BROCHURE
FDM

Fortus 450mc

Factory Floor Ready Additive Manufacturing Tooling Solution.

Additive manufacturing with the Fortus 450mc lets you minimize cost, increase uptime and improve quality on your factory floor. It delivers these capabilities through an open-material ecosystem, data security, and proven accuracy and reliability.

The Fortus 450mc is a mid-tier printer for the demanding applications of professional industrial additive manufacturing. With bundled features like fully hardened components and all materials licensing, this printer is truly factory floor ready.

Built for Streamlined Manufacturing

Built for streamlined manufacturing.

To help you get to market faster, the Fortus 450mc 3D printer provides a multi-application manufacturing solution that reduces design and build times, optimizes manufacturing workflows, decreases overall costs and promotes factory innovation.

Capacity for complex parts.

Produce custom tools, prototypes and low-volume parts with complex geometries in days versus weeks, without sacrificing quality. The Fortus 450mc's generously-sized build platform provides capabilities to meet industrial application needs while its hands-free, soluble support materials aid in creating complex geometries as well as reducing labor.

An open-material system for many applications.

From standard to high-performance, the Fortus 450mc features a large portfolio of materials. Three material tiers – Stratasys Preferred, Stratasys Validated, and open materials – offer a range of capabilities to support a broad number of applications. Carbon-fiber provides the strength and stiffness for strong but lightweight tools, functional prototypes and end-use parts. High-strength, chemical- and fire-resistant materials enable applications in the transportation and oil and gas industries.

Industry-leading performance.

Near-Isotropic Parts

Fortus 450mc parts exhibit more than 80% strength in the vertical (ZX) plane compared with in-plane (XZ) performance for certain materials.[1] [2] This gives you greater flexibility to orient the part in the build chamber for optimal print results while achieving more consistent mechanical properties throughout the part.

High-Strength Material Capability

Stratasys FDM technology is the standard in carbon fiber printing for tools and end-use parts that demand high strength and stiffness. FDM Nylon 12CF (carbon fiber) printed on the Fortus 450mc offers superior mechanical properties, with an ultimate tensile strength exceeding 69 Mpa (10,000 psi). And with a measured production variance of less than 4%, the Fortus 450mc delivers these properties print after print.[1]

Unmatched Consistency

The Fortus 450mc provides unequaled consistency when it comes to part properties. Tests on the ultimate tensile strength of ASA material across multiple Fortus 450mc printers in all areas of the build platform demonstrate a variance of less than 6%. Combined with a 93% print success rate, you get consistent, repeatable results coupled with maximum yield.[1]

Unwavering Precision

Along with repeatable print results, the Fortus 450mc produces parts with a high degree of dimensional accuracy and precision. This has been demonstrated by tests performed on multiple printers and numerous builds over months of print operations.[1] When you need reliable print performance that meets your tolerance specifications, the Fortus 450mc delivers.

Speed when you need it.

The Fortus 450mc accelerates production of large, high-strength FDM Nylon 12CF parts with the T40C Tip. It features a 0.508 mm (0.020 in.) layer height and delivers nearly twice the average build speed compared to standard 0.254 mm (0.010 in.) layers. With exceptional mechanical performance and stiffness, the T40C dramatically reduces Nylon 12CF print times - perfect for bulky, solid parts where time matters.

Production throughput.

To provide extended print operations, the Fortus 450mc can be paired with the optional Fortus FDC™ material delivery and drying cabinet to extend printing times. This add-on feature can deliver up to 8,194 cm^3 (500 in^3) of model material. The cabinet also dries the spools of filament and maintains the environment so that moisture is never a concern - even when printing with moisture sensitive materials. The larger volume of material on the spools coupled with the drying capability improve reliability, print performance, uptime, and can reduce labor required to reload material. For customers manufacturing end components or production support tooling where uptime and reliability of the printer is integral to their business and workflow, the Fortus FDC™ adds flexibility in production schedules and expands the application space.

Smart-factory integration.

