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PEBA-90A

Technical Data Sheet

PEBA is a thermoplastic elastomer composed of rigid polyamide and flexible polyether blocks, featuring excellent mechanical properties, resilience, low-temperature flexibility, and wear resistance. When used as 3D printing filament, PEBA offers stable processing diameters, prevents sticking, and outperforms TPU filaments in terms of lower density, higher resilience, faster printing speed, and broader temperature adaptability. As a high-performance thermoplastic elastomer filament, it can be widely applied in high-end shoe materials, sports equipment, medical devices, industrial components, cushioning packaging, and more.

Basic Information

Characteristics	• Excellent toughness • High resilience • Low density	• Superior wear resistance • Faster printing speed • Wide temperature adaptability
Applications	• Premium footwear • Sports equipment • Medical devices	• Industrial components • Cushioning packaging • Wearable products
Processing Method	• 3D Printing	• FDM Print

Basic Physical Properties	Test Method	Data
Density	GB/T 1033	1.01 g/cm^3
Melt Flow Index（190℃，2.16kg）	GB/T 3682	10~16 g/10min
Tensile Strength	GB/T 1040	30 MPa
Elongation at Break	GB/T 1040	>500 %
Flexural Modulus	GB/T 9341	80 MPa
Vicat Softening Point（120℃，10N）	GB/T 1633	110 ℃
DIN Abrasion	ISO 4649	<50 mm^3

Printing Performance	Test Method	Data
Tensile Strength (Z-axis)	GB/T 1040	7.5 MPa
Elongation at Break (Z-axis)	GB/T 1040	150 %
Tensile Strength (XY-axis)	GB/T 1040	>16.5
Elongation at Break (XY-axis)	GB/T 1040	>520%

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IZOD Impact Strength (XY-axis)	GB/T 1843	NB
Maximum Resilience	ASTM D2632	70 %
Maximum Volumetric Flow Rate	Spiral Vase Test	9 mm^3/s

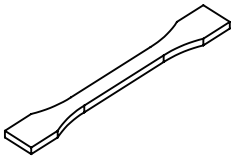
Chemical Properties	Data
Excellent chemical corrosion resistance and can withstand the erosion from automotive oils (gasoline, diesel, engine oil, etc.).	

Recommended Printing Parameters	Data
Dring Conditions	70~75 ℃，6-8 h
Nozzle Temperature	230~260 ℃（recommended: 240℃）
Nozzle Size	0.4 mm
Build Plate Material	PEI
Build Plate Temperature	60~90 ℃
Fan Speed	10~50 %
Printing Speed	25~110 mm/s

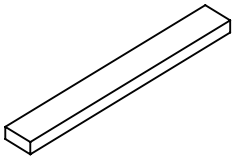
Priting Notes

1. **Drying**: Re-dry after receiving the filament. Re-dry the filament after unpacking if exposed to air for an extended period to improve print quality.
2. **Hotend**: Use a new hotend. Avoid using hotends previously used for fiber-reinforced filaments.
3. **Extruder:** Ensure no foreign objects are present and the feed gears are unworn to prevent slipping or uneven extrusion.
4. **Feed Mechanism**: Use low-resistance feeding systems (e.g., bearing-equipped spool dryers or low-resistance tray holder) for smooth extrusion。

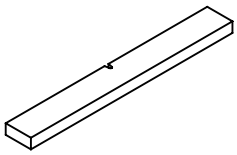
Mechanical Test Conditions



Tensile Test Specimen: GB/T 1040



Flexural Test Specimen: GB/T 9341



Impact Test Specimen: GB/T 1843

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The performance of the filament is evaluated based on standard samples printed by eSUN, while the actual printing performance is influenced by various factors such as printer type, printing parameters, and print environment.

Print Test Conditions

Nozzle Temperature	240±10 ℃
Build Plate Temperature	60~90 ℃
Wall Layers	2
Top/Bottom Layers	3
Infill Density	100%
Fan Speed	50~100%
Max Volumetric Flow	2 mm^3/s

*Based on Bambu P1S 0.4mm nozzle and Orcaslicer 2.1.0 Beta.

Notice

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