PA11 Carbon Fiber

Material's Technical Data Sheet

One of the strongest and most versatile materials available on the powder market dedicated to SLS printing technology.

Compatible with: [Lisa Pro] [Lisa 400] [NILS 400]

FEATURES

- best tensile and flexural strength
- best thermal resistance
- good impact resistance
- high stiffness
- good elongation at break
- good surface quality
- good chemical resistance

APPLICATIONS

- automotive (high performance parts, metal replacement parts)
- universities/labs (mechanical, composites)
- extreme applications (motorsports, lightweight structures, temperature)
- maintenance and Repair
- medical - prosthesis
- aerospace models

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material refreshing ratio$^1$</td>
<td>40%</td>
</tr>
<tr>
<td>Nitrogen needed</td>
<td>Yes</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>100 MPa</td>
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<tr>
<td>Tensile Strength</td>
<td>81 MPa</td>
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<tr>
<td>Tensile Modulus (Young)</td>
<td>2950 MPa</td>
</tr>
<tr>
<td>Impact strength (Charpy - unnotched)</td>
<td>113.65 kJ/m²</td>
</tr>
<tr>
<td>Heat Deflection Temperature at 1.8 MPa / 0.45 MPa</td>
<td>170/191°C</td>
</tr>
</tbody>
</table>

1. Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material.

Information provided within this document are average values for reference and comparison only. All tests were performed with print samples from Lisa/Lisa Pro printers. Parameters presented in this specification are subject to change. Final part properties may vary based on printed part design and print orientation. All mechanical tests were carried out on samples conditioned to ISO standards only, at (23±2)°C and (50±5)% r. h.
PA 11 Carbon Fiber vs PA 11 Onyx

**Flexural Strength [Mpa]**

- PA 11 Carbon Fiber: 100
- PA 11 Onyx: 50
- **Increase:** 61%

**Tensile Strength [Mpa]**

- PA 11 Carbon Fiber: 75
- PA 11 Onyx: 50
- **Increase:** 69%

**Heat Deflection Temperature at 1.8 Mpa [°C]**

- PA 11 Carbon Fiber: 180
- PA 11 Onyx: 140
- **Increase:** 315%

**Tensile Moduls [Mpa]**

- PA 11 Carbon Fiber: 3000
- PA 11 Onyx: 2000
- **Increase:** 101%