prototypeprojects
3D MADE. SIMPLE.®

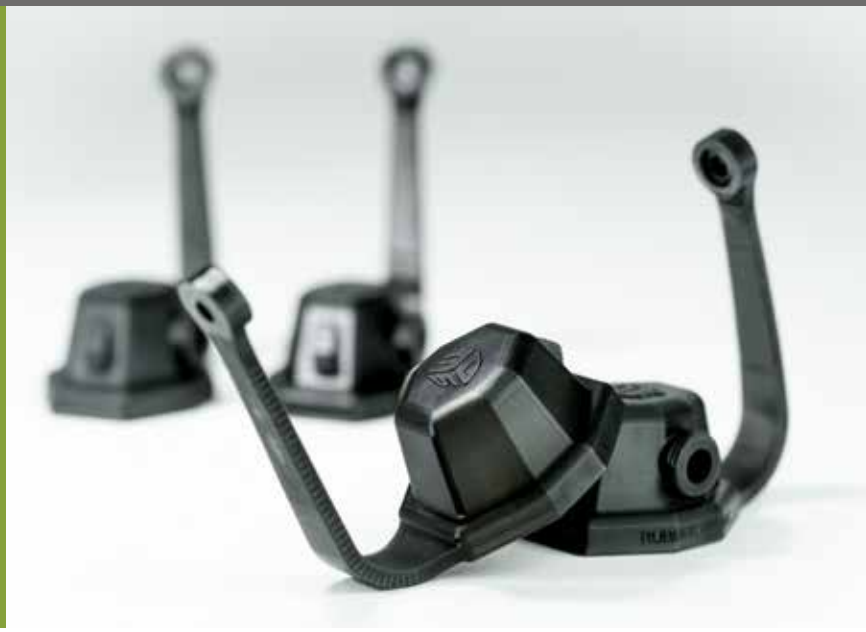
PROTOTYPE PROJECTS PROCESS GUIDE

Digital Light Projection

If you need low or single run production of prototype parts for concept models, presentation pieces, or functional prototypes and you need them delivering quickly, it's likely that Digital Light Projection (DLP) is the prototyping process you require.

DLP is ideal for the production of highly detailed prototype parts with excellent surface finishes. Depending on your exact requirements, parts can typically be produced overnight for next day dispatch.

This process guide describes our approach to producing prototype parts using DLP.



What is DLP?

Digital Light Projection is a high-resolution 3D printing process, ideal for producing parts with intricate details and excellent surface finishes. DLP is widely used for small, highly accurate prototype parts, particularly where fine detail and smooth surfaces are essential.

We offer DLP using industrial-grade machines and advanced materials. Our expertise and technology enable us to deliver outstanding results for various applications, including concept models, functional prototypes, and presentation pieces.

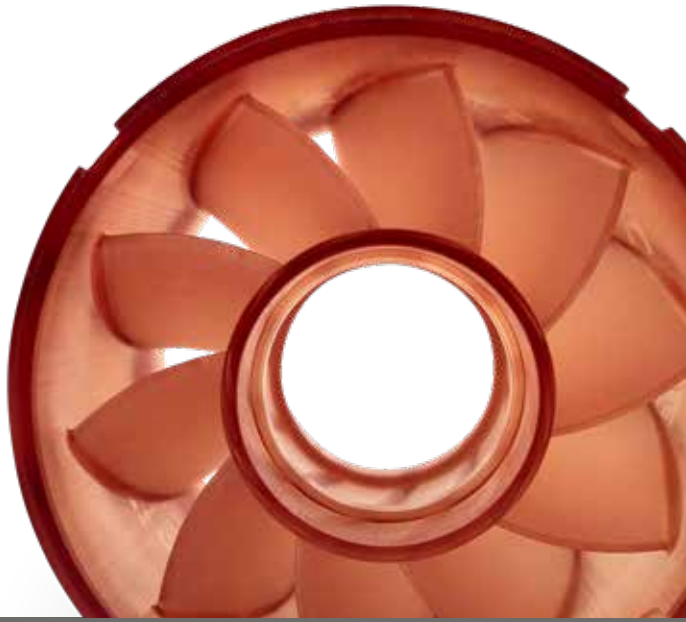
How does it work?

DLP uses a digital light source to cure photopolymer resin layer by layer. The process provides exceptional accuracy and detail, thanks to the uniform application of light across the resin. Once the parts are built, they undergo post-processing to remove supports and achieve the required finish.

Benefits

DLP is a preferred choice for engineers and designers due to its unique advantages:

- **High detail resolution:** Perfect for intricate geometries and small parts.
- **Superior surface finish:** Minimal post-processing required for excellent results.
- **Fast lead times:** Overnight printing available for urgent projects.
- **Material versatility:** Options to suit a range of applications.
- **Cost-efficient:** Ideal for small runs and highly detailed parts.



DLP Materials

We offer a range of materials, including:

Matrix FR VO Black

A tough, production-grade flame-retardant additive manufacturing material that passes UL94 V0 test standards.

Matrix 150C FR Black

UL94 V0 rated flame-retardant black plastic with >150˚C heat deflection temperature.

Matrix FX-BLK 20

Durable, flexible, high impact-resistant material with long-term environmental stability.

Matrix HTA300

Industry-leading, ultra-high temperature resistant rigid plastic suitable for the harshest thermal environments.

Matrix PB10

Production-grade additive manufacturing material with game changing thermoplastic-like mechanical properties and long-term environmental stability.

Matrix RB65

A mid-tear strength, production-grade rubber combined with Shore 65A hardness and a high elongation at break.

DLP and Injection Moulding

A part designed for injection moulding can be suitable for our DLP process due to several shared design principles.

Both processes benefit from parts with uniform wall thickness and do not have large block areas of material.

The DLP process, which uses digital light printing, can produce highly detailed and complex geometries similar to those achieved with injection moulding.

Additionally, the DLP process can use materials that mimic the mechanical properties of injection-moulded plastics, making it a viable alternative for prototyping and low-volume production