

# Nanovia ABS AF :Aramid fiber reinforced

Nanovia ABS AF, is an aramid fibre reinforced FFF filament suited for the creation of non-conductive, shock resistant parts that are able to withstand temperatures up to 100 °C. The less abrasive and lighter aramid fibres, compared to both carbon and glass fibres, improve the material's mechanical properties and facilitate the printing process by reducing the warping phenomenon common with ABS.

## Description

## Properties

### 3D Printing

<b>Extrusion temperature</b>	240 – 260	°C	
<b>Plate temperature</b>	100 – 110	°C	
<b>Enclosure temperature</b>	90	°C	
<b>Nozzle (minimum)</b>	0.5	mm	
<b>Printing speed</b>	20 – 60	mm/s	
<b>Diameter</b>	1.75 & 2.85	mm	+/- 50µm
<b>Colour</b>	Black		

## Mechanical properties

### Physical

**Density** 1.04 g/cm<sup>3</sup> ISO 1183

### Tensile



Results based on test specimens 3D printed at 0°, along with the tension stress.

**Young's modulus** 2410 MPa ISO 527/1A

**Ultimate strength** 30 MPa ISO 527/1A

**Elongation ultimate strength** 1.7 % ISO 527/1A

### Impact

**Charpy (notched)** 17.59 kJ/m<sup>2</sup>

## Thermal properties

**Tg** 110 °C

## Advantages:

- Lighter prints compared to native ABS
- Higher mechanical resistances compared to native ABS
- Low warping when printing (even less than with carbon fiber composites)
- Increased resistance to friction and shocks
- A less abrasive fiber compared to carbon and glass
- Can be smoothed with acetone

## Application recommendations

### Storage

- Store Nanovia ABS AF in a dry and dark location, if possible with a desiccant.
- In order to guarantee good printing conditions dehydrate Nanovia ABS AF at 60 °C for 4 hours or longer, when the spools has been exposed to moisture for an extended period.

### Printing

With it's printing settings close to standard, the Nanovia ABS AF filament can be used on most commercially available 3D printers.

- Extrusion temperature : between 240 and 260 °C
- Heated bed temperature : between 100 and 110 °C
- Enclosure temperature : 90 °C
- In order to protect your equipment we recommend using a nozzle adapted for abrasive materials.

## Post treatment

- For an outdoor usage, we recommend that you paint your print or submit them to an anti UV treatment, such as our Nanovia smoothing solution. Aramid fibers and ABS are sensitive to UV radiation.

## Health and safety

### Printing

- We recommend printing Nanovia ABS AF in a room equipped with air extraction or by using appropriate breathing equipment. Whilst printing ABS produces a VOC derivative of styrene.

### Post treatment

- We recommend wearing standard safety equipment during the post treatment of your prints made with Nanovia ABS AF.

### Certifications

Certification RoHS Nanovia ABS AF :

## Packaging

Spools are packed in individual boxes, vacuum sealed with desiccant. Spools are equipped with both a material traceability and a production series number. Other sizes available up to 25kg 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