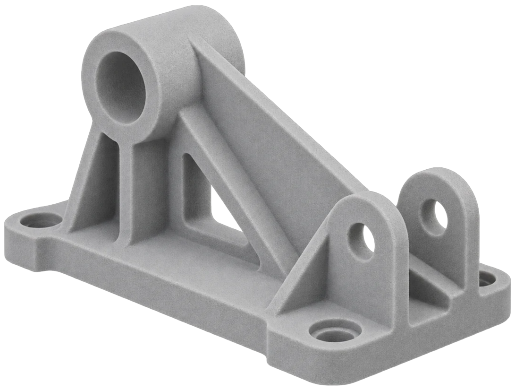
MULTI JET FUSION

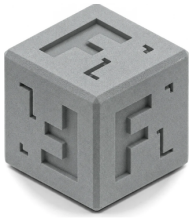
HP MJF PA12 Glass Filled

Glass Bead Filled PA12 for Stiff, Dimensionally Stable Parts

HP 3D High Reusability PA 12 Glass Beads combines Multi Jet Fusion with 40% glass bead reinforcement, delivering higher stiffness and dimensional stability than standard PA12. Ideal for housings, brackets, fixtures and tooling.



SURFACE FINISHES



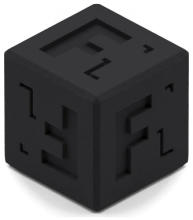
Standard Finish As-Printed

MJF parts are delivered with a standard bead-blasted finish in natural grey. Bead blasting removes excess powder and slightly smooths the surface while keeping the material's natural matte texture.



Deep Color Dye Enhanced

A specialized dye bath gives a deep, uniform black that chemically bonds with the nylon. The dye fully penetrates the surface, so unlike paint it won't chip or wear off over time.



Vapor Smoothing Premium

An advanced chemical smoothing process slightly melts and redistributes the surface material, eliminating the grainy texture and sealing porous areas for a smoother, semi-gloss finish. Fine details may soften.



Performance Paint Premium

An automotive-grade coating that enhances aesthetics and durability, hand-finished for smooth surfaces with professional-grade equipment. It comes in matte to semi-gloss, with custom colour matching for precise branding needs.

BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
380 × 284 × 380 mm	4-8 business days	0.08 mm	±0.3% (min ±0.5 mm)

MECHANICAL PROPERTIES

HP MJF PA12 Glass Filled delivers dependable stiffness for structural brackets, housings, fixtures and mounting systems, helping teams move from prototype to production with confidence. Glass bead reinforcement raises modulus well above unfilled PA12, so parts resist bending and hold critical geometries under load.

HP reports X/Y and Z values separately: tensile strength and elongation are the same in both directions, and stiffness is slightly higher in Z. Impact strength is lower than unfilled PA12 and elongation is lower in the X/Y direction, so design for rigidity rather than flex and choose HP PA12 for living hinges and deep snap-fits.

PROPERTY	VALUE	TEST STANDARD
Tensile Strength (X/Y)	**30 MPa**	ASTM D638
Tensile Strength (Z)	**30 MPa**	ASTM D638
Tensile Modulus (X/Y)	**2500 MPa**	ASTM D638
Tensile Modulus (Z)	**2700 MPa**	ASTM D638
Elongation at Break (X/Y)	**10 %**	ASTM D638
Elongation at Break (Z)	**10 %**	ASTM D638
Flexural Strength at 5% (X/Y)	**57.5 MPa**	ASTM D790
Flexural Strength at 5% (Z)	**65 MPa**	ASTM D790
Flexural Modulus (X/Y)	**2400 MPa**	ASTM D790
Flexural Modulus (Z)	**2700 MPa**	ASTM D790
Izod Impact Strength, Notched (3.2 mm, 23 °C)	**3 kJ/m²**	ASTM D256 (Method A)

THERMAL PROPERTIES

HP MJF PA12 Glass Filled maintains dimensional stability through temperature swings and repeated thermal cycling. Read heat deflection at both loads: at the lower load it matches unfilled PA12, while at the higher load the glass beads keep parts rigid to a higher temperature, the figure that matters for brackets and covers carrying load near heat sources.

The ball pressure result from UL shows the material keeps its shape under a heated indenter, which is how electrical standards judge parts that hold live components in place.

PROPERTY	VALUE	TEST STANDARD
HDT @ 0.45 MPa (X/Y / Z)	**174 / 175 °C**	ASTM D648 (Method A)
HDT @ 1.82 MPa (X/Y / Z)	**114 / 120 °C**	ASTM D648 (Method A)
Melting Point (powder, DSC)	**186 °C**	ASTM D3418
Ball Pressure Test	**170 °C**	IEC ball pressure (UL White Card)

PHYSICAL PROPERTIES

Consistent density and surface quality keep critical features in tolerance and downstream finishing predictable. The glass beads make parts denser and harder at the surface than unfilled PA12, and parts come off the build platform ready to assemble without secondary rework.

Parts print in natural grey. Particle size and bulk density describe the powder each layer is built from, not the finished part. In HP's accelerated weathering test, 1,000 hours of xenon-arc exposure left the tensile modulus unchanged while tensile strength and elongation fell, so paint or coat parts that will spend their service life outdoors.

PROPERTY	VALUE	TEST STANDARD
Part Density	**1.3 g/cm³**	ASTM D792
Glass Bead Content	**40 %**	HP data sheet
Shore Hardness D	**82**	ASTM D2240
Particle Size (powder)	**58 µm**	ASTM D3451
Bulk Density (powder)	**0.48 g/cm³**	ASTM D1895
Colour	**Natural/Grey**	—

ELECTRICAL PROPERTIES

Volume resistivity places HP MJF PA12 Glass Filled in the insulating range, suited to enclosures, connector housings and insulating features. Dielectric strength depends on the print orientation, so specify the build direction on the drawing for thin insulating walls.

PROPERTY	VALUE	TEST STANDARD
Volume Resistivity	**10^{14} Ω·cm**	UL 746A
Dielectric Strength (horizontal / vertical print)	**3.38 / 7.29 kV/mm**	UL 746A
Electrical Behaviour	**Insulating**	UL 746A

COMPLIANCE

HP holds a UL Blue Card for UL 94 HB at 0.75 mm and UL 746A short-term electrical properties, and a UL White Card for glow-wire and ball pressure, so electrical equipment reviews can start from supplier data.

HP tested printed parts for RoHS substances and PAHs, and states that no SVHC or GADSL substances are intentionally added. It is not flame retardant, and HP publishes no food-contact or biocompatibility approval for it.

STANDARD	STATUS
UL 94 flammability UL Blue Card: HB at 0.75 mm in all orientations tested; not a flame-retardant grade	HB
UL 746A (Short-term properties) Short-term electrical properties certified by UL; the material is insulating	UL Blue Card
Glow-wire and ball pressure (IEC) Glow-wire 650–725 °C depending on orientation and thickness; ball pressure 170 °C	UL White Card
RoHS Directive 2011/65/EU (amended by EU 2015/863) Printed parts tested to IEC 62321; restricted heavy metals, bromine and chlorine not detected; phthalates below 50 ppm	HP tested
EU REACH No SVHC intentionally added; registrations for import completed	HP statement
PAHs No listed PAHs detected above 1 ppb in printed parts	HP tested

GADSL (Automotive) GADSL substances not intentionally added; material data entered in IMDS	HP statement

SUPPORTING DOCUMENTS

RoHS declaration