

What is POM-C GF25 black

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POM-C, glass-fibre reinforced 25 %

POM-C GF25 black is a polyoxymethylene copolymer reinforced with 25 % glass fibres. The reinforcement significantly increases stiffness, strength and heat deflection temperature compared to unreinforced POM-C and reduces thermal expansion and creep – with the low moisture absorption typical of POM.

Properties

POM-C GF25 black achieves a tensile modulus of 4,500 MPa and a heat deflection temperature of 160 °C; the coefficient of linear thermal expansion of $30 \cdot 10^{-6}/K$ is close to that of metals, enabling dimensionally stable parts over a wide temperature range. The low creep tendency allows permanently loaded structural parts, the low moisture absorption (0.2 %) stable dimensions in humid environments.

The glass fibres make the material brittle (elongation at break 3 %) and abrasive to tools; properties are direction-dependent according to fibre orientation. The material is available in black only and is not declared for food contact.

Advantages

- High stiffness and strength due to glass fibre reinforcement
- High heat deflection temperature (HDT 160 °C)
- Low thermal expansion, low creep
- Low moisture absorption, good dimensional stability

Disadvantages

- Brittle behaviour, low elongation at break
- Abrasive to tools, direction-dependent properties
- Not generally declared for food contact (see FDA declaration)

Processing

POM-C GF25 black is one of the easiest engineering plastics to machine: sawing, turning, milling, drilling and thread cutting are straightforward with carbide tools – HSS tools are not recommended because of the abrasive glass fibres –, chips break short and surfaces come out clean. Good cooling via chip removal avoids heat build-up.

For tight tolerances and thick-walled parts, we recommend intermediate annealing to relieve machining stresses; the low moisture absorption makes conditioning unnecessary.

Typical Applications

POM-C GF25 black is used wherever stiff, dimensionally stable and permanently loadable components are required – for example in mechanical engineering, conveyor technology and the electrical industry.

- Stiff structural and housing parts
- Gears and guides under permanent load
- Fixtures and insulating parts with high heat deflection temperature

Typical Properties

- High stiffness due to glass fibre reinforcement
- High heat deflection temperature
- Low creep

Product Examples

- Structural and housing parts
- Gears and guides
- Fixtures and insulating parts

Typical Industries

- Mechanical Engineering
- Conveyor Technology
- Electrical Industry

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.58
Water absorption	DIN EN ISO 62	%	0.20
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	65
Elongation at break	DIN EN ISO 527	%	3
Tensile modulus of elasticity	DIN EN ISO 527	MPa	4.500
Notched impact strength	DIN EN ISO 179	kJ / m ²	4.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	195
Shore hardness	DIN EN ISO 868	scale D	85
Thermal Properties			
Melting temperature	ISO 11357-3	°C	165
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	30
Service temperature, long term	Average	°C	-20 ... 100
Service temperature, short term (max.)	Average	°C	140
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	160