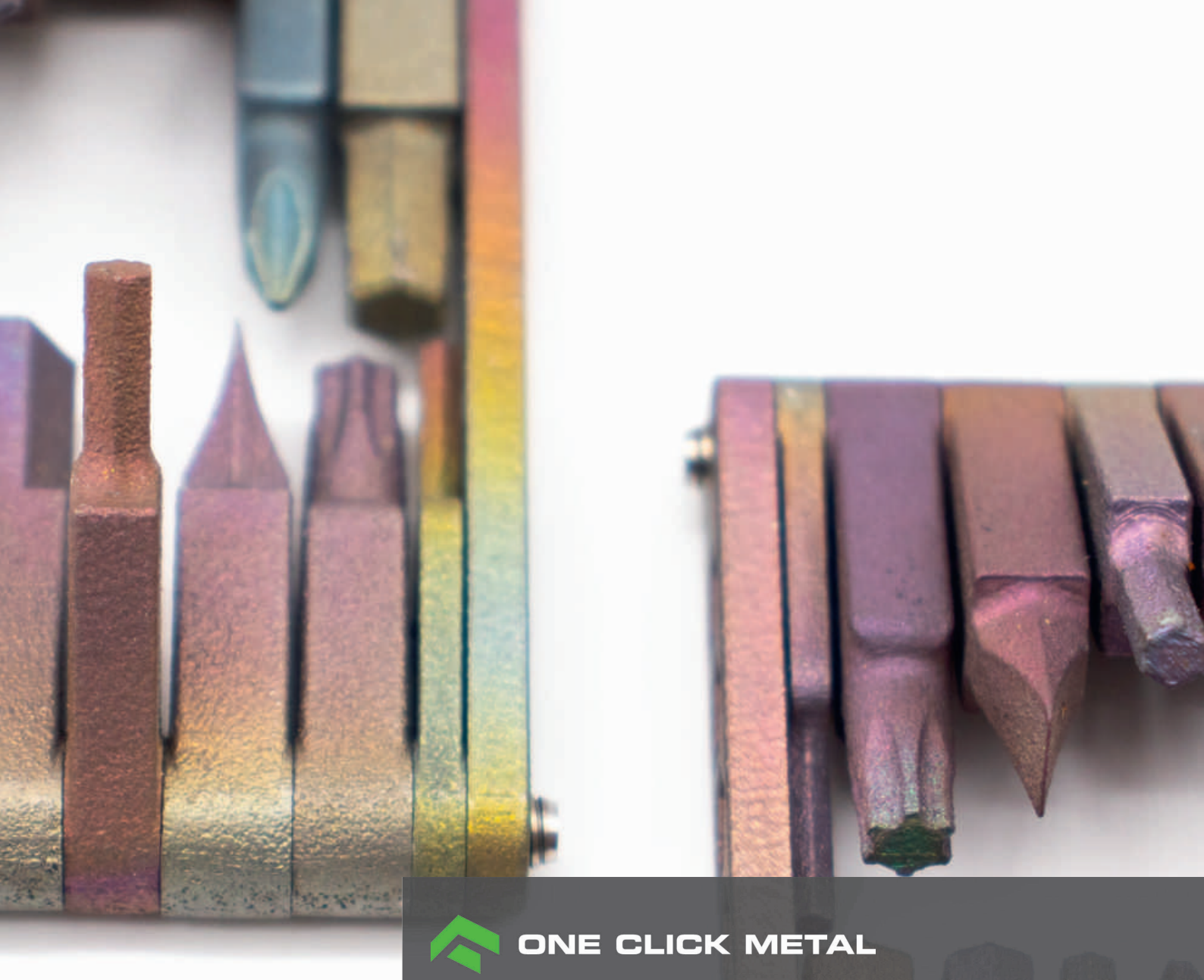


ONE CLICK METAL

Titanium Ti-6Al-4V grade 23

MATERIAL DATA SHEET

www.oneclickmetal.com

2024.04

Titanium Ti-6Al-4V Grade 23

The material Ti-6Al-4V grade 23, is a light weight, high strength, corrosion resistant Titanium alloy. The presence of Al and V keeps this microstructure of the alloy stable at both lower and higher temperatures. The reduced presence of oxygen content in the grade 23 alloy improves the corrosion resistance of the alloy. Apart from having an industrial application due to the high weight to strength ratio, this alloy is also bio compatible making it an important alloy in the medical field.