As Industry 5.0 drives the convergence of automation, on-demand manufacturing, and data protection, organizations require 3D printing solutions that integrate securely with smart factory infrastructure. When combined with GrabCAD Streamline Pro™, the Fortus 450mc delivers enterprise-grade cybersecurity to protect Stratasys printers and connected networks from cyber threats and operational disruptions—supporting resilient, future-ready manufacturing environments.

[1] Stratasys 2020 Repeatability and Reliability study for F370, Fortus 450mc and F900 printers.

[2] Results are based on tests using ASA material. Test coupons were printed on multiple printers across the build platen. High-performance thermoplastics like FDM Nylon 12CF and ULTEM™ resins provide a lower (approximately 50%) Z-strength in comparison to XZ due to factors such as carbon fiber alignment and thermal bonding.

Meet industry demands.

Tackle applications that require tight tolerances, toughness and environmental stability as well as specialized properties like V-0 flammability or FST ratings. The Fortus 450mc is also compatible with GrabCAD® Streamline Pro™ work order management software and other Software Partner solutions to help manage the full 3D printing workflow. The Fortus 450mc uses production-grade thermoplastics to build strong, durable and dimensionally stable parts suitable for demanding applications in aerospace, automotive, rail, military, industrial equipment and consumer products.

Simplify your factory workflow.

In order to optimize FDM parts, the Fortus 450mc is inclusive of GrabCAD Print™ (with an optional upgrade to GrabCAD Print Pro™) and Insight™ software. GrabCAD Print offers an advanced 3D slicer software as well as geometry-targeted tools. This enables you to minimize weight and material without sacrificing part strength. GrabCAD Print supports changes that can be made directly to inserts and self-supporting holes.

The upgraded version of the standard software, GrabCAD Print Pro, is a comprehensive solution which includes labeling for traceability, automation, templates, part cost estimation, a sustainability calculator, and automatic model correct. This is ideal for high-performance end-use parts or prototypes used in process-controlled environments.

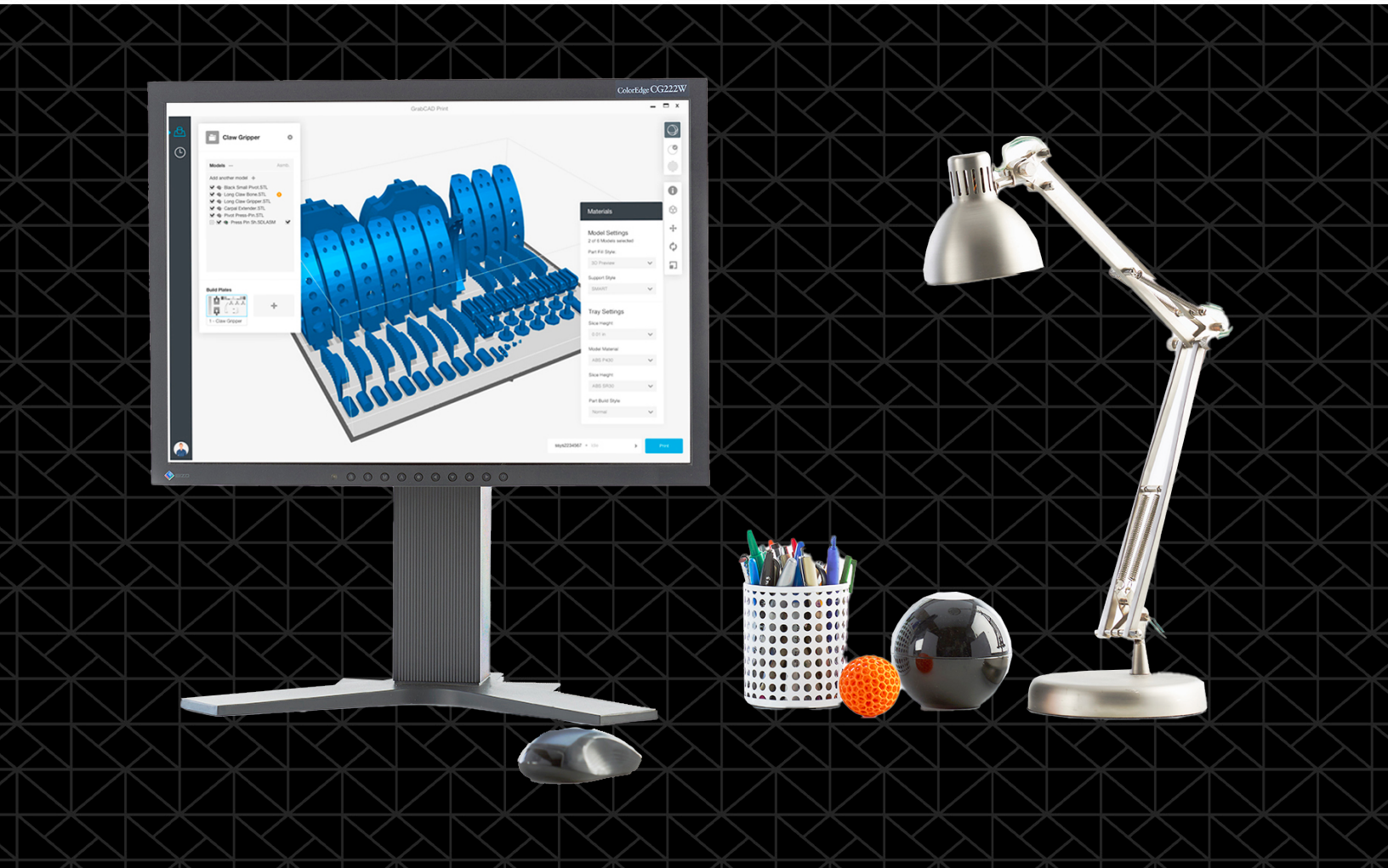
With Insight, you can fine-tune part performance and material use for greater cost efficiency. The Fortus 450mc also features an intuitive touchscreen interface that requires little to no training to navigate.

