



MATERIAL DATA SHEET

Ti-6Al-4V ELI

This Material Data Sheet provides information and data for parts built using PyroGenesis Ti-6Al-4V ELI powder on EOSINT M 280 400W with PSW 3.6 and EOS Ti-6Al-4V ELI performance printing parameters.

TECHNICAL DATA

GENERAL PROCESS DATA

TYPICAL ACHIEVABLE PART ACCURACY

Small parts (< 80 x 80 mm)	Approx ± 30 µm
Minimum wall thickness	Approx 0.3 mm

SURFACE ROUGHNESS

As manufactured	Ra = 3 µm (0°) ± 0.3
	Ra = 14 µm (45°) ± 1.5
	Ra = 13 µm (90°) ± 1
	Ra = 21 µm (135°) ± 1.5
After shot peening	Ra = 3 µm (0°) ± 0.2
	Ra = 4 µm (45°) ± 0.3
	Ra = 4 µm (90°) ± 0.2
	Ra = 6 µm (135°) ± 1

VOLUME RATE	18 cm ³ /h
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ACHIEVABLE DENSITY	Approx. 4.41 g/cm ³ (99.9%)
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HARDNESS (MIN, STRESS RELIEVED)	28 HRC ± 1
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MECHANICAL PROPERTIES OF PARTS AT 20°C (68°F)

TENSILE STRENGTH	AS BUILT	STRESS-RELIEVED¹
In horizontal direction (XY)	1250 MPa ± 15	1200 MPa ± 50
In vertical direction (Z)	1450 MPa ± 15	1100 MPa ± 10
YIELD STRENGTH (Re a 0.2%)		
In horizontal direction (XY)	1000 MPa ± 10	900 MPa ± 15
In vertical direction (Z)	1000 MPa ± 15	900 MPa ± 10
ELONGATION AT BREAK		
In horizontal direction (XY)	~ 10% ± 1	~ 13.5% ± 1
In vertical direction (Z)	~ 10% ± 1	~ 13.5% ± 1
MODULUS OF ELASTICITY		
In horizontal direction (XY)	Typ. 110 GPa ± 3	
In vertical direction (Z)		

¹ Stress-relief heat treatment: 4 hours at 800°C, Argon

These results are based on a study conducted by a third party using standard PyroGenesis' Ti-6Al-4V Gr.23 (ELI) -53/+20 µm on an EOSINT M 280 400W with PSW 3.6 and EOS Ti64 performance printing parameters. All values above are averaged over at least one (1) measurement per sample made on at least three (3) samples, with each sample producing coupons specifically designed to measure certain properties. They were not parts dedicated to a specific application or usage and values obtained by users might differ from those specified above depending on a variety of factors, such as the measurement methods used, the feed material preparation and post-processing procedures, etc.

This Material Data Sheet should be considered as guidelines only, and do not on their own provide a sufficient basis for designing parts or any guarantee by PyroGenesis about the specific properties of a part or the suitability of a part for a specific application. It is the responsibility of a purchaser or producer of a part to check the properties and suitability of a part for a particular application. This Material Data Sheet is subject to change without notice, due to PyroGenesis' commitment to continuously improve its array of products.

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