

# ADDITIVE MANUFACTURING POWDER

## TI64 GD.23 AMPO / TI-BASED ALLOYS

### Application Segments

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Additive Manufacturing Application

### Available Product Variants

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20 - 63 µm

### Product Description

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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

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- High strength
- High corrosion resistance
- Lightweight

### Comparison to a Gd.5

- Higher damage tolerance compared to a titanium Gd. 5
- Good mechanical properties at very low temperatures (compared to a Gd.5)

### Process Melting

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EIGA

### Applications

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|---|---|--------------------------|
| ➤ 3D Printing - selective laser melting | ➤ Powder for additive manufacturing     | ➤ Aerospace              |
| ➤ Motorsport industry                   | ➤ Medical                               | ➤ Mechanical Engineering |
| ➤ Other Components                      | ➤ 3D Printing - direct metal deposition |                          |

## Technical data

Material designation	
Ti6Al4V Gd.23	Market grade
Ti6Al4V Gd.5 ELI	
3.7165	SEL
Ti6Al4V	EN
R56401	UNS

## Chemical composition (wt. %)

C	V	Ti	Al	Fe	N	O	H
≤ 0.08	4	> 87.00	6	≤ 0.25	≤ 0.05	≤ 0.13	≤ 0.01

## Powder Properties

Particle Size Distribution *			
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/cm<sup>3</sup>

\*\* 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)	1,100 to 1,200
Yield strength (RP <sub>0.2</sub> ) (MPa)	1,000 to 1,100
Elongation (%)	9 to 12
Impact Toughness (ISO-V) (J)	22 to 26

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)	950 to 1,050
Yield strength (RP <sub>0.2</sub> ) (MPa)	900 to 1,000
Elongation (%)	12 to 15
Impact Toughness (ISO-V) (J)	45 to 53

## Heat treatment

Temperature	800 °C	for 2-6h under Argon
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If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.