METALS FOR PRINTING

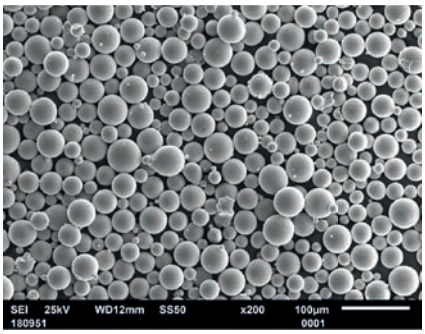
m4p Ti64 grade23

Metal powder for laser-based powder bed fusion

Description, properties and application

m4p™ Ti64 grade23 is a Ti6Al4V ELI alloy, which is suitable for the additive manufacturing of components in the powder bed process using laser beam and, compared to m4p™ Ti64 grade 5, is particularly limited in the maximum permissible oxygen and iron contents.
The material shows an excellent strength-to-weight ratio as well as a higher fracture toughness compared with other light metal alloys. In combination with the high corrosion resistance **m4p™ Ti64 grade23** is predestined for demanding applications. The material is used in sophisticated structures for aerospace and medical applications, which can be justified not least because of the existing biocompatibility.
A uniform microstructure can be achieved by a downstream heat treatment, which relieves internal stresses caused by the process and increases the ductility of the material.

Powder characteristics



Chemical analysis [wt%]		
Element	Min	Max
Al	5,50	6,50
V	3,50	4,50
Fe	<0,25	
O	<0,13	
Ti	Balance	

other limited elements: N, C, H

Particle size Laser PBF

Material characteristics

(>99,9% rel. density; volume rate 18 cm³/h; layer thickness 30µm; EOS M290)

Mechanical properties			
	Tensile strength Rm [N/mm²]	Yield strength Re [N/mm²]	Elongation at break A_5 [%]
as-built	1200 – 1350	1050 – 1200	<10
heat-treated*	1000 – 1100	850 – 1000	>10

* upon request

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