

# TECHNICAL DATA SHEET

V1.0



## FIBERON™ PPS-CF10

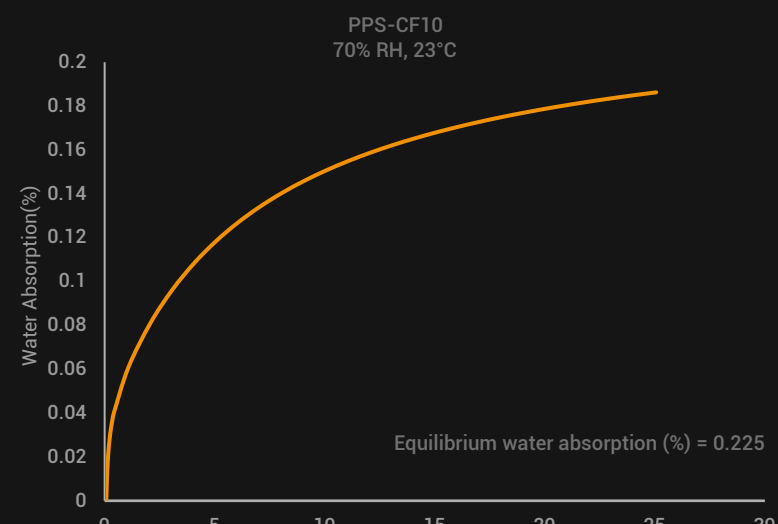
Fiberon™ PPS-CF10 is a carbon fiber reinforced PPS (Polyphenylene sulfide) filament, with minimal warping during printing and no need for a heated chamber. With exceptional mechanical strength, high heat resistance, chemical resistance, V0 flame retardancy, and moisture insensitivity, it's specifically designed for professionals operating in extreme conditions.

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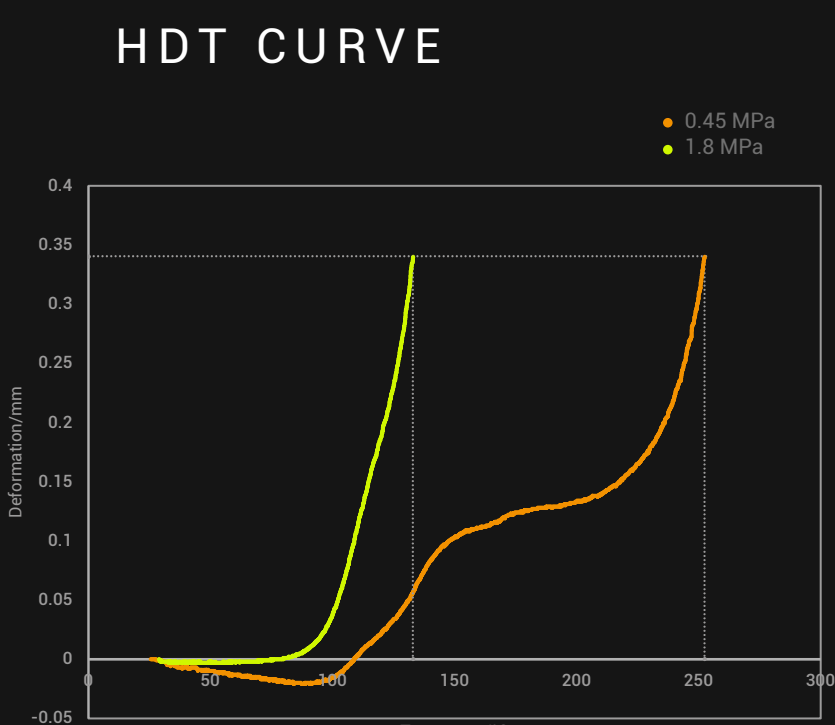
### PHYSICAL PROPERTIES

| PROPERTY                | TESTING METHOD    | TYPICAL VALUE                  |
|-------------------------|-------------------|--------------------------------|
| Density                 | ISO1183, GB/T1033 | 1.29 g/cm <sup>3</sup> at 23°C |
| Melt index              | 300°C, 2.16 kg    | 26.2 g/10min                   |
| Flame retardancy        | UL 94, 1.5mm      | V0                             |
| Surface Resistivity (Ω) | ANSI ESD S11.11   | OL, >10 <sup>12</sup> Ω        |

