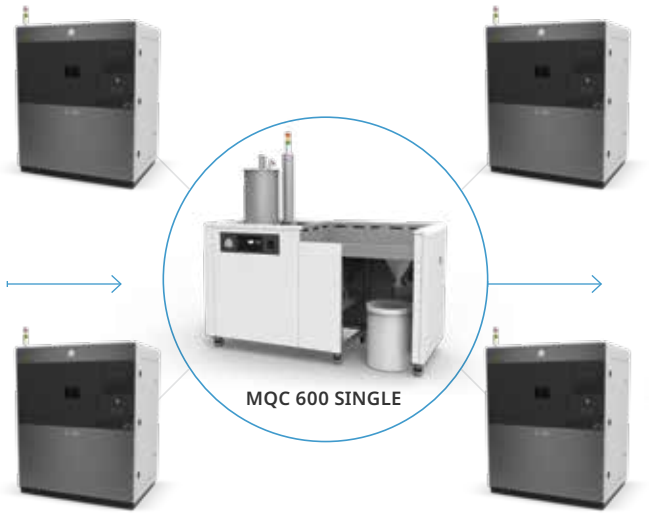
3D SYSTEMS
Additive Manufacturing Solutions

Industrial-Scale Selective Laser Sintering (SLS) Workflow Solution

Production-Grade SLS Workflow Solution

High throughput SLS additive manufacturing solution for cost-effective production

Optimized for those who want to take the next step in integrating additive manufacturing into their factory-floor ecosystems, 3D Systems' SLS 380 and its complementary software, material handling and post-processing solutions answer the demand for cost-effective batch production parts.



3D Sprint®

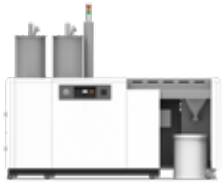
Quickly and efficiently go from design to high quality true -to-CAD printed parts without needing additional third party software. Optimized for production environments with time-saving workflows/UI/UX. Maximizes printer capacity and build volume utilization.

SLS 380 PRINTER

High throughput SLS additive manufacturing solution featuring real-time thermal management and control, delivering high level part-to-part and printer-to-printer repeatability together with reducing operating costs for effective and efficient produciton manufacturing.

amt postpro®

Industrial-scale SLS post-processing including fully automated de-powdering and chemical vapor smoothing solutions to clean and smooth parts in batches, optimize part quality and mechanical performance, reduce lead time, manufacturing costs and enable factory scalability.



MQC 600 FLEX

MQC 600 Flex material handling unit automatically and rapidly delivers material to up to 4 printers simultaneously, storing and mixing fresh and used material.

SLS MATERIAL DELIVERY MODULE

Enables the use of multiple materials on a single platform. Quickly change materials with minimum labor to maximize value and expand application offerings of SLS printer.

Industrial-scale AM production with the throughput, consistency, and performance you need.

High Performance SLS Materials

DuraForm® Nylon Thermoplastics

SMOOTHEST SURFACES, HIGHEST-PERFORMING THERMOPLASTICS PARTS

3D Systems features the industry's highest quality, large-size SLS nylon parts, with superior surface finish out-of-the-printer, higher isotropic strength compared to filament, powder-binding or other SLS printers.

SIMPLE TO INTEGRATE WITH TRADITIONAL MANUFACTURING

The SLS 380 comes with an advanced range of thermoplastic nylon materials that require no support structures, and no extra labor or material when delivering mid to high volume jobs. Parts printed in SLS are ideal for integrating with traditional manufacturing, being compatible with the same secondary processes as injection molded parts.

LONG-TERM MECHANICAL PERFORMANCE AND ENVIRONMENTAL STABILITY

3D Systems' extensive range of durable nylon thermoplastics provide balanced, long-term mechanical properties and environmental stability tested out to 1.5 years outdoor and 8 years indoor, per ASTM testing methods.

Printed parts are ideally suited to delivering high strength, high durability functional prototypes, mid-volume direct manufactured end use parts, medical parts requiring USP Class VI compliance and sterilization, complex, thin-walled ducts, snap-fits, living hinges and large-scale aerospace and automotive covers, panels, grilles and bumpers.

