

CF6000**Properties**

CF6000 parts are components that are made of a carbon-fiber filled polyamide-12-powder that offers very high stiffness along with a comparably low density due to its filler. The properties are comparable to those of parts made of PA6 GF30, which is used for injection molding. The material properties are characterized by the following:

- Good surface quality and level of detail
- Very good thermal resilience
- High stiffness
- Low specific electrical resistance and low surface resistivity

Application

Typical application areas for CF6000 components are final products for the automotive industry or functional parts in the field of prototypes and small batch series if particularly high stiffness and thermoforming resistance is needed. The material is also very well suited for parts that need to be antistatic. Therefore, it is particularly suited for air elements and components that get in contact with highly inflammable substances. Compared to standard material, CF6000 has a comparably low thermal expansion coefficient (four times lower). Due to these characteristics, this material is very well suited for engine components where temperatures are usually around 100°C. Even under these conditions, CF6000 still proves to have a good thermal resilience.

Mechanical Properties

Material Characteristics	Unit	Along the Grain	Across the Grain
Tensile strength	MPa	72 ± 2	52 ± 2
Elongation at break	%	2 ± 1	2 ± 1
Tensile E-Modulus (x-y-direction)	MPa	6600-7100	3400-3900
Flexural E-Modulus (23°C)	MPa	5800-6300	2800-3300
Specific surface resistivity (DIN IEC 60093)	Ω	10 ³ -10 ⁵	
Specific electrical resistance (DIN IEC 60093)	Ωm	10 ⁵ -10 ⁷	
Thermal expansion coefficient	1/k	1.4*10 ⁻⁵	
Density (laser sintered)	g/cm ³	1.11-1.13	

Thermal Properties

Material Characteristics	Unit	Along the Grain	Quer zur Faser
HDT / A	°C	165-170	130-135

This data sheet contains approximate values. These values are influenced by part's geometry, additives, and environmental influences. They were developed based on current experiences and knowledge. Therefore, the above mentioned properties cannot be claimed legally binding nor can a definite purpose be derived.