SELECTIVE LASER SINTERING (SLS)

What is selective laser sintering?

Selective laser sintering (SLS) is an industrial **3d printing process** that produces prototypes and functional production parts fast and accurately.
It creates highly durable final components that require heat resistance, chemical resistance, flexibility, or dimensional stability.

With **SLS 3d printing**, no support structures are required making it easy to nest multiple parts into a single build and an economical solution for when higher volumes of 3dprinted parts are required.

6 easy steps for making parts in SLS

1. The powder is dispersed in a thin layer on top of a platform inside of the build chamber.
2. It then preheats the powder to a temperature just below the melting point of the raw material.
3. Laser scan a cross-section of the 3d model, heating the powder to just below or right at the melting point of the material.
4. Build platform lowers by one layer into the build chamber, and a re-coater applies a new layer of powder material on top. The laser then scans the next cross-section of the build until parts are complete.
5. Cooldown the part, move the powder, sand-blasting the surface to make it smooth.
6. Dyeing or painting may need to achieve more colours

Design Requirements

Minimum wall thickness	0.5mm
Minimum hole diameter	0.5mm
Minimum feature size	0.5mm
Minimum printable font size	6pt
Minimum space and clearance	0.8mm
Minimum slit between walls	0.5mm

Available materials for SLS 3D Printing

SLS produces parts from a very wide range of engineering thermoplastics. Here is a list of the SLS materials available on 3Dtechnologies4U.

Materials	Applications
PA6	Cases, eyewear frames, drones, home decorations, prosthetics
PA12	Mechanical and structural parts, mounts, cases, eyewear frames, technology accessories, art decorations, prosthetics
PA + Glass filled	Tooling, robotics, drones, fixtures, medical braces, housings and cases
TPU	shoe soles, tyres, connectors, medical models, prototypes, robotics, flexible parts