

Technical datasheet

Prusament PA11 Carbon Fiber by Prusa Polymers



Identification

Trade Name	Prusament PA11 (Nylon) Carbon Fiber
Chemical Name	Polyamide 11 filled with carbon fibers
Usage	FDM/FFF 3D printing
Diameter	1.75 ± 0.04 mm
Manufacturer	Prusa Polymers a.s., Prague, Czech Republic

Recommended print settings

Nozzle Temperature [°C]	285 ± 5
Heatbed Temperature [°C]	110 ± 10
Print Speed [mm/s]	up to 100
Cooling Fan Speed [%]	20
Bed Type	special PA Nylon spring sheet treated with clean water
Additional Info	A hardened nozzle is necessary. The brim is recommended for larger objects.

Typical material properties

	Typical Value	Method
MFR [g/10 min]	not applicable	ISO 1133
MVR [cm ³ /10 min]	not applicable	ISO 1133
Density [g/cm ³]	1.11	ISO 1183
Moisture Absorption in 24 hours [%](1)	0.20	Prusa Polymers
Moisture Absorption in 7 days [%](1)	0.50	Prusa Polymers
Heat Deflection Temperature (0.45 MPa) [°C]	192	ISO 75
Heat Deflection Temperature (1.80 MPa) [°C]	152	ISO 75
Tensile Yield Strength for Filament [MPa]	61 ± 3	ISO 527
Hardness - Shore D	77	Prusa Polymers
Interlayer Adhesion [MPa]	20 ± 5	Prusa Polymers

(1) 24 °C; humidity 22 %

Mechanical properties of 3D printed testing specimens(2)

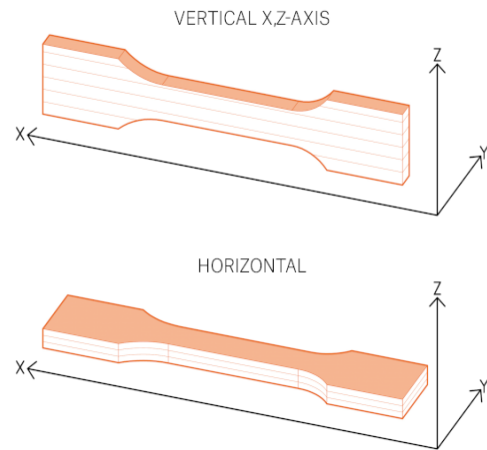
Property\Print Direction	Horizontal	Vertical xz	Method
Tensile Yield Strength [MPa]	42 ± 1	49 ± 2	ISO 527-1
Tensile Modulus [GPa]	2.5 ± 0.1	3.3 ± 0.1	ISO 527-1
Elongation at Yield Point [%]	3.3 ± 0.2	2.6 ± 0.3	ISO 527-1
Flexural Strength [MPa]	63 ± 2	103 ± 3	ISO 178
Flexural Modulus [GPa]	3.0 ± 0.1	6.2 ± 0.3	ISO 178
Deflection at Flexural Strength [mm]	11.8 ± 0.3	11.6 ± 0.4	ISO 178
Impact Strength Charpy [kJ/m ²](3)	30 ± 4	51 ± 4	ISO 179-1
Impact Strength Charpy Notched [kJ/m ²](4)	12 ± 2	17 ± 1	ISO 179-1

(2) Original Prusa i3 MK3S/S+ 3D printer was used to print testing specimens. Slic3r Prusa Edition 2.4.2 was used to create G-code following settings:

Prusament PA11 Carbon Fiber Filament;
Print Settings 0.20 mm FAST (layers 0.20 mm);
Solid Layers Top: 0, Bottom: 0;
Perimeters: 2;
Infill 100% rectilinear;
Infill Print Speed 100 mm/s;
Nozzle Temperature 285 °C all layers;
Bed Temperature 110 °C all layers;
Other parameters are set as default.

(3) Charpy Unnotched - Edgewise direction of blow according to ISO 179-1

(4) Charpy notched - Edgewise direction of blow according to ISO 179-1



Disclaimer:

The results presented in this data sheet are just for your information and comparison. Values are significantly dependent on print settings, operator experiences, and surrounding conditions. Everyone has to consider the suitability and possible consequences of printed parts usage. Prusa Polymers can not carry any responsibility for injuries or any loss caused by using Prusa Polymers material. Before using Prusa Polymers material read properly all the details in the available safety data sheet (SDS).