



## Industrial Grade FFF 3D Printing

In addition to CNC machining, PartsBadger offers industrial grade FFF 3D printing as a manufacturing service. Fused Filament Fabrication is similar to FDM printing but it allows for a continuous fiber reinforcement to be added on the interior of the part. Additional fiber reinforcement can be added to drastically increase strength and other properties of the part.

<b>Materials</b>	<b>Carbon Fiber Infused Black Nylon</b> / High strength nylon & carbon fiber composite <b>White Nylon</b> / A non-abrasive, engineering grade thermoplastic
<b>Fiber Reinforcement</b>	<b>Carbon Fiber</b> / Increases stiffness and strength, highest strength-to-weight ratio <b>Kevlar</b> / Lowest density of all fibers with increased impact resistance <b>HSHT Fiberglass</b> / High strength, high temperature <b>Fiberglass</b> / Lowest cost fiber, 11x more rigid than PLA, 26x more rigid than Nylon
<b>Post Printing Processes</b>	<b>Support Removal</b> / Done as a standard on all parts <b>Internal Threads</b> / Added via heat-set threaded inserts after printing.

## More Information

Fiber Reinforcement



Fiber reinforcement can be added in 10%, 25%, 50% or 75% of total part volume. It can be focused on specific part features if required. Refer to the material datasheet for specifications on available fiber.

Threaded Inserts



For parts with interior threads called out, heat-set threaded inserts will be added post printing. The part files will need to be modified to accept these inserts. The design of certain parts may inhibit this.

Size Restrictions	File Types	Lead Time	FFF Tolerances
<b>Max</b> 12.9" x 10.5" x 7.8" (330 x 270 x 200 mm)	<b>3D Files</b> .STP .STEP .STL <b>2D Files</b> .PDF or .DWG	<b>Standard</b> 7 business days	<b>Standard</b> ± 0.0197" (± 0.5 mm)



## SLA 3D Printing

SLA 3D printing machines are capable of printing extremely accurate parts using a wide range of resins. It's great for fine details and parts that require injection mold like finishes.

### Materials

**Standard Resin** / Wide range of colors for a detailed smooth surface finish

**Castable Wax Resin** / 20% wax-filled for reliable casting parts

**Rigid Resin** / Reinforced with fiberglass for high stiffness and a smooth finish

**Durable Resin** / Semi-glossy finish with high elongation and impact strength

**Tough Resin** / Translucent blue finish for high strain and high stress parts

**Flexible Resin** / Rubberized finish with low tensile modulus and high elongation

**High Temp Resin** / Transparent appearance with heat deflection temp of 460°F

### Post Printing Processes

**Support Removal** / Done as a standard on all parts

**Internal Threads** / Added via heat-set threaded inserts after printing

## More Information

Standard Resins



Rigid Resin



Threaded Inserts



High Temp Resin



Flexible Resin



For parts with interior threads called out, heat-set threaded inserts will be added post printing. The part files will need to be modified to accept these inserts. The design of certain parts may inhibit this. Part shown is printed in Tough Resin (translucent blue).

### Size Restrictions

**Max** 5.7" x 5.7" x 6.9"  
(145 x 145 x 175 mm)

### File Types

**3D Files** .STP .STEP .STL  
**2D Files** .PDF or .DWG

### Lead Time

**Standard** 7 business days

### SLA Tolerances

**Standard** ± 0.006"  
(± 0.15 mm)