EN ISO 3923-1

Mechanical Properties

As Printed

Tensile strength (Rm) (MPa ksi)	1,200 to 1,300 175 to 189
Yield strength (RP _{0.2}) (MPa ksi)	1,100 to 1,200 160 to 175
Elongation (%)	8 to 12
Impact Toughness (ISO-V) (J)	12 to 16

We expressly point out that the values given are only guide values. The mechanical properties highly depends on the pressure parameters or heat treatment.

With according Heat Treatment

Tensile strength (Rm) (MPa ksi)	1,050 to 1,150 153 to 167
Yield strength (RP _{0.2}) (MPa ksi)	1,000 to 1,100 146 to 160
Elongation (%)	12 to 16
Impact Toughness (ISO-V) (J)	18 to 22

Heat treatment

Temperature	800 °C 1,472 °F	for 2-6h under Argon
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For more information see <https://www.voestalpine.com/boehler-edelstahl/de/>

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