DuraForm PAx Natural and Black

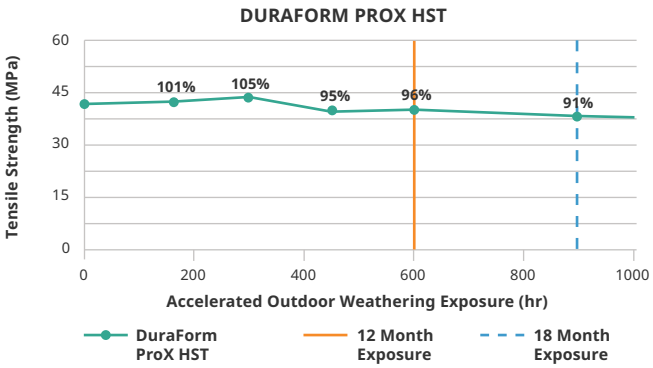
Production-grade, high impact nylon copolymer capable of replacing injection molded parts. Possesses high elongation and long-term stability properties for producing tough plastic parts.

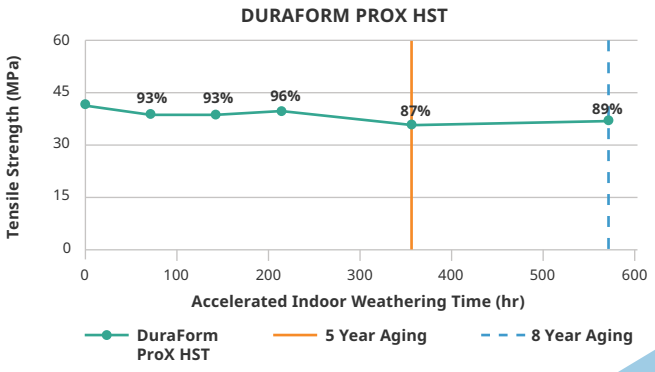
DuraForm ProX PA

Strong, tough thermoplastic material that stands up to the rigors of long-term real world use replacing traditionally injection molded articles.

DuraForm ProX HST

A fiber-reinforced engineering plastic with excellent stiffness and high temperature resistance. Non-conductive and RF transparent. For testing and use in rugged environments.





Easy-to-Use Print Prep Software

3D Sprint® for SLS

The SLS 380 uses 3D Sprint, 3D Systems' advanced, single-interface software for file preparation, editing, printing, and management.

3D Sprint is intended for production environments, offering time-saving workflows, an efficient user interface and intuitive user experience that together, maximize your printer capacity and build volume utilization.

PRINT TRUE-TO-CAD PARTS

Smart geometry processing and powerful slicing technology eliminates geometry processing artifacts.

STREAMLINE TIME TO FINISHED PARTS

Extensive automated toolset facilitates the entire 3D printing process, saving on material and post-processing time without compromising on part quality.

INCREASE PRODUCTIVITY WITH OPTIMIZED DATA MANAGEMENT

Accurately estimate print time and optimize material levels and usage both before and during the print operation.

Sp 3D Sprint®

Process-controlled SLS Additive Manufacturing Solution

SLS 380

SUPERIOR PARTS. PREDICTABLE OUTCOMES.

The SLS 380 printer is a new production-grade SLS 3D printer delivering high levels of part-to-part and printer-to-printer repeatability, improved throughput and reduced operating cost for more effective and efficient digital manufacturing.

REPEATABLE PARTS. HIGH YIELD.