Properties

- High strength and toughness
- Light weight
- Excellent corrosion resistance
- Bio compactible

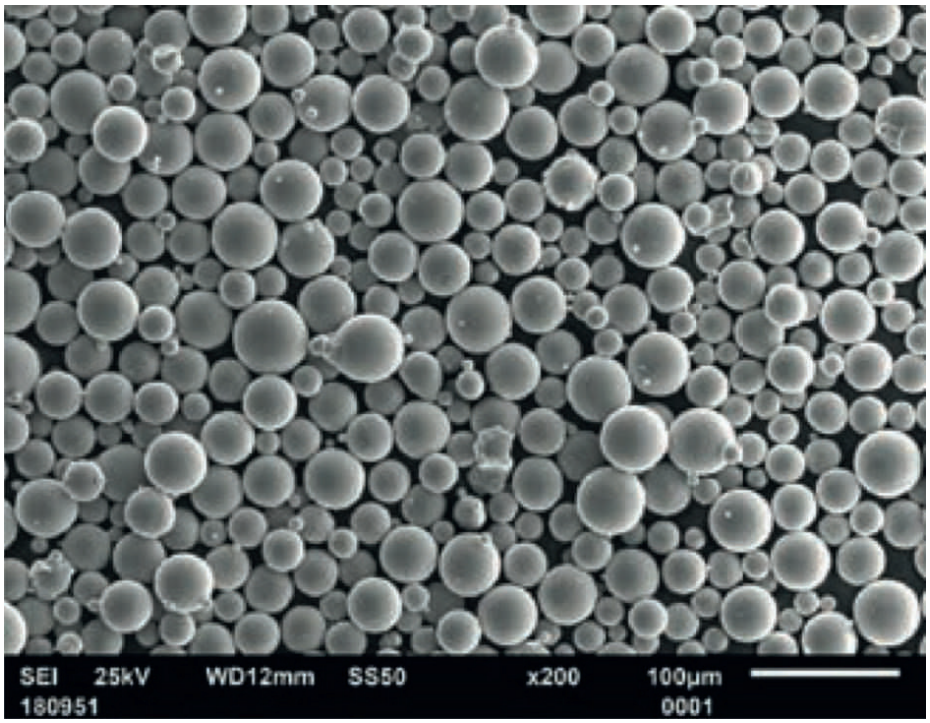
Application example

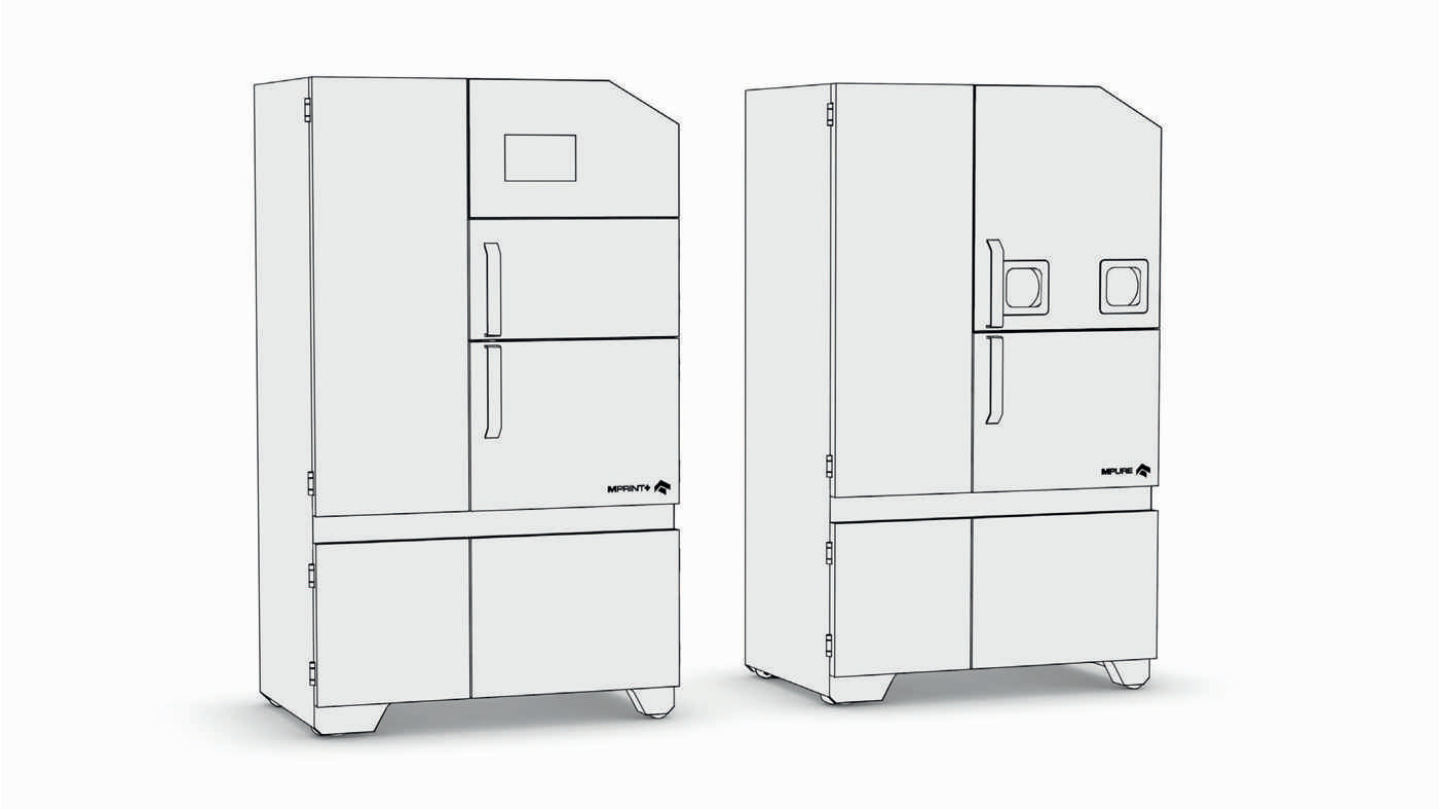
- Aviation and aerospace
- Automotive industry
- Medical implants
- Jewellery

Powder Properties

Powder chemical composition (wt.-%)

Element	Min.	Max.
Ti	Balance	
Al	5.5	6.5
V	3.5	4.5
Fe	<0.25	
O	<0.13	

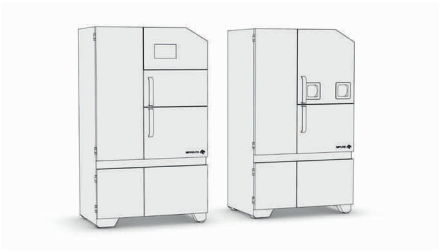




Process Information

The powder titanium Ti-6Al-4V provided by One Click Metal is optimized for the production of robust components with MPRINT and MPUREpro of the BOLDseries.

System set-up	MPRINT
Parameter	TiAl6V4 30µm
Software	Netfabb
Powder part-no.	TiAl6V4
Layer thickness	30µm
Coater	X-lip
Inert gas	Argon
Sieve	80µm



Physical & mechanical properties

Among the various mechanical properties, elongation of break is an important property for Ti-6Al-4V applications. In the as built conditions, the average elongation of break is ca. 10%. Ti-6Al-4V is a heat treatable alloy and based on the heat treatment procedure followed the elongation of break can be improved as high as ca. 22%.

Physical properties

Defects	Results
Average defect [%]	<0.1

Mechanical properties ISO6892-1 (as built)

Vertical	Yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m [MPa]	Elongation at break A [%]
Average	784	1022	15.6
Standard deviation	35	7	1.2
Relative deviation	4.4	0.7	7.6

Surface quality (measured along the z-axis)

As built	Ra [µm]	6.453
	Rz [µm]	28.723
Blasted	Ra [µm]	3.456
	Rz [µm]	13.110