Selective Laser Sintering Printers

Production thermoplastic parts with SLS 3D printers

3D Systems' Selective Laser Sintering (SLS) 3D printers produce tough, functional complex parts, with excellent surface finish, resolution, accuracy, repeatability and low total cost of operations.

3D SYSTEMS
Additive Manufacturing Solutions

Limitless possibilities with tool-less manufacturing

The ultimate 3D printing technology for thermoplastic parts, without compromise

ELIMINATE THE TIME AND EXPENSE OF TOOLING

Direct 3D production from a CAD file eliminates the cost and time involved in tooling and fixtures.

STREAMLINE YOUR WORKFLOW

Eliminate extensive programming and fixturing to free up your machinists. Drastically reduce assembly times by reducing total part count.

INCREASE MANUFACTURING AGILITY

Additive manufacturing requires no tooling, reducing overhead and increasing economies of scope.

DESIGN FOR FUNCTION

SLS technology frees designers from the restrictions of traditional manufacturing. Complete assemblies can be printed as one part, improving functionality, reducing cost and increasing reliability.

SLS 380 Printer

Repeatable parts at high yield for scalable batch manufacturing

High performance SLS 3D printer featuring real-time thermal management and control, delivering high part repeatability and throughput, together with reduced operating costs for more effective and efficient production manufacturing runs.

CLOSED LOOP THERMAL MANAGEMENT

Closed-loop process controls consistently produce accurate parts across multiple builds, machines and sites. In addition to a new water-cooled laser, the system uses a unique algorithm, eight separately calibrated heaters, together with an integrated high-resolution IR camera to manage, monitor and control in real-time the thermal uniformity within the build chamber for every sintered build-layer and for the duration of the part build process.

DELIVER MORE CONSISTENT SLS BATCH PARTS

With consistent thermal uniformity across the build process, you can deliver parts with improved dimensional and mechanical performance and deliver batch jobs with higher yields at lower operating costs.

SLS Material Delivery Options

Customize material handling solutions to optimize operational efficiency

SLS MDM: MATERIAL DELIVERY MODULE

Enables the use of multiple materials on a single printer to expand application offerings without an MQC. Lower material changeover time from approximately 9 hours to 2 hours, increasing machine productivity and lowering labor costs.

MQC 600 SINGLE

Connects to one SLS printer and fully automates material feeding and an integrated breakout station for post-processing.

MQC 600 FLEX

Optimized to deliver material to up to four printers simultaneously, minimizes waste, and eliminates operator intervention. Features fully- automated material feeding and an integrated breakout station for post-processing.

Robust Thermoplastics for a Variety of Applications

Produce tough, durable parts from the wide DuraForm® materials portfolio that has been optimized, validated and tested to ensure quality, with uniform 3D mechanical properties. When you compare material properties, you'll find DuraForm SLS materials compare very well with common injection molding materials. These materials are ideal for both production and prototype parts.

NYLON/POLYAMIDE 12 THERMOPLASTICS

Extra strong thermoplastics with superior mechanical properties, surface quality and fine-feature resolution for end-use parts that stand up to the rigors of long-term real world use, replacing traditionally injection molded articles. Food-grade, medical grade, flame-retardant capable.

HIGH ELONGATION NYLON COPOLYMER

A novel, nylon copolymer that features high impact resistance with high elongation at break in any direction, including Z. Engineered for easy processing and high recyclability, this production grade material is ideal for end-use parts or prototypes requiring long-term use and stability.

FILLED NYLON/POLYAMIDE THERMOPLASTICS

For even greater engineered end-use part performance, 3D Systems has developed DuraForm SLS materials with fillers such as glass, aluminum, carbon fiber, and mineral fiber. These materials offer a choice of advanced properties in terms of stiffness, temperature resistance, strength and surface finish.

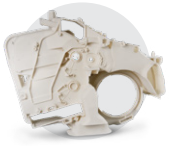
NYLON/POLYAMIDE 11 THERMOPLASTICS

Tough, impact and fatigue-resistant Nylon 11 materials for prototypes and end-use parts requiring molded-part performance in harsh environments. Ideal for snap-fit and living hinges—plastic parts that are flexible and bounce back to their original shape. 3D Systems offers specialty materials such as flame-retardant FR-106.

HIGH ELASTICITY MATERIALS

Rubber-like flexible thermoplastics with high rebound are possible with SLS 380. Our DuraFormTPU 90A offers outstanding surface quality with excellent wear and tear resistance. Enhanced stiffness and low printed part density for lightweight applications.

Note: availability varies by printer model. Please check our SLS materials selection guide for compatibility



HOUSINGS

Manufacture in small to medium lot sizes, and bridge the time until final tools are manufactured.

JIGS AND FIXTURES

Print complex assembly aids and free up CNC time for other projects.

MACHINERY COMPONENTS

Integrate functionality and replace complex assemblies.

MEDICAL DEVICES

Production of patient-specific medical devices.

FUNCTIONAL TESTING

Test your prototypes for functionality—such as heat run cycle tests.

CONSUMER GOODS

High-speed production for small lots and custom products.

DUCTING

Optimize flow and fit in tight spaces with the freedom to print duct-work that is impossible to mold.

3D Sprint®

All-in-one software for plastic printing

An exclusive software for 3D Systems plastic printers to prepare and optimize CAD data, and manage the SLS printing process. Tools for high-performance—such as high-density automatic 3D nesting, quality checks for pre-build verification, repair options, print queue tool for efficient build planning, cage structure generator for small parts enclosure, and more features—bring increased productivity and quality to your SLS production process without needing additional third party software.

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PRINTER PROPERTIES	SLS 380
3D Printer Size Crated (WxDxH) **3D Printer Size Uncrated** (WxDxH)	204 x 153 x 258 cm (80 x 60 x 101 in) 174 x 123 x 230 cm (69 x 48 x 90 in)
3D Printer Weight Crated **3D Printer Weight Uncrated** (Weights do not incl. MQC, MDM or BOS)	1485 kg (3274 lb) 1360 kg (3000 lb)
Electrical Requirements *System* *MQC Single or Flex* *MDM*	 208 VAC/10 kVA, 50/60 Hz, 3 PH 208-230VAC, 50/60Hz, 1PH
Laser Power Type	100 W / CO_2
Powder Recycling and Handling	Automatic (Material Quality Control system servicing up to four printers simultaneously)
Systems Warranty	One-year warranty, under 3D Systems purchase terms and conditions
PRINTING SPECIFICATIONS	
Max Build Envelope Capacity (xyz)[1]	381 x 330 x 460 mm (15 x 13 x 18 in) 57.5 l (3510 cu in)
Layer Thickness Range (typical)	0.08 – 0.15 mm 0.003 – 0.006 in *(0.10 mm, 0.004 in)*
Volume Build Rate	Up-to 2.7 l/hr
Imaging System	ProScan™ DX Digital High Speed
Scanning Speed *Fill* *Outline*	 Up-to 12.7 m/s (500 in/s) Up-to 5 m/s (200 in/s)
Powder Layout	Variable Speed Counter Rotating Roller
Thermal control	Consistent part quality build to build with eight zone heater control with thermal imaging camera closed loop feedback.
MATERIALS	
Build Materials	See material selector guide and individual material datasheets for specifications on available materials.
SOFTWARE AND NETWORK	
Included Software	3D Sprint®
3D Sprint® Software	Prepares and optimizes design file data, and manages the additive manufacturing process on plastic 3D printers.
3D Connect™ Capable	3D Connect™ Service provides a secure cloud-based connection to 3D Systems service teams for support.

[1] Maximum part size is dependent on geometry, among other factors.

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