Material Information

Nylon PA 6 CF Black

Introduction

Nylon PA 6 CF Black is a carbon fiber–reinforced nylon material that is compatible with selective laser sintering. It combines the toughness and wear resistance of PA 6 with the strength and rigidity of carbon fiber, making it ideal for producing lightweight yet durable parts.

Advantages

SLS 3D printed nylon PA 6 CF Black offers a unique balance of strength, stiffness, and lightweight performance. With excellent heat resistance, wear resistance, and dimensional stability, it performs reliably in automotive, aerospace, and industrial environments.

Disadvantages

Its increased stiffness reduces flexibility, making parts more brittle than pure nylon. The material is more expensive, absorbs moisture easily, and can produce rougher surfaces.

Tolerance

±300μm or 0.3%

Recommendation

SLS 3D printed Nylon PA 6 CF Black is recommended for applications that demand high strength, stiffness, and heat resistance while keeping weight low. Designers and engineers value its carbon fiber reinforcement for producing reliable, lightweight parts that withstand mechanical stress.

Material Specifications		
Density	DIN 53466	1.04 g/cm³
Heat Deformation (0.45 MPa)	ASTM D648	214℃
Heat Deformation (1.8 MPa)	ASTM D648	210℃
Tensile Strength	ASTM D638	110MPa
Tensile Modulus	ASTM D638	10000MPa
Elongation at Break	ASTM D638	2.6%
Flexural Strength	ASTM D790	135MPa
Flexural Modulus	ASTM D790	6000MPa

Notched Impact Strength	ASTM D256	7.8 J/m
Unnotched impact strength	ASTM D256	18.3 J/m

Attention

Products printed with powdered material come with grainy surfaces. If you have a specific requirement for surface finishing, we offer 3D Plus™ service, which includes a variety of post-processing services, including vibratory smoothing and vapor smoothing, to achieve a smooth surface finish.

Applications

3DSPRO finds people using nylon PA 6 CF Black to make functional parts and prototypes in the following industries and applications:

Automotive and aerospace:
Engine covers, brackets, housings, lightweight structural components, interior fittings, UAV parts, and aerodynamic prototypes.

Industrial equipment:
Tooling fixtures, jigs, gears, mechanical housings, pump components, and wear-resistant parts for heavy-duty machinery.

Consumer electronics:
Laptop hinges, drone frames, camera mounts, protective casings, and lightweight enclosures requiring strength and precision.

Sports and lifestyle products:
Bike components, protective gear, performance equipment, and durable parts for outdoor applications.

Medical and healthcare devices:
Orthopedic supports, surgical instrument prototypes, and lightweight housings for diagnostic equipment.

Energy and utilities:
Electrical housings, connectors, and durable parts for renewable energy systems and industrial installations.