OpenAM

OpenAM™ software lets users alter print parameters to optimize material capabilities and print results. This allows you to tailor a material's performance to meet specific application needs or part properties.

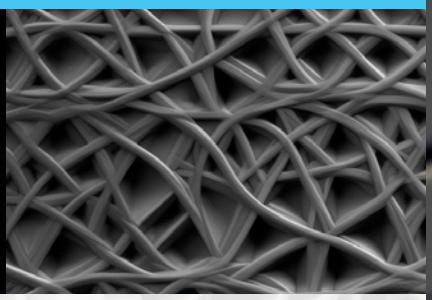
OpenAM works with all three Stratasys material tiers. You can develop your own unique materials or optimize a Stratasys Preferred or Stratasys Validated material to meet your specific design requirements.

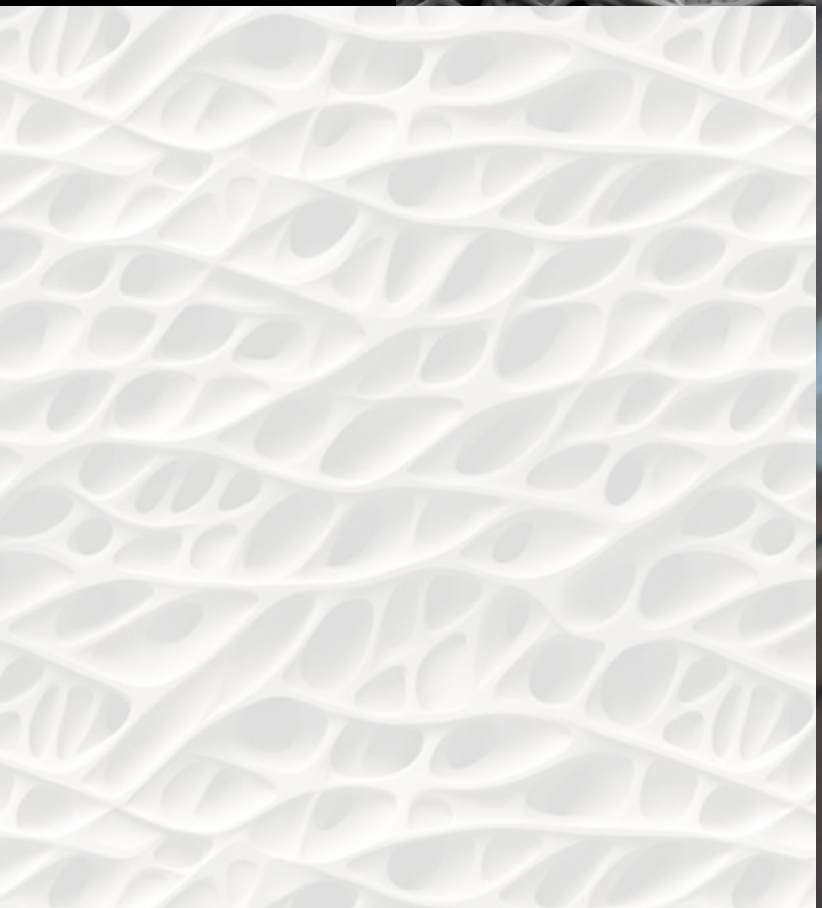
OpenAM software is accessible through a separately purchased OpenAM License.

