

PA12 CF

Techfil™ | 3D
Filament

TECHNICAL SPECIFICATION

DESCRIPTION

PA12 CF Everfil™ has additionally been reinforced with a 15% addition of carbon fibers (CF). It is characterized by high thermal resistance and reduced shrinkage compared to unmodified PA12 Nylon. The use of carbon fiber allows for a reduction in component mass while maintaining its high structural rigidity. The material boasts twice the tensile strength compared to PA12, higher stiffness, as well as increased thermal and chemical resistance.

TYPICAL APPLICATIONS

- **Automotive Components:** Carbon fiber-reinforced PA12 can be used in automotive parts such as air intake manifolds, fuel lines, and engine covers due to its enhanced strength, lightweight properties, and resistance to high temperatures.
- **Aerospace Components:** In the aerospace industry, PA12 carbon fiber composites are utilized for manufacturing aircraft components like structural panels, brackets, and interior parts due to their high strength-to-weight ratio and resistance to fatigue.
- **Medical Devices:** Carbon fiber-reinforced PA12 can be used in medical devices and equipment, including prosthetics, orthopaedic implants, and surgical instruments, providing strength, durability, and biocompatibility.
- **Sports Equipment:** Carbon fiber-reinforced PA12 is commonly employed in the production of sports equipment such as bicycle frames, tennis rackets, and ski poles, offering improved performance, durability, and lightweight construction.
- **Industrial Machinery:** PA12 carbon fiber composites find applications in industrial machinery for producing parts like gears, bearings, and machine housings, where high strength, stiffness, and resistance to wear are essential.

TECHNICAL PARAMETERS

PRODUCT PARAMETERS

Diameter (mm)	1,75; 2,85
Diameter tolerance (mm)	+/-0,02
Ovality tolerance (mm)	+/-0,015

PHYSICAL PARAMETERS

PARAMETR

	NOMINAL VALUE	UNIT	TEST METHOD
PHYSICAL:			
Density	1,08	g/cm ²	ISO -1183
Mould shrinkage 3,2 mm, flow	0,5-0,7	%	
Moisture absorption 23C/50%RH	0,15	%	ISO 62

MECHANICAL PROPERTIES

Tensile stress yield, 50 mm/min	63	MPA	ASTM D638
Tensile modulus, 5 mm/min	9600	MPA	ISO 527-2

Flexural stress yield, 2 mm/min	90	MPA	ISO 178
Flexural modules, 2 mm/min	9400	MPA	ISO 178
Ball indentation hardness H358/30	95	MPA	ISO 2039-1

IMPACT

Isolt impact, notched 23 °C	633	J/m	ASTM D256
Isolt impact, notched -30 °C	30	J/m	ASTM D256
Charpy impact, notched 23 °C	-30°C – 8,00 23°C -11	kJ/m ²	ISO 179/2C

RECOMMENDED PRINTING PARAMETRS

Nozzle temperature	250-270	C°
Bed temperature	90-110	C°
Cooling	0-40	%
Heated chamber	required	

The above data is illustrative, as it depends on the type of 3D printing equipment owned, the geometry of the specific print, and environmental conditions.

PACKAGING

The filament is produced on spools weighing 1.0 kg, 2.5 kg, and 5.0 kg. The spool is vacuum-packed in a bag made of high barrier moisture barrier foil and secured with a cardboard box. An additional advantage is the possibility of multiple openings of the 1.0 kg spool bag.

Weight netto/brutto

1,0 kg spool	1,00 /1,42
2,5 kg spool	2,50/ 3,30
5,0 kg spool	5,00 / 5,90

Dimensions of the spool (mm)

	∅ external/ height/ hole
1,0 kg spool	200/68/52
2,5 kg spool	300/100/52
5,0 kg spool	350/100/52

STORAGE

The filament must be stored in a sealed package in a cold and dry place.

MANUFACTURER

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