

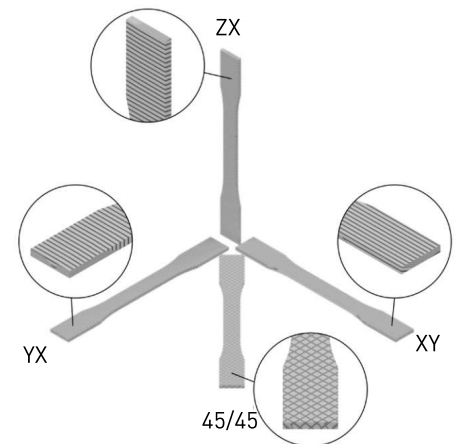
**LUVOCOM® 3F PET CF 9780 BK****Polyethylene Terephthalate PET****15% Carbon Fiber Reinforced, Black****Description**

LUVOCOM 3F PET CF 9780 BK is a polyethylene terephthalate (PET) reinforced with 15% carbon fiber by weight, which was specially developed for 3D printing. The temperature resistance of PET is significantly higher than that of PETG. It is the easiest to print fiber-filled material on the market, as warping is non-existent. Very good mechanical key figures and very good surface qualities on the printed part characterize the material. The very low moisture absorption offers dimensionally stable components. PET is resistant to many chemicals. The filament can be printed at fast speeds and does not require a heated build chamber if there is sufficient hot-end power. Performance can be further improved by annealing.

| MECHANICAL PROPERTIES      |                   |          |      |                    |      |      |
|----------------------------|-------------------|----------|------|--------------------|------|------|
|                            | Unit              | Standard | XY   | Print Orientations |      |      |
|                            |                   |          |      | 45/45              | YX   | ZX   |
| <b>Tear Strength</b>       | MPa               | ISO 527  | 85   | 58                 | 60   | 31   |
| <b>Modulus</b>             | GPa               | ISO 527  | 9,18 | 4,67               | 4,67 | 2,5  |
| <b>Elongation @ Break</b>  | %                 | ISO 527  | 1,63 | 3,31               | 2,15 | 1,74 |
| <b>Flexural Strength</b>   | MPa               | ISO 527  | 127  | 96                 | 84   | 50   |
| <b>Flexural Modulus</b>    | GPa               | ISO 527  | 9,13 | 4,4                | 3,84 | 2,24 |
| <b>Impact Strength 1eU</b> | kJ/m <sup>2</sup> | ISO 180  | 30   | 18                 | 16   | 4    |

Results on Bambu Lab H2D at 20 mm<sup>3</sup>/s flow (parameter set "LEHVOSS series"). 0.6 mm nozzle. 100 % infill.  
 Non-annealed samples. Qualified filament quality.

| MATERIAL PROPERTIES        |                      |           |                     |
|----------------------------|----------------------|-----------|---------------------|
|                            | Unit                 | Standard  | Value               |
| Spec. Density              | [g/cm <sup>3</sup> ] | ISO 1183  | 1,40                |
| Moisture uptake            | [%]                  | ISO 62    | < 0,3               |
| HDT @ 0,45 Mpa             | [°C]                 | ISO 75    | 205                 |
| HDT @ 1,8 Mpa              | [°C]                 | ISO 75    | 156                 |
| Melting Point              | [°C]                 | ISO 11357 | 246                 |
| Glass Transition Temp.     | [°C]                 | ISO 11357 | 80                  |
| Decomposition Temperature  | [°C]                 | ISO 11358 | 350                 |
| Volume Resistivity (500 V) | [Ω]                  | EN 62631  | 1·10 <sup>11</sup>  |
| Surface Resistivity        | [Ω]                  | EN 62631  | >1·10 <sup>12</sup> |

**Properties**

- Stiff and strong
- Temperature resistant
- Chemically resistant
- Very good surface quality
- Can be printed without heated build chamber
- Stronger and higher temperature-resistant than PETG

**Material Twin**

Corresponding injection molding material: LUVOTECH® eco PBT GF20 BK. This material twin has a performance profile that leads to comparable results in injection molding to 3D printing.

**LUVOCOM® 3F PET CF 9780 BK**

**Polyethylene Terephthalate PET**  
**15% Carbon Fiber Reinforced, Black**

**LUVOCOM® 3F**  
**FILAMENT**  
 Additive manufacturing solutions

**Material handling and drying****Dry**

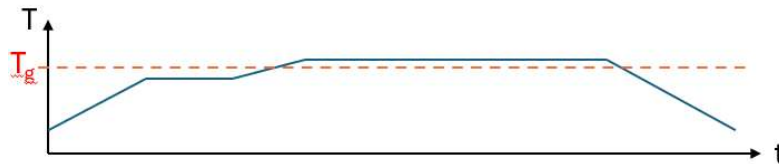
To remove residual moisture, the filament should be dried before processing. We recommend a convection oven with even temperature distribution. Duration: min. 24 h. Temperature: 90 °C.

**Keep dry**

To avoid moisture condensation on the filament surface, we recommend using a drying box. Temperature 80 °C.

**Annealing**

For printers with an unheated installation space, annealing of the components is recommended to relieve stress and ensure the full crystallinity, high strength and temperature resistance of the material. To do this, the component must be heated in a controlled manner and cooled to a temperature above the glass transition temperature:



- 1) Heat room temperature to 80 °C, 2) Hold at 80 °C, 3) Heat up to 95 °C, 4) Hold at 95 °C (1 h per mm wall thickness), 5) Cool to room temperature.

We recommend programmable drying ovens for this purpose, e.g. from the manufacturer Memmert.

**Processing****Printing Parameters**

Depending on the printing platform and equipment: Temp.: 300 to 350 °C, Flow: 0.95 to 1, Ø nozzle (hardened): 0.4 to 0.6 mm (recommended for process reliability: 0.6 mm), Layer thickness: 0.2 to 0.4 mm. Print parameter sets for different printers on request.

**Pressure plate**

The material can be printed on almost all build plates. We recommend printing plates from the manufacturer 3D-MATT.

**Support materials**

The material is compatible with PVA, BVOH, HIPS and PVOH support materials.

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