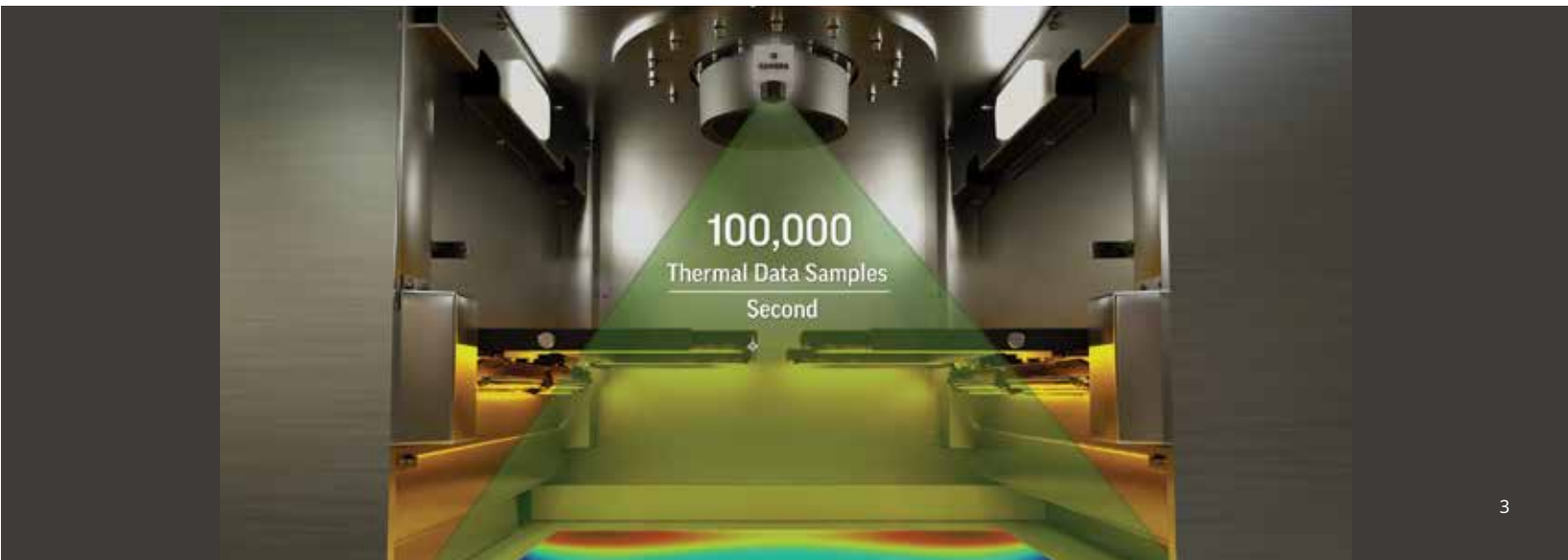
The SLS 380 features closed-loop process controls that enable high levels of repeatability across multiple parts, builds, machines and sites. In addition to a new water-cooled laser, the system utilizes a custom-developed 3D Systems algorithm to manage, monitor and control in real-time, the thermal uniformity within the build chamber.

100,000 THERMAL DATA SAMPLES PER SECOND.

The algorithm manages eight separately calibrated heaters, together with an integrated high-resolution IR camera that captures over 100,000 thermal data samples from within the build chamber per second, with the ability to discriminate hot sintered regions from dry powder. This data, together with the IR sensor, maintains temperature stasis for every part build-layer, for the duration of the build process. With a more consistent thermal uniformity across the build process, manufacturers can now deliver more dimensionally stable parts, with better mechanically performance, higher repeatability, and greater yields – all with fewer human interventions and lower overall operating costs.

EFFICIENCY & COST SAVING AT EVERY STEP.

3D Systems offers the 3D Sprint software package to optimize build preparation efficiency and ensure high yield. 3D Systems has also partnered with AMT to provide a fully automated post-processing workflow, from de-powdering to vapor honing so end-use parts are delivered in-hand faster and without the hidden consumable or running costs of other, less efficient technologies.



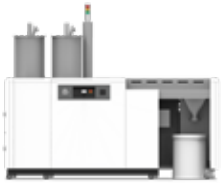
Material Handling Options

Streamline your operational workflow with material handling solutions

An important part of the SLS solution capability is the Material Quality Center or MQC to control, blend, and deliver material on-demand for an optimal ratio of fresh and recycled powder. There are two MQC options for SLS 380 printer, the MQC 600 Single and the MQC 600 Flex.