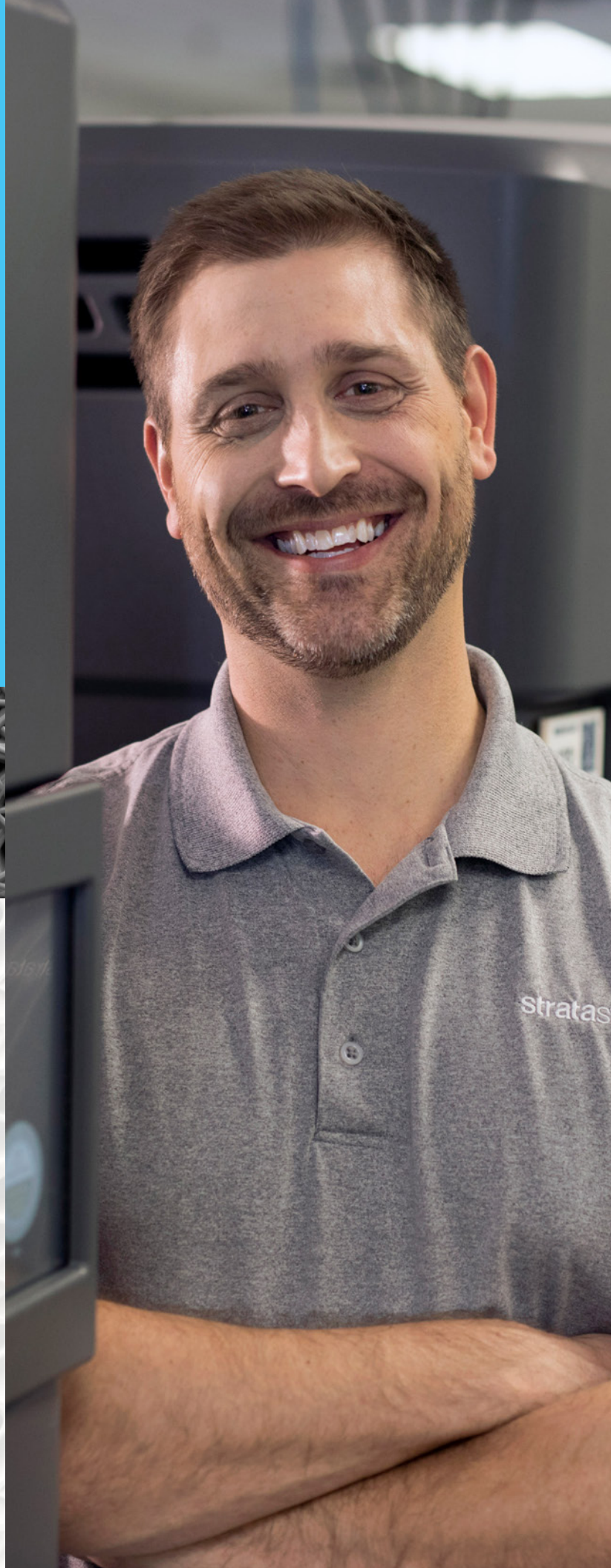


Get global service and support.

