

Technical Data Sheet

PA6CF10 Filament

PA6CF10 is a FFF 3D printing filament, which is produced using a polycaprolactam modified material containing 10% carbon fiber. PA6CF10 has excellent dimensional stability, strength and rigidity, with the ability to be printable on non-heated chamber FFF 3D printers. It has excellent tensile and bending strength and allows continues use up to 180°C.

Features:

Dimensional stability/High strength/High rigidity/Temperature resistance.

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm ³	1.20~1.23
Melt Index MFR (250°C/2.16Kg)	ISO 1133	g/10min	3~6
Water Absorption (23°C/24h)	ISO 62	%	< 1
Mechanical Properties			
Tensile Strength (X-Y)	ISO 527	Mpa	63~67
Elongation at Break (X-Y)	ISO 527	%	16.5~17.5
Modulus of Elasticity (X-Y)	ISO 527	Mpa	4300~4800
Bending Strength (X-Y)	ISO 178	Mpa	140~145
Izod Impact Strength (X-Y)	ISO 180	KJ/m ²	11.5~13.5
Thermal Properties			
HDT@ 0.455 MPa (66 psi)	ISO 75	°C	200
Continuous Service Temperature	IEC 60216	°C	180

Note: The above test parameter data are obtained from actual printing, and the printed model has not been annealed.

Testing Specimen Printing Conditions:

Test Equipment	Guider IIs (Flashforge)
Nozzle Diameter	0.4mm
Nozzle Temperature	285 °C
Printing Speed	50mm/s
Wall Thickness	1.2mm
Infill	100%
Standard Testing Specimen	Specific dimensions are shown in Attachment 1

Note: The above test parameter data are obtained from actual printing, and the printed model has not been annealed.

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	270~300°C (285°C recommended)
Build Platform Temperature	90~120°C (100°C recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber board
Nozzle Diameter	φ0.4/0.6mm (φ0.4mm recommended)
Nozzle&Gear Material	High-strength steel
Cooling Fan	Turn off
Layer Thickness	0.18~0.3mm
Printing Speed	40~60mm/s (50mm/s recommended)
Travel Speed	60~120mm/s
Ambient Temperature for Printing	Room temperature~65°C
Retraction Length	2~4mm
Retraction Speed	30~50mm/s
Recommended Support Material	Self-supporting

Cautions:

In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

In case the filament has become wet, it should be dried before being used. Using a hot dry air oven at 80°C for at least 12 hours is recommended in order to ensure the success rate and quality of the printed model.

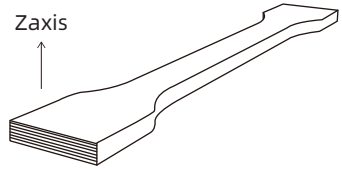
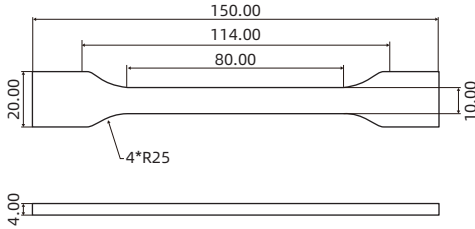
If PA6CF10 is used as the support material for itself, please remove the support structure after the model cools down. Otherwise the support structure can be permanently bonded to the model, which makes the support hard to remove.

After the printing process, it is recommended to dry the model in an oven at 80-100°C for 1-3 hours in order to increase the strength of the model.

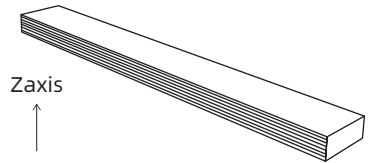
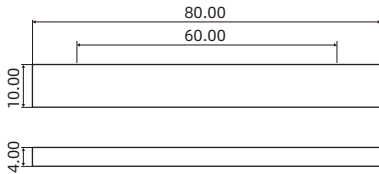
Disclaimer:

Since the conditions of use and applicable laws may vary from place to place and from time to time, customers are responsible for determining whether the products and product information in this document are suitable for customers to use, and ensuring that their workplaces and methods of handling products comply with applicable laws and other governments regulations. Our company does not assume any responsibility or obligation for the information in this document, nor does it provide any guarantee. All implied warranties regarding the saleability of the product or the applicability for a particular purpose under this document are expressly excluded here.

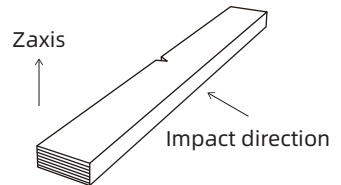
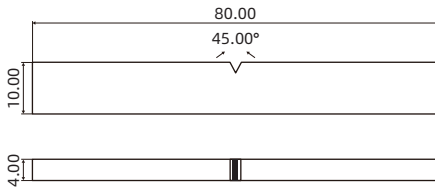
Attachment 1: Testing Specimen Size and Printing Direction



Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)



Flexural testing specimen; ASTM D790 (ISO 178, GB/T 9341)



Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)