MQC 600 SINGLE

Designed to connect to one SLS printer. Features fully automated material feeding and an integrated breakout station for post-processing.



MQC 600 FLEX

Optimized to deliver material to up to four printers simultaneously, minimizing waste and eliminating operator intervention with faster blended powder generation and more efficient delivery of up to 3 liters of powder. The MQC 600 Flex includes a recycled powder bin that provides convenient and immediate storage for unused powder post-printing. This system automatically blends fresh and recycled powder according to your specified mix ratio. Features fully automated material feeding and an integrated breakout station for post-processing.

SLS MATERIAL DELIVERY MODULE

Enables the use of multiple materials on a single platform. Can be used with or without a MQC. Maximizes the value of a SLS printer by minimizing the labor required to change materials and expands the types of applications that can be run on a single platform.

Industrial-Scale Post-Processing with AMT PostPro®

3D Systems has partnered with AMT to provide a fully automated post-processing workflow, from de-powdering to vapor honing to deliver end-use parts in-hand faster and without hidden consumable or running costs of other technologies.

AMT provides a range of industrial-scale SLS post-processing systems including fully automated de-powdering and chemical vapor smoothing solutions to clean and smooth parts in batches. Combined with the SLS 380 solution, this results in optimized part quality and mechanical performance, reduced lead times and manufacturing costs, and factory scalability.

AMT TECHNOLOGY

LOW VOLUME PROTOTYPING

POSTPRO DP

Affordable depowdering and shot blasting system.

POSTPRO SF50

Patented chemical vapor smoothing system for lower volumes.

HIGH VOLUME PRODUCTION

POSTPRO DP PRO

Fully automated industrial depowdering and shot blasting system.

POSTPRO SF100

Patented chemical vapor smoothing system for large volumes.

CONTINUOUS AUTOMATED PRODUCTION

POSTPRO DP MAX

2-in-1 depowdering and shot blasting system powered by tumble belt technology.

POSTPRO SF 150

Revolutionary industrial surface finishing solution. Commercially available soon.

SLS 380 Printer

PRINTER PROPERTIES

3D Printer Size Crated (WxDxH)	204 x 153 x 258 cm (80 x 60 x 101 in)
3D Printer Size Uncrated (WxDxH)	174 x 123 x 230 cm (69 x 48 x 90 in)
3D Printer Weight Crated	1485 kg (3274 lb)
3D Printer Weight Uncrated (Weights do not incl. MQC, MDM or BOS)	1360 kg (3000 lb)
Electrical Requirements System Single or dual MQCs	208 VAC/10 kVA, 50/60 Hz, 3 PH 208-230VAC, 50/60Hz, 1PH
Laser Power Type	100 W / CO2
Powder Recycling and Handling	Automatic (single or dual Material Quality Control systems or MQC servicing one or two printers respectively)
Systems Warranty	One-year warranty, under 3D Systems purchase terms and conditions

MATERIAL HANDLING OPTIONS

	MQC 600 Single	**MQC 600 Flex**	**MDM**
Size (LxWxH)	238 x 99 x 228 cm	290 x 99 x 228 cm	710 x 920 x 920 mm
Weight	600 kg	800 kg	800 kg
Blending and Recycling	Semi-automatic, No recycled powder bin	Fully automatic, Has recycled powder bin	Semi-automatic
Material Storage Capacity	175 Liters	295 Liters	80 Liters
Material Feeding	Fully automatic		Semi-automatic
Breakout Station	Integrated into unit		N/A
User Control of Recycle	5% increments/ resolution	1% increments/ resolution	Unlimited
Printers Connected at Once	1 SLS printer	4 SLS printers Same material	1 SLS printer
Powder Delivery Rate	1 liter per transport	3 liters per transport	1 liter per transfer
Proximity to Printer	100 m, Can be in another room or different floor		< 10 feet

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	2.7 l/hr
Imaging System	ProScan™ DX Digital High Speed
Scanning Speed Fill Outline	 12.7 m/s (500 in/s) 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
Material Packaging	7.5 kg bottles for hands-free automatic powder handling

www.3dsystems.com 04-23

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