To help eliminate production downtime, our support team offers priority service, quick response times, fast delivery of replacement parts and scheduled preventative maintenance. We also provide expert technical training, predictable maintenance expenditures for easy budgeting, and scheduled software and hardware updates — giving you access to the most recent developments.







Material Options

Stratasys Preferred Materials

Material	Layer Thickness 0.127 mm (0.005 in.)	0.178 mm (0.007 in.)	0.254 mm (0.010 in.)	0.330 mm (0.013 in.)	0.508 mm (0.020 in.)	Support Structure	Available Colors
ABS-ESD7™	○	●	●	○	○	Soluble	Black
ABS-M30™	●	●	●	●	○	Soluble	Ivory, Black, Blue, White, Red, Dark Gray
ABS-M30i™	●	●	●	●	○	Soluble	Ivory
Antero® 800NA	○	○	●	○	○	Breakaway	Natural
Antero® 840CN03	○	○	●	○	○	Breakaway	Natural
ASA	●	●	●	●	○	Soluble	Black, Dark Gray, Light Gray, White, Ivory, Dark Blue, Green, Yellow, Orange, Red, Camouflage Green, Camouflage Tan
FDM® Nylon 12	○	●	●	●	○	Soluble	Black
FDM® Nylon 12CF™	○	○	●	○	●	Soluble	Black
FDM® PA6/66-GF30-FR	○	○	●	○	○	Breakaway	Black
PC	●	●	●	●	○	Breakaway, Soluble	White
PC-ABS	●	●	●	●	○	Soluble	Black
PC-ISO™	○	●	●	●	○	Breakaway	Translucent Natural, White
ST-130	○	○	○	●	○	Breakaway	Tan
ULTEM™ 1010 resin	○	○	●	●	○	Breakaway	Natural
ULTEM™ 9085 resin	○	○	●	●	○	Breakaway	Tan, Black

