

ePA12-CF

Technical Data Sheet

It is a material developed by eSUN and LUVOCOM based on PA12, added with 15% carbon fiber, greatly enhances the strength, rigidity and toughness of nylon, and can be used as a substitute for metal in many occasions; low water absorption rate, less affected by humidity and temperature for printing parts' dimension; self-lubricating and wear-resistant properties make it suitable for printing gears; high temperature resistance, continuous using temperature of parts can reach 120°C, short-term use temperature can reach 160°C; low shrinkage, not easy to warp and crack during printing, and the printing surface is matte and delicate.

Material Status	Mass Production			
Characteristics	<ul style="list-style-type: none"> • Low moisture absorption • High strength • High toughness 	<ul style="list-style-type: none"> • High rigidity • High impact resistance • Chemical resistance 	<ul style="list-style-type: none"> • Heat resistance • Abrasion resistance • High dimensional stability 	<ul style="list-style-type: none"> • Matte surface effect • Antistatic • Excellent printability
Applications	<ul style="list-style-type: none"> • Machinery • Chemical industry 	<ul style="list-style-type: none"> • Electrical and electronic • Robot 	<ul style="list-style-type: none"> • Drone • Automobile 	<ul style="list-style-type: none"> • Textile • Aerospace
Form	<ul style="list-style-type: none"> • Filament 			
Processing method	<ul style="list-style-type: none"> • 3D Print, FDM Print 			

	Testing method	Typical value
Physical Properties		
Density	GB/T 1033	1.24 g/cm ³
Melt Flow Index	GB/T 3682	8.91 (270°C/2.16kg)
Mechanical Properties		
Tensile Strength	GB/T 1040	108.18 MPa
Elongation at Break	GB/T 1040	9.02 %
Flexural Strength	GB/T 9341	116.58 MPa
Flexural Modulus	GB/T 9341	3335 MPa
IZOD Impact Strength	GB/T 1843	11.33 kJ/m ²
Thermal Properties		
Heat distortion Temperature	GB/T 1634	94.1 (°C,0.45MPa)
Continuous Service Temperature	IEC 60216	120 °C
Maximum (short term) Use Temperature		160 °C

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Recommended printing parameters

Extruder Temperature	270 - 300°C
Build Platform Temperature	45-60°C
Fan Speed	0%
Printing Speed	40 - 100mm/s

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2. Printing conditions may vary with different nozzle diameters

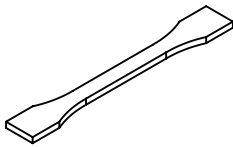
Drying Recommendations

N/A

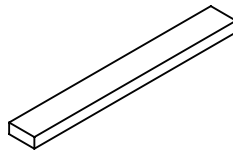
Notes

1. ePA12-CF needs to be dried (70°C/>12H) before printing to achieve the best printing effect. It is recommended to use it with the eBOX cartridge when printing.
2. The ePA12-CF line has strong rigidity and is not easy to bend. In the feeding pipe, excessive bending of the filament should be avoided as much as possible
3. ePA12-CF is very easy to grind nozzles and extruder gears. It is recommended to use hardened steel nozzles or ruby nozzles. If conditions permit, you can choose hardened steel extruder gears. If the printing time is long, the throat and nozzles need to be replaced.
4. It is recommended to set the skirt to make it better for taking the model from the forming plate.

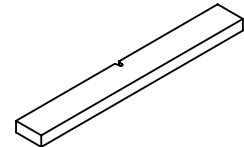
Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1043

The physical properties, mechanical properties, thermal properties, and electrical properties of the filament are obtained based on the injection molding spline test.

Print test condition:

Extruder Temperature	240-300°C
Build Platform Temperature	80°C
Outline/Perimeter Shells	4
Top/Bottom Layers	4
Infill Percentage	20%
Fan speed	0%
Printing speed	40mm/s

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2.

Notice

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