



COMPOSITE MATERIALS *for*  
ADVANCED INDUSTRIALS

## Nanovia PA-6 CF :

*Carbon fiber reinforced*

Nanovia PA-6 CF is a polyamide-6 reinforced with carbon fibres. The added fibres allow for less retraction during the printing process and faster printing speeds compared to native polyamide. Characterized by its progressive rupture and good temperature resistance (+/- 100°C), polyamide is widely used in various industries for everyday items for its mechanical and chemical properties.

### Advantages

- Heat resistant
- Chemical resistance
- Shock absorption
- Speed and ease of printing

### Application recommendations

Polyamide is a semi-crystalline polymer, and is sensitive to humidity and oxidation due to its polar groups at high temperatures. Both mechanical and dimensional properties can be affected by the storage and printing conditions.

### Storage

- Store in airtight container with desiccant, out of direct sunlight.
- Dehydrate for 6 h at 100 °C prior to printing.

### Printing

- A reinforced nozzle, suitable for abrasive materials is recommended.
- Adhesive recommended when printing on glass surfaces.

### Properties

#### 3D Printing

Extrusion temperature	240 – 260 °C	
Plate temperature	80 – 100 °C	
Enclosure temperature	60 °C	
Nozzle (minimal)	0.5 mm	
Printing Speed	20 – 80 mm/s	
Diameter	1.75 & 2.85 mm	+/- 50 µm
Colour	Black	

#### Mechanical properties

##### Physical

Density	1.21 g/cm <sup>3</sup>	ISO 1183
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##### Tensile

Test performed at 1mm/min on 3D printed test specimens at 0°, along with the tension stress.

Young's modulus	5500 MPa	ISO 527-2/1A
Ultimate tensile strength	74 MPa	ISO 527-2/1A
Ultimate tensile strength elongation	2.9 %	ISO 527-2/1A

Health and safety

Printing

- Standard PPE recommended (dust mask, gloves)

Post treatment

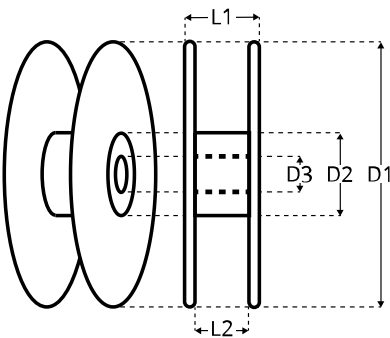
- We recommend wearing standard safety equipment during the post treatment of your prints made with Nanovia PA-6 CF.

Certifications

- Certification RoHS Nanovia PA-6 CF :



Packaging



Vacuum packed spools, with desiccant, packed in individual boxes with engraved serial number.

Other formats available on demand.

Spool	L1	L2	D1	D2	D3	Weight
500g	53	46	200	90	52	182 g
2kg	92	89	300	175	52	668 g

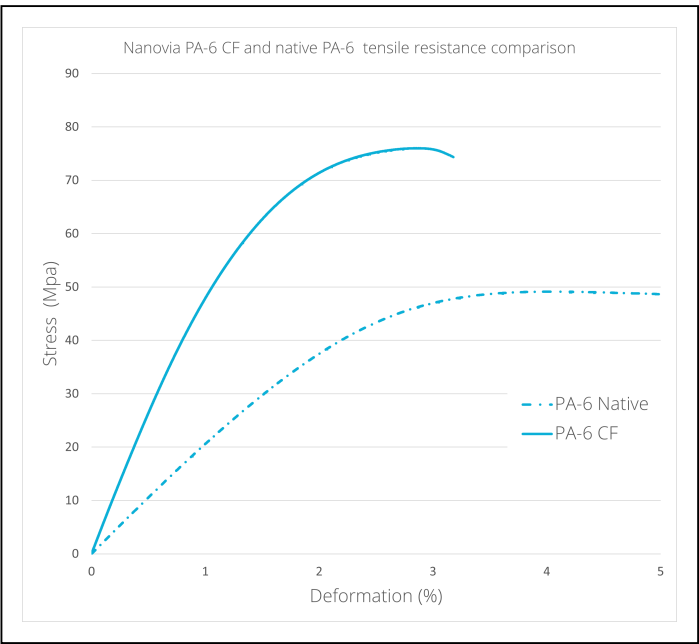
[www.nanovia.tech/ref/pa-6-cf](http://www.nanovia.tech/ref/pa-6-cf)

Test performed at 1mm/min on 3D printed test specimens successively at 45° and -45° per layer.

Young's modulus	4675 MPa	ISO 527-2/1A
Ultimate tensile strength	77 MPa	ISO 527-2/1A
Ultimate tensile strength elongation	3.2 %	ISO 527-2/1A

Test performed at 1mm/min on 3D printed test specimens at 90°, oposite to the tension stress.

Young's modulus	2140 MPa	ISO 527-2/1A
Ultimate tensile strength	36 MPa	ISO 527-2/1A
Ultimate tensile strength elongation	4.5 %	ISO 527-2/1A



Thermal properties

VICAT	190 °C	ISO 306 – 50° C/h – 50N
HDT – A	50 °C	ISO 75 1.80 MPa MN/m <sup>2</sup>
HDT – B	140 °C	ISO 75 0.45 MPa MN/m <sup>2</sup>
Melting point	205 °C	DSC – ISO 11357-1

last updated : 25/04/2024