

Description (Filament: VICTREX AM™ 200 Fil ; Printer: IEMA 3D MAGIC-HT-PRO)

Description of VICTREX AM™ 200 Fil :

High performance thermoplastic material, PolyArylEtherKetone (PAEK), semi crystalline, filament for Additive Manufacture by filament fusion and other melt extrusion 3D printing processes.

Colour natural/beige.

Additive manufacturing processing. Filament Fusion printed parts, to achieve improved printed part strength and printability compared to PEEK polymer on most machines. For use in higher temperature applications and chemically aggressive environments. Low outgassing, suitable for sterilisation.



Description of IEMA 3D MAGIC-HT-PRO :

IEMA high-performance material 3D printer MAGIC-HT-PRO is a 3D printing device designed for fused filament fabrication (FFF) technology. It has a printing temperature of 500 °C, hot bed temperature of 200 °C and chamber temperature of 120 °C and supports most popular polymer based 3D printing filaments in the market, including specialty engineering plastic such as PEEK, PEKK, PPSU and PEI, etc. It is equipped with a detachable dual printing head which enables easy maintenance and two-filament printing. The printing head is equipped liquid cooling system with improved heat dissipation and heat insulation. The tool drawer and moisture-proof material cabinet are integrated at the pedestal. The machine can move freely by wheels. In addition, MAGIC-HT-PRO also has functions such as material-shortage reminder, power failure recovery, WIFI control and Snap-on bed plate.



Printing Guide (Filament: VICTREX AM™ 200 Fil ; Printer: IEMA3D MAGIC-HT-PRO)

Materials	Drying Temp C°	Drying Time H	Extruder Temp C°	Bed Temp C°	Chamber Temp C°	Bed Glue	Print Speed mm/s	Annealing condition	Samples
VICTREX AM™ 200 Fil	120	5	365-400	100-150	60-120	Special	15-50	175 C° for 2 hours	Testing 3D Sample

According to the test : The VICTREX AM™ 200 Fil has more uniform crystallinity and can present the final products with extremely consistent colors, which makes its Z-axis performance better and its surface better. In IEMA3D's test, the tensile strength of XY axis can reach 81.6MPa, and the tensile strength of Z axis can reach 54.6MPa. Please refer to our TDS for detailed data.



TDS (Filament: VICTREX AM™ 200 Fil ; Printer: IEMA 3D MAGIC-HT-PRO)

Data were generated on ISO 527-2 1A bars.

Annealing				
No.	Test Items	Test Method	Typical Value	Max Difference
1	XY Tensile strength (MPa)	ISO 527	81.60 MPa	7.00 MPa
2	XY Elastic modulus (MPa)	ISO 527	2720.00 MPa	233.33 MPa
3	XY Elongation at break (%)	ISO 527	24.65 %	6.27 %

Unannealed				
No.	Test Items	Test Method	Typical Value	Max Difference
1	XY Tensile strength (MPa)	ISO 527	66.20 MPa	6.00 MPa
2	XY Elastic modulus (MPa)	ISO 527	2206.67 MPa	200.00 MPa
3	XY Elongation at break (%)	ISO 527	144.12 %	88.69 %

Annealing				
No.	Test Items	Test Method	Typical Value	Max Difference
1	Z Tensile strength (MPa)	ISO 527	51.20 MPa	14.00 MPa
2	Z Elastic modulus (MPa)	ISO 527	1706.67 MPa	466.67 MPa
3	Z Elongation at break (%)	ISO 527	12.08 %	1.18 %

Unannealed				
No.	Test Items	Test Method	Typical Value	Max Difference
1	Z Tensile strength (MPa)	ISO 527	54.60 MPa	3.00 MPa
2	Z Elastic modulus (MPa)	ISO 527	1820.00 MPa	100.00 MPa
3	Z Elongation at break (%)	ISO 527	12.50 %	2.34 %

Basic setting: 0.4mm nozzle, 0.2mm layer thickness, 0.8mm wall thickness, 100% filling, speed of 20mm/s, drying 120 °C for 5 hours, annealing 175 °C for 2 hours.

XY Axis setting: filling direction 0 °, printing temperature 400 °C, chamber temperature 120 °C, hot bed temperature 150 °C.

Z Axis setting: filling direction 45°/135°, printing temperature 365°C, chamber temperature 60°C, hot bed temperature 100°C.