prototypeprojects
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PROTOTYPE PROJECTS PROCESS GUIDE

Filament 3D Printing

Filament 3D Printing is a thermoplastic extrusion process ideal for early-stage development, simple functional prototypes and low-cost models. It's a highly accessible technology for producing durable parts quickly and affordably.

We use the Bambu Lab X1 Carbon, offering excellent print reliability, fast turnaround, and high part quality.

When is Filament 3D Printing used?

Filament 3D Printing is often used in the early stages of product development when cost-effective models are needed to test basic form, fit and function. It's ideal for producing one-off parts quickly, such as jigs, fixtures or simple enclosures.

Designers and engineers use Filament 3D Printing to explore ideas, evaluate ergonomics, or check assembly before committing to higher-resolution or more advanced processes like SLS or SLA. It's also a practical choice for functional parts where appearance isn't the priority.

Key features

- **Affordable:** Low-cost prototyping ideal for early-stage design iterations
- **Fast:** Short lead times, with parts typically produced within 1–2 working days
- **Durable:** Functional parts suitable for testing fit, form and basic function
- **Multi-material:** Multi-colour and multi-material printing available on request
- **Large build volume:** Print sizes up to 256 x 256 x 256 mm

Materials

We stock two standard thermoplastics:

- Matrix ABS
- Matrix PLA

In addition, we can quickly source PLA, ABS, PETG, ASA/ABS, PC/TPU, PA/PET, PPS and Fibre Reinforced.

Design recommendations

- Recommended wall thickness: 1.5 mm or more
- Minimum feature size: 0.4 mm
- Layer heights: 0.1–0.28 mm
- Supports required for overhangs >45°
- Part orientation may affect strength and surface finish

Applications

- Early-stage concept models
- Mechanical test parts
- Brackets and fixtures
- Jigs and assembly aids
- Low-cost display models