

Technical Data Sheet

Ultrafuse PET CF 15

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General information

Components

Polyethylene Terephthalate based filament filled with 15% carbon fiber for Fused Filament Fabrication.

Product Description

PET CF15 is a Carbon Fiber reinforced PET which has precisely tuned material properties, for a wide range of technical applications. The filament is very strong and stiff and has high heat resistance. With its high dimensional stability and low abrasiveness, the filament offers an easy to print experience which allows direct printing on glass or a PEI sheet. It is compatible with HiPS for breakaway support and water soluble support and has an excellent surface finish.

Delivery form and warehousing

Ultrafuse PET CF15 filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

Product safety

Recommended: Process materials in a well ventilated room, or use professional extraction systems. For further and more detailed information please consult the corresponding material safety data sheets.

Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

Recommended 3D-Print processing parameters

Nozzle Temperature	250 – 270 °C / 482 – 518 °F
Build Chamber Temperature	-
Bed Temperature	65 – 85 °C / 149 – 185 °F
Bed Material	Glass, PEI
Nozzle Diameter	≥ 0.6 mm, Ruby or hardened
Print Speed	30 - 80 mm/s

Drying Recommendations

Drying recommendations to ensure printability	65 °C in a hot air dryer or vacuum oven for 4 to 16 hours
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Please note: To ensure constant material properties the material should always be kept dry.

General Properties

Standard

Printed Part Density	1366 kg/m ³ / 85.3 lb/ft ³	ISO 1183-1
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Thermal Properties

Standard

HDT at 1.8 MPa	80 °C / 176 °F	ISO 75-2
HDT at 0.45 MPa	108 °C / 226 °F	ISO 75-2
Glass Transition Temperature	79 °C / 174 °F	ISO 11357-2
Crystallization Temperature	204 °C / 399 °F	ISO 11357-3
Melting Temperature	245 °C / 473 °F	ISO 11357-3
Melt Volume Rate	25 cm ³ /10 min / 1.5 in ³ /10 min (260 °C, 2.16 kg)	ISO 1133

Mechanical Properties



Print direction	Standard	XY	XZ	ZX
		Flat	On its edge	Upright
Tensile strength	ISO 527	63.2 MPa / 9.2 ksi	-	12.5 MPa / 1.8 ksi
Elongation at Break	ISO 527	3.7 %	-	0.5 %
Young's Modulus	ISO 527	6178 MPa / 896 ksi	-	2822 MPa / 409 ksi
Flexural Strength	ISO 178	108 MPa / 15.7 ksi	145 MPa / 21.0 ksi	19.7 MPa / 2.9 ksi
Flexural Modulus	ISO 178	5452 MPa / 791 ksi	6293 MPa / 913 ksi	2253 MPa / 327 ksi
Flexural Strain at Break	ISO 178	3.7 %	2.8 %	0.9 %
Impact Strength Charpy (notched)	ISO 179-2	5.4 kJ/m ²	4.8 kJ/m ²	0.5 kJ/m ²
Impact Strength Charpy (unnotched)	ISO 179-2	27.8 kJ/m ²	32.0 kJ/m ²	1.3 kJ/m ²
Impact Strength Izod (notched)	ISO 180	5.7 kJ/m ²	5.0 kJ/m ²	2.0 kJ/m ²
Impact Strength Izod (unnotched)	ISO 180	25.1 kJ/m ²	22.6 kJ/m ²	2.4 kJ/m ²