

ADDITIVE MANUFACTURING POWDER

TI64 GD.23 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.5

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

Process Melting

EIGA

Applications

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

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 ³ |
|--------------------|--------------------------|

** 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 _{0.2}) (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 _{0.2}) (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 |
|-------------|--------|----------------------|

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.

voestalpine BÖHLER Edelstahl GmbH & Co KG

Mariazeller Straße 25

8605 Kapfenberg, AT

T. +43/50304/20-0

E. info@bohler-edelstahl.at

<https://www.voestalpine.com/bohler-edelstahl/de/>

voestalpine

ONE STEP AHEAD.