### MOISTURE ABSORPTION CURVE



### HDT CURVE



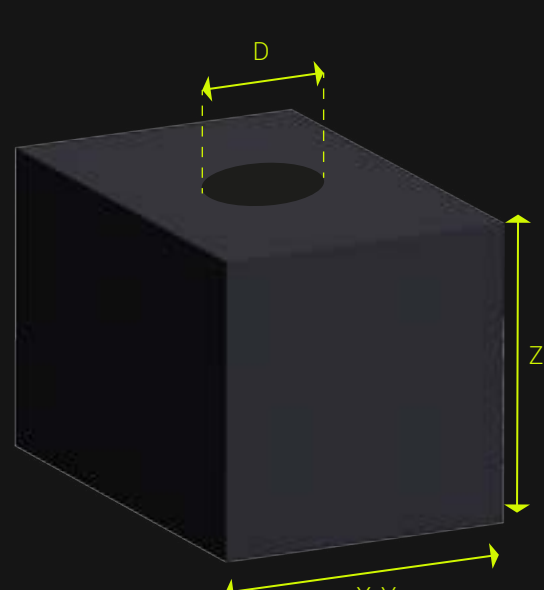
### THERMAL PROPERTIES

| PROPERTY                               | TESTING METHOD     | TYPICAL VALUE |
|--|--------------------|---------------|
| Glass transition temp.                 | DSC, 10°C/min      | 97.7 °C       |
| Melting temperature                    | DSC, 10°C/min      | 279.69 °C     |
| Crystallization temp.                  | DSC, 10°C/min      | 218.8 °C      |
| Decomposition temp.                    | TGA, 20°C/min      | 502.7 °C      |
| Vicat softening temp.                  | ISO 306, GB/T 1633 | 267.5 °C      |
| Heat deflection temp. (ISO 75 1.8MPa)  | ISO 75 1.8MPa      | 133 °C        |
| Heat deflection temp. (ISO 75 0.45MPa) | ISO 75 0.45MPa     | 252.5 °C      |

### MECHANICAL PROPERTIES

| PROPERTY                                | TESTING METHOD     | TYPICAL VALUE                |
|---|--------------------|------------------------------|
| Young's modulus (X-Y)                   | ISO 527, GB/T 1040 | 5314.1 ± 178.2 MPa           |
| Young's modulus (Z)                     | ISO 527, GB/T 1040 | 2790.0 ± 152.6 MPa           |
| Tensile strength (X-Y)                  | ISO 527, GB/T 1040 | N/A                          |
| Tensile strength (Z)                    | ISO 527, GB/T 1040 | 32.0 ± 5.1 MPa               |
| Elongation at break (X-Y)               | ISO 527, GB/T 1040 | 1.3 ± 0.1%                   |
| Elongation at break (Z)                 | ISO 527, GB/T 1040 | 1.6 ± 0.2%                   |
| Bending modulus (X-Y)                   | ISO 178, GB/T 9341 | 4646.9 ± 136.9 MPa           |
| Bending modulus (Z)                     | ISO 178, GB/T 9341 | 1947.0 ± 196.5 MPa           |
| Bending strength (X-Y)                  | ISO 306, GB/T 1633 | 94.3 ± 1.9 MPa               |
| Bending strength (Z)                    | ISO 306, GB/T 1633 | N/A                          |
| Charpy impact strength (X-Y) notched    | ISO 179, GB/T 1043 | 5.3 ± 0.2 kJ/m <sup>2</sup>  |
| Charpy impact strength (X-Y) un-notched | ISO 179, GB/T 1043 | 11.4 ± 0.7 kJ/m <sup>2</sup> |
| Charpy impact strength (Z) un-notched   | ISO 179, GB/T 1043 | N/A                          |

### SHRINKAGE TESTING



|          | MODEL SIZE | AFTER PRINTING | AFTER ANNEALING |
|----------|------------|----------------|-----------------|
| X-Y      | 40mm       | 39.95mm        | 39.96mm         |
| Z        | 40mm       | 39.94mm        | 39.90mm         |
| Diameter | 10mm       | 9.79mm         | 9.79mm          |

\*Model infill 30%

### RECOMMENDED PRINTING CONDITIONS

|                         |            |
|-------------------------|------------|
| Nozzle temperature      | 310-350 °C |
| Build plate temperature | 80-90 °C   |
| Chamber temperature     | Room temp. |
| Cooling fan             | OFF        |

|                          |               |
|--------------------------|---------------|
| Printing speed           | Up to 300mm/s |
| Drying temp. and time    | 100 °C/10H    |
| Annealing temp. and time | 125 °C/16H    |



PolySupport™ for PA12  
Recommended support material

### NOTE

Abrasion of the brass nozzle happens frequently when printing Fiberon™ PPS-CF10. A wear-resistance nozzle, such as hardened steel and ruby nozzle, is highly recommended to be used with Fiberon™ PPS-CF10. Fiberon™ PPS-CF10 should always be stored and used under dry conditions (relative humidity below 20%).

