

X-CCF 1K

Thermoset-Impregnated Continuous Carbon Fiber

X-CCF 1K is a thermoset-impregnated continuous carbon fiber filament combining exceptional tensile strength and low density, compatible with common FDM thermoplastics such as PLA, PETG, and PA.

Note: Mechanical properties depend on the CFC co-extrusion matrix material.

Mechanical Properties

For standard X-CCF 1K test specimens, a small amount of CFC co-extrusion resin is required during printing. The specific mechanical properties vary depending on the CFC co-extrusion resin used. The table below lists the detailed mechanical parameters for commonly used material combinations.

Material Property	Test Standard	PLA+XCCF	PETG+XCCF
Tensile Strength (MPa)	ASTM D3039	883±156.3	859±71
Tensile Modulus (GPa)	ASTM D3039	84±3.6	82±11.7
Tensile Strain at Break (%)	ASTM D3039	0.91±0.2	1.05±0.09
Compressive Strength (MPa)	ASTM D6641	287.3±43.8	202.9±30.6
Compressive Modulus (GPa)	ASTM D6641	52.3±3.8	32.5±4.6
Compressive Strain at Break (%)	ASTM D6641	0.5±0.03	0.62±0.02
Flexural Strength (3-point) (MPa)	ASTM D790	494.1±41.5	294.2±37.7
Flexural Modulus (3-point) (GPa)	ASTM D790	40.1±2.6	33.8±1.8

Disclaimer:

The typical values provided in this data sheet are for reference and comparison purposes only and are not intended for use in design specifications or quality control. Actual values may vary depending on printing conditions.

The final performance of printed parts depends not only on the material, but also on part design, environmental conditions, and printing parameters.

