

PPS-CF

Technical Data Sheet

PPS-CF is a high-performance thermoplastic composite material consisting of polyphenylene sulfide (PPS) as the matrix and carbon fiber as the reinforcing phase. PPS itself is a semi-crystalline high-performance polymer featuring favorable mechanical strength, heat resistance, flame retardancy and chemical resistance. The incorporation of carbon fiber can further enhance the strength, stiffness, thermal conductivity and tribological properties of the material, rendering it a lightweight alternative to metallic materials and certain high-performance plastics in specific application scenarios.

Basic Information

Characteristics	• High-temperature • flame retardancy • wear resistance and low friction	• high printing precision • chemical resistance • high strength
Applications	• automotive components • tooling fixtures	• electrical components • other mechanical components
Forming Method	• Filament	
Processing Method	• 3D Printing	

Physical Properties	Testing Method	Data
Density	GB/T 1033	1.26 g/cm ³
Melt Flow Index	GB/T 3682	N/A

Thermal Properties	Testing Method	Data
Heat Distortion Temperature	GB/T 1634	220 °C (0.45Mpa)
Glass Transition Temperature		N/A
Continuous Service Temperature	IEC 60216	N/A
Maximum (short term) Use Temperature		N/A

Electrical Properties	Testing Method	Data
Insulation Resistance	DIN IEC 60167	N/A
Surface Resistance	DIN IEC 60093	N/A

15AB, Microsoft Ketong Building, No. 55, Gaoxin South Nine Road, Yuehai Street, Nanshan District, Shenzhen, China

Tel: (086)-0755-86581960

Fax: (086)-0755-26031982

Email: bright@brightcn.net

www.esun3d.com

Mechanical Properties**Testing Method****Data**

Tensile Strength (X-Y)	GB/T 1040	72.2 Mpa
Tensile Strength (Z)	GB/T 1040	16.38 MPa
Elongation at Break (X-Y)	GB/T 1040	3.89 %
Elongation at Break (Z)	GB/T 1040	2.77 %
Flexural Strength (X-Y)	GB/T 9341	114 MPa
Flexural Strength (Z)	GB/T 9341	28.8 Mpa
Flexural Modulus (X-Y)	GB/T 9341	7342.06 MPa
Flexural Modulus (Z)	GB/T 9341	1281.71 Mpa
IZOD Impact Strength (X-Y)	GB/T 1843	17.31 KJ/m ²
IZOD Impact Strength (Z)	GB/T 1843	2.48 KJ/m ²

Chemical Properties**Data**

Acid and Alkali Resistance	YES
Grease Resistance	N/A
UV Resistance	NO
Water Repellency	N/A

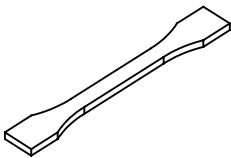
Recommended Printing Parameters**Data**

Drying Preparation	120°C > 8H
Nozzle Size	0.2,0.4,0.6,0.8mm
Nozzle Temperature	300-320°C
Build Platform Type	PEI
Build Platform Temperature	100-120°C
Fan Speed	0-50%
Printing Speed	< 300mm/s

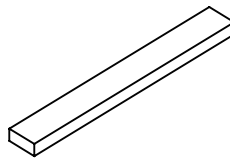
Printing Tips

When slicing, it is best to turn on the Z seam alignment and starting point alignment functions, turn off the Z-axis lift and exit, avoid passing through the shell when idling, optimize the slicing printing path, and appropriately reduce the printing speed to achieve the best printing effect.

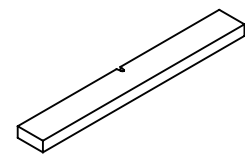
Test Conditions of Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1843

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.

Printing Test Conditions:

Extruder Temperature	320°C
Build Platform Temperature	110°C
Outer Layer Number	2
Top/Bottom Layer Number	3
Infill Density	100%
Fan Speed	0-30%

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

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