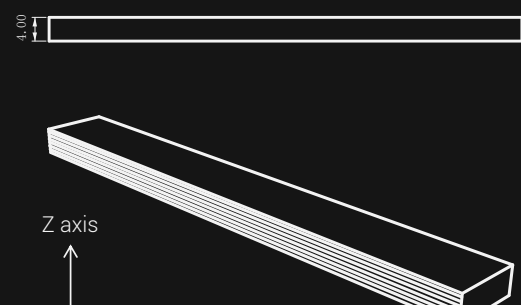
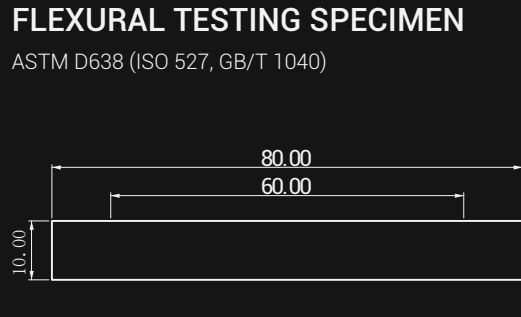
### HOW TO MAKE SPECIMENS

|                      |            |
|----------------------|------------|
| Printing temperature | 330-350 °C |
| Bed temperature      | 90 °C      |
| Top & bottom layer   | 3          |

|             |      |
|-------------|------|
| Infill      | 100% |
| Shell       | 2    |
| Cooling fan | OFF  |

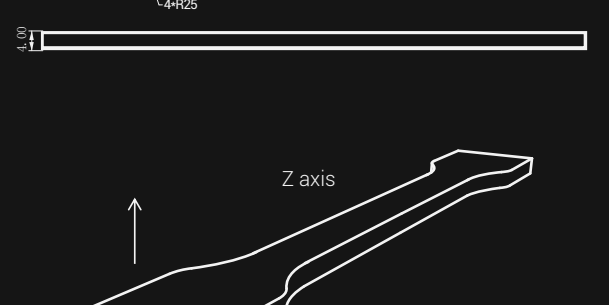
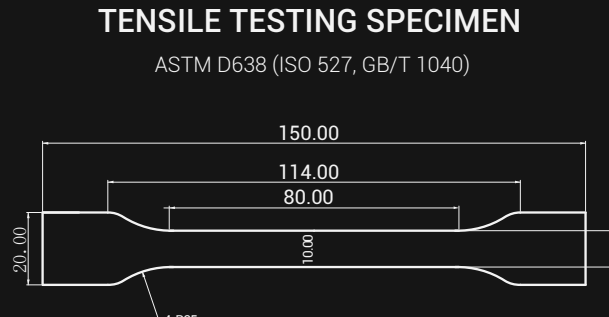
#### FLEXURAL TESTING SPECIMEN

ASTM D638 (ISO 527, GB/T 1040)



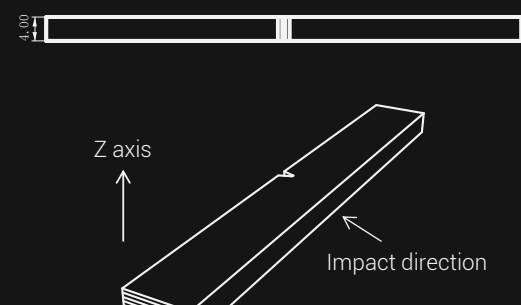
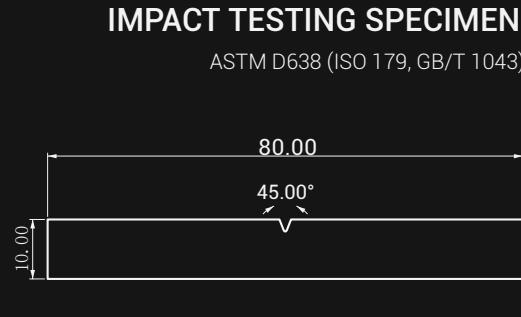
#### TENSILE TESTING SPECIMEN

ASTM D638 (ISO 527, GB/T 1040)



#### IMPACT TESTING SPECIMEN

ASTM D638 (ISO 179, GB/T 1043)



### DISCLAIMER

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice. Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Polymaker materials for the intended application. Polymaker makes no warranty of any kind, unless announced separately, to the fitness for any use or application. Polymaker shall not be made liable for any damage, injury or loss induced from the use of Polymaker materials in any application.

### MATERIALS COMPARISON

Heat resistance - Stiffness

