

## CPE CF112 Carbon

### Description:

Material used for production of CPE CF112 Carbon is optimized for the best results in FDM 3D printing technology. The material used for CPE HG100 filament is reinforced with milled carbon fibres to improve some properties.

This material is optimal for applications with long-term load. It has higher wear resistance, heat distortion temperature, hardness and chemical resistance in comparison with CPE HG100.

The contained fibres ensure functionality, great printability, dimensional stability and layer adhesion. The objects have nice smooth surface.

It may be used for production of electrical and electronic equipment. It doesn't contain the restricted substances. The use for application that come into contact with food is not recommended.

For filaments with fillers, Fillamentum guarantees dimensions within the tolerance of +/- 0,10 mm, which is strictly controlled throughout the production.

The material contains milled carbon fibres 100 µm long.

**Note:** The CPE CF112 Carbon filament has abrasive properties. It means that it will accelerate the nozzle-wear of brass nozzles faster than unfilled filaments. The hardened steel nozzles are recommended.

| Physical properties | Typical Value                        | Test Method | Test Condition |
|---------------------|--------------------------------------|-------------|----------------|
| Material density    | 1,16 g/cm <sup>3</sup>               |             |                |
| Diameter tolerance  | ± 0,10 mm                            |             |                |
| Weight              | 600 g of filament<br>(+ 250 g spool) |             |                |

| Mechanical properties  | Typical Value           | Test Method | Test Condition      |
|------------------------|-------------------------|-------------|---------------------|
| Tensile strength       | 52,4 MPa                | ISO 527     | at yield, 50 mm/min |
|                        | 37,7 MPa                | ISO 527     | at break, 50 mm/min |
| Elongation             | 8,0 %                   | ISO 527     | at break, 50 mm/min |
| Tensile modulus        | 2200 MPa                | ISO 527     | 0,15 mm/min         |
| Charpy impact strength | 105,9 kJ/m <sup>2</sup> | ISO 179     | 25 °C, unnotched    |
| Hardness               | 77 Shore D              | ISO 7619    |                     |

| Chemical properties   | Typical Value | Test Method | Test Condition |
|---|---------------|-------------|----------------|
| Polymer base  | co-polyester  |             |                |
| Resistance against acids, alkalis, alcohols                         | good          |             | 25 °C          |
| Resistance against water, acetone, oils, greases, car fluids, ozone | medium to low |             | 25 °C          |

| Printing properties | Recommended    | Notes  |
|---------------------|----------------|--|
| Print temperature   | 250-270 °C     | Recommended settings!<br>It may differ according to the printer and the object.        |
| Hot pad             | 70-85 °C       | Try your own settings before printing.   |
| Bed adhesive        | Magigoo, 3Dlac | Use of adhesive is necessary to prevent damage of the pad!                             |
| Part cooling fan    | 0-15 %         | Higher part cooling fan speed is recommended only for supports, bridges and overhangs. |
| Speed of printing   | 20-40 mm/s     |  |

Workability of 3D printing filament is at least 12 months from delivery.

The information was processed with the best knowledge of the manufacturer and it is for information only.