SELECTIVE LASER SINTERING

Glass Filled Nylon PA12

Glass Bead Filled PA12 for High-Performance Applications



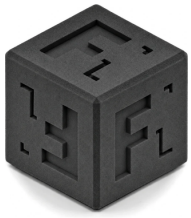
Glass Filled Nylon PA12 (PA 3200 GF) is a white polyamide 12 powder reinforced with 40% glass beads to deliver exceptional rigidity, wear resistance, and thermal performance. This advanced composite material combines the proven reliability of PA12 with enhanced mechanical properties, making it ideal for demanding applications requiring high stiffness under load, superior wear resistance, and dimensional stability at elevated temperatures.

SURFACE FINISHES



Standard Finish Natural White

Parts are depowdered by media blasting to a fine-textured matte finish in bright white. The surface is durable and uniform with well-defined detail, though the porous nature of PA12 leaves a slightly rough feel that post-processing can improve.



Deep Color Dye Enhanced Finish

DyeMansion deep colour dyeing gives a rich, uniform colour across the entire part, even on complex geometries and intricate designs. The dye also improves scratch resistance, making parts more durable in handling and use.



Vapour Finishing Smoothed Surface

Controlled chemical vapour smooths the surface texture, reducing the characteristic powder grain while keeping dimensional accuracy. Parts gain a more refined look and a smoother feel, with their structural integrity and detail preserved.



Performance Paint Premium Finish

A highly durable, automotive-grade coating, hand-finished for smooth surfaces and applied with professional-grade equipment for exceptional adhesion. It comes in matte to semi-gloss, with custom colour matching for parts that need specific branding or visual impact.

BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
340 × 340 × 600 mm	2-4 business days	0.10 mm	±0.3% (min ±0.3 mm)

MECHANICAL PROPERTIES

Glass Filled Nylon PA12 delivers high stiffness under load with good elongation at break, for engine-area covers and brackets, aerospace structural brackets and industrial machine housings that demand production-ready durability. Compare the modulus rows with standard PA12 to see what the glass beads add, and read the X/Y and Z rows together: stiffness and elongation are lower in the Z (build) direction, so orient loaded features accordingly.

The Taber abrasion row shows its resistance to sliding wear. Like all thermoplastics it creeps under long-term load, so size parts that carry constant stress with that in mind.

PROPERTY	VALUE	TEST STANDARD
Tensile Modulus (X/Y)	**3200 MPa**	ISO 527-1/-2
Tensile Modulus (Z)	**2500 MPa**	ISO 527-1/-2
Tensile Strength (X/Y)	**51 MPa**	ISO 527-1/-2
Tensile Strength (Z)	**47 MPa**	ISO 527-1/-2
Elongation at Break (X/Y)	**9 %**	ISO 527-1/-2
Elongation at Break (Z)	**5.5 %**	ISO 527-1/-2
Flexural Modulus (X)	**2900 MPa**	ISO 178
Flexural Strength (X)	**73 MPa**	ISO 178
Charpy Impact Strength, Unnotched (X)	**35 kJ/m²**	ISO 179/1eU
Charpy Impact Strength, Notched (X)	**5.4 kJ/m²**	ISO 179/1eA
Izod Impact Strength, Unnotched (X)	**21 kJ/m²**	ISO 180/1U
Izod Impact Strength, Notched (X)	**4.2 kJ/m²**	ISO 180/1A
Taber Abrasion (mass loss, 2,000 cycles)	**30 mg**	DIN 53754

THERMAL PROPERTIES

Read the heat deflection rows by load: the 0.45 MPa value suits lightly loaded parts, and the 1.8 MPa value suits loaded parts. Vicat values show softening under a point load.

For automotive and industrial parts that run warm, EOS rates PA12 parts for steady stress from −40 °C to +80 °C, and parts in this grade withstand high-temperature painting and metal coating.

PROPERTY	VALUE	TEST STANDARD
Melting Temperature (20 °C/min)	**176 °C**	ISO 11357-1/-3
HDT @ 0.45 MPa (X)	**157 °C**	ISO 75-1/-2
HDT @ 1.8 MPa (X)	**96 °C**	ISO 75-1/-2
Vicat Softening Temperature (A50, 10 N)	**179 °C**	ISO 306
Vicat Softening Temperature (B50, 50 N)	**166 °C**	ISO 306

PHYSICAL PROPERTIES

Consistent density and surface quality keep critical features in tolerance and downstream finishing predictable. The glass bead content makes parts heavier than unfilled PA12, in exchange for higher stiffness and hardness.

EOS describes high dimensional accuracy and excellent long-term constant behaviour for this grade, which suits mating features and fitted assemblies.

PROPERTY	VALUE	TEST STANDARD
Part Density	**1.22 g/cm³**	EOS method
Glass Bead Content	**40 wt%**	EOS MDS
Shore Hardness D	**80**	ISO 7619-1
Ball Indentation Hardness	**98 MPa**	ISO 2039-1
Powder Colour	**Whitish**	—
Part Colour	**Whitish**	—

CHEMICAL PROPERTIES

EOS rates its unfilled PA12 (PA 2200), the base polymer of this grade, for six months at 20 °C and four weeks at 60 °C; the glass-filled grade has no separate table. At 20 °C it resists fuels, fuel oil, brake fluid, glycol antifreeze, acetone, alcohols, aromatic solvents and sea water, while strong mineral acids attack it. The 60 °C column shows where resistance drops at elevated temperature.

Chemical ratings are screening guidance; confirm them with application-specific testing before production release.

CHEMICAL	PA12, 20 °C, 6 MONTHS	PA12, 60 °C, 4 WEEKS
Petrol (gasoline)	**Resistant**	**Resistant**
Fuel oil	**Resistant**	**Resistant**
Brake fluid	**Resistant**	**Resistant**
Glycol antifreeze	**Resistant**	**Resistant**
Silicone oil	**Resistant**	**Resistant**
Paraffin	**Resistant**	**Resistant**
Acetone	**Resistant**	**Resistant**
Sea water	**Resistant**	**Resistant**
Ethanol 100%	**Resistant**	**Practically resistant**
Methanol	**Resistant**	**Practically resistant**
Xylene	**Resistant**	**Conditionally resistant**
Toluene	**Resistant**	**Little resistant**
Acetic acid 10%	**Resistant**	**Little resistant**
Hydrogen peroxide 30%	**Resistant**	**Not tested**
Sulfuric acid 10%	**Practically resistant**	**Little resistant**
Sodium hypochlorite 5%	**Practically resistant**	**Little resistant**
Battery acid	**Little resistant**	**Not resistant**
Hydrochloric acid 10%	**Not resistant**	**Not resistant**
Nitric acid 10%	**Not resistant**	**Not resistant**

COMPLIANCE

The EOS safety data sheet lists no REACH candidate-list, Annex XIV or Annex XVII restricted substances in PA 3200 GF.

The powder contains no flame retardants, and EOS publishes no flammability rating for this grade.

STANDARD	STATUS
REACH Regulation (EC) 1907/2006 No SVHC candidate-list, Annex XIV or Annex XVII restricted substances, per the EOS safety data sheet	EOS SDS