

What is PA 6 GF30

PA 6 GF30 natural

PA 6, glass-fibre reinforced 30 %

PA 6 GF30 is a polyamide 6 reinforced with 30 % glass fibres. The glass-fibre reinforcement significantly increases stiffness, strength, and heat deflection temperature compared to unreinforced PA6, while reducing toughness and elongation at break.

Properties

PA 6 GF30 is a semi-crystalline, glass-fibre reinforced polyamide with high stiffness, high strength, and good dimensional stability. The glass fibres also noticeably increase the heat deflection temperature compared to unreinforced PA6.

Like all polyamides, PA 6 GF30 absorbs moisture from the environment; this somewhat improves toughness and impact resistance, while stiffness and dimensional stability decrease slightly.

Advantages

- High rigidity and strength through glass-fibre reinforcement
- High heat deflection temperature
- Good dimensional stability
- Good wear resistance

Disadvantages

- Lower toughness and elongation at break than unreinforced PA6
- Moisture absorption up to 2.0 % in standard atmosphere, causing dimensional and property changes
- Not generally declared for food contact (see FDA declaration)

Processing

PA 6 GF30 can be machined using all conventional cutting methods; due to the abrasive effect of the glass fibres, carbide tools are recommended. Good cooling via chip removal remains important to avoid softening or smearing of the surface caused by heat build-up.

For tight tolerances, we take swelling and shrinkage behaviour into account and condition the semi-finished product where required.

Typical Applications

PA 6 GF30 is used wherever high stiffness, strength, and heat deflection temperature are required at low weight, for example in mechanical engineering, vehicle construction, and aircraft construction.

- Highly loaded structural components
- Bearing and guide elements
- Components with high stiffness requirements
- Components for elevated service temperatures

Typical Properties

- High rigidity and strength
- High heat deflection temperature
- Good dimensional stability

Product Examples

- Structural components
- Bearing and guide elements
- Rigid mouldings
- Components for elevated temperatures

Typical Industries

- Mechanical Engineering
- Vehicle Construction
- Aircraft Construction
- Steel Industry

	Test Method	Unit	Value
General Properties			

	Test Method	Unit	Value
Density	DIN EN ISO 1183-1	g / cm ³	1.35
Water absorption	DIN EN ISO 62	%	2.00
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	100
Elongation at break	DIN EN ISO 527	%	5
Tensile modulus of elasticity	DIN EN ISO 527	MPa	5.000
Notched impact strength	DIN EN ISO 179	kJ / m ²	6.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	210
Shore hardness	DIN EN ISO 868	scale D	86
Thermal Properties			
Melting temperature	ISO 11357-3	°C	220
Thermal conductivity	DIN 52612-1	W / (m·K)	0.28
Thermal capacity	DIN 52612	kJ / (kg·K)	1.50
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	60
Service temperature, long term	Average	°C	-30 ... 110
Service temperature, short term (max.)	Average	°C	180
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	140