prototypeprojects
POWERED BY matrix

PROCESS GUIDE

Selective Laser Sintering (SLS)

Selective Laser Sintering (SLS) is an additive manufacturing technology for 3D printing parts with complex geometries. It is suitable for both visual models and functional prototypes.

SLS parts are built, layer by layer from the bottom up, with a computer-controlled laser beam fusing fine white plastic powder. Each new layer is fused to the layer beneath. After the part is built, the support structures are removed, the part is cleaned, and any additional finishing processes applied.

When is SLS used?

SLS is a very versatile 3D printing process and is suitable for almost every stage of the product development process, from concept models to functional prototypes, presentation models, end-use parts, and assembly jigs and fixtures.

The versatility also means SLS is used by customers from a wide range of industries including medical devices, consumer goods, electronics, automotive, aerospace, special-purpose machinery and factory automation.

Whether you need a one-off prototype part or small batches of end-use parts, SLS can be quick and cost-effective. Bear in mind that we only use PA 2200 CarbonReduced, a carbon reduced sustainable material, so you would need to check that the material properties are appropriate for your application.

We have three industrial SLS machines from EOS: FORMIGA P 110. Our SLS capacity and flexibility enables you to move quickly onto the next design iteration, saving you valuable time.

Benefits

Thanks to the lower cost of equipment and material compared with some other 3D printing technologies, SLS is often a lower-cost option. Despite this, parts are still accurate and can feature complex geometry and fine details. At the same time, the surface finish is good and parts have high strength and stiffness.

PA 2200 CarbonReduced is a sustainable material with the same properties as PA 2200 (PA12 base). It is UV-stable and parts have good long-term dimensional stability and weather resistance. Abrasion resistance and coefficient of friction are also better than for many other 3D printing materials, so SLS parts are good for mechanisms or assemblies where components move relative to each other.

prototypeprojects
POWERED BY matrix

Process features

- If a part can be injection moulded, it can generally by 3D printed by SLS
- Alphanumeric text and logos can be 3D printed with SLS
- Very fast lead time; overnight printing depending on exact requirement
- Time and money savings

Properties

- High strength and stiffness
- Long-term dimentional stability
- Abrasion resistance
- Chemical resistance
- Biocompatibility (EN ISO 10993-1 and USP Class VI)

Finishing options

- Parts are white, but can be dyed in-house
- Surfacing, cleaning and lacquering are also available

Pre-production applications

- Concept models
- Function prototypes
- Presentation models
- End-use parts
- Assembly jigs and fixtures