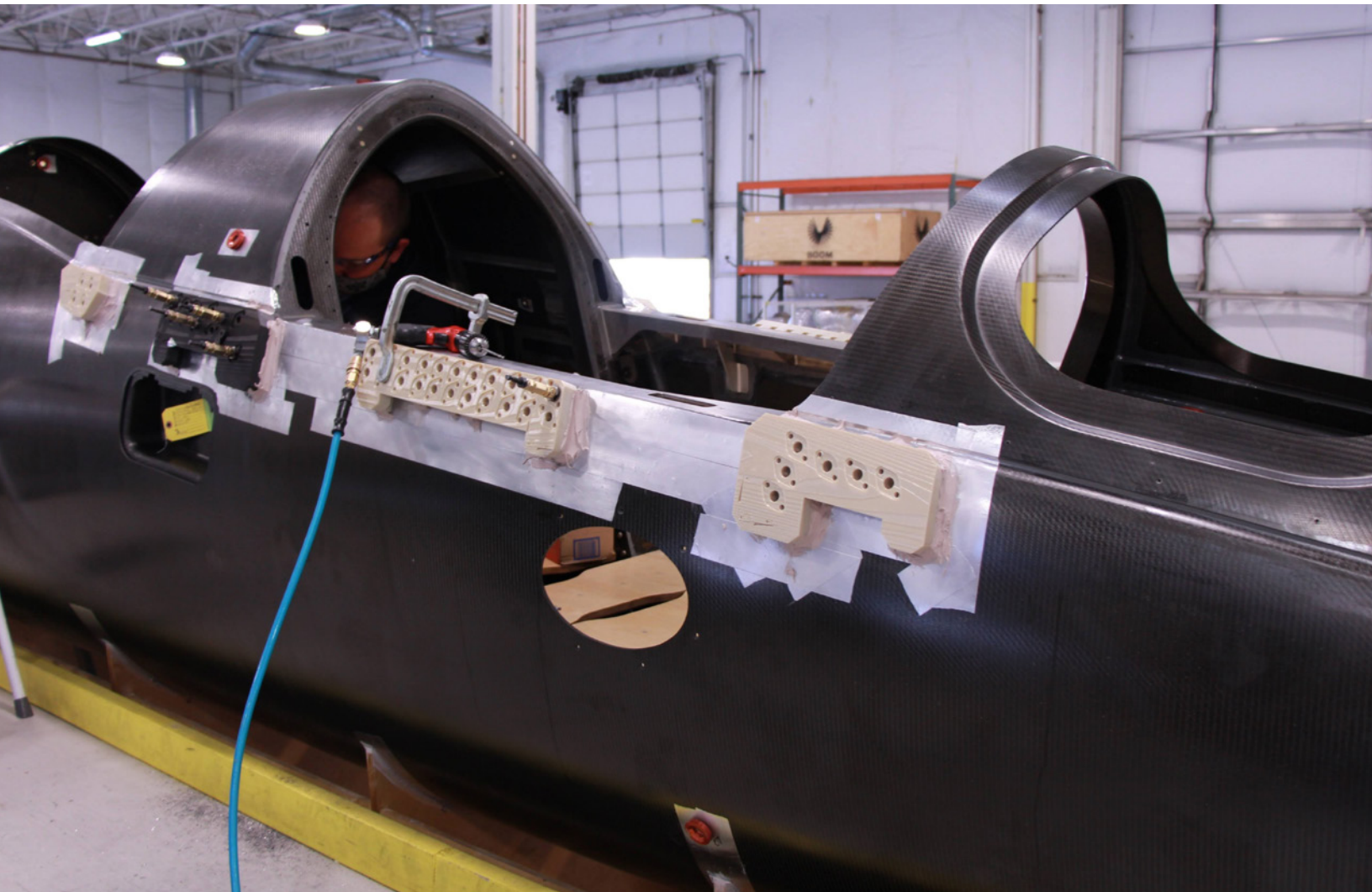
Material Options

Stratasys Validated Materials

Material	Layer Thickness 0.127 mm (0.005 in.)	0.178 mm (0.007 in.)	0.254 mm (0.010 in.)	0.330 mm (0.013 in.)	Support Structure	Available Colors
FDM® HIPS	○	○	●	○	Breakaway	Light Gray
PC (colors)	○	○	●	○	Soluble	Red, Black
PC-ABS	○	○	●	○	Soluble	Red
PC-ESD	○	○	●	○	Soluble	Black
ULTEM™ 9085 resin (colors)	○	○	●	●	Breakaway	Red
	○	○	●	○	Breakaway	Jana White
	○	○	●	○	Breakaway	Dream Gray
	○	○	●	○	Breakaway	White 7362
	○	○	●	○	Breakaway	Gunship Gray
	○	○	●	●	Breakaway	Aircraft Gray
VICTREX AM™ 200	○	○	●	○	Breakaway, Soluble	Natural

Product Specifications

System Size and Weight	1,295 x 902 x 1,984 mm (51 x 35.5 x 78.1 in.) 601 kg (1,325 lbs.)
Build Envelope (XYZ)	406 x 355 x 406 mm (16 x 14 x 16 in.)
Achievable Accuracy	Parts are produced within an accuracy of ± .127 mm (± .005 in.) or ± .0015 mm/mm (± .0015 in/in), whichever is greater). Z part accuracy includes an additional tolerance of -0.000/+slice height. Note: Accuracy is geometry dependent. Achievable accuracy specification derived from statistical data at 95% dimensional yield.
Network Communication	10/100 base T connection. Ethernet protocol. Wired: TCP/IPv6 protocols
Operator Attendance	Limited attendance for job start and stop required
Power Requirements	208VAC 3 phase, 50/60 Hz, consumes 18 Amps
Regulatory Compliance	CE, cTUVus, RCM, EAC, FCC Part B
Software	All Fortus systems include Insight™ and Control Center™ job processing and management software. Compatible with GrabCAD Print™ and GrabCAD Print Pro™ for use with part processing, job reports, scheduling and remote monitoring. OpenAM software is available through the purchase of an OpenAM License.
Operating System	Insight: Microsoft Windows 11, Microsoft Windows 10