A3D – 007 – SLS

Introduction

Welcome to A3D Manufacturing's guide to Selective Laser Sintering (SLS) 3D Printing—an ideal solution for strong, accurate, and aesthetically pleasing parts. This document provides an in-depth look into what our SLS services offer and highlights some considerations you should be aware of for optimal results.

Technology Overview - How It Works

1. Powder Coating: A thin layer of powder material is spread across the build plate.
2. Laser Sintering: A laser sinters the powder point-to-point, layer-by-layer, to form the part.
3. Cooling & Extraction: After the build is complete, the build chamber is cooled, and the part is extracted.
4. Excess Powder Removal: Glass media bead blast is used to remove excess powder, giving SLS parts their characteristic natural finish.

Common Applications

- Short run, end-use production components
- Functional end-use parts
- Consumer goods
- Manufacturing aids like jigs and fixtures
- Complex geometries such as lattice structures
- Mechanical joints like snap fits and living hinges

Material Options:

Nylon 12 (white), Nylon 11 CF, Nylon 12 GF, Nylon 11, TPU 90A.

Expectations

Lead Time Standard: 4–6 days
Expedited: As soon as next day
Standard Accuracy: +/-0.304mm (.012") or +/-.003 in/in, whichever is greater.
Build Volume: 380 x 700 x 580mm
Layer Thickness: 40 microns
Finishes: Standard (natural white), dye black, vapor smoothed.

Wall & Feature Specifications

Minimum Wall Thickness: 0.762mm (0.030")

Minimum Clearance for Assemblies: 0.58mm (0.020")

Minimum Feature Size: : 0.762mm (0.030")

Minimum Hole Diameter: 1.016mm (0.040")

SLS 3D Printing offers a compelling mix of strength, aesthetics, and functional versatility. It's an excellent choice for a variety of applications, including end-use parts and complex geometries. However, to achieve the best results, the design specifications should be carefully considered.

Thank you for considering A3D Manufacturing for your advanced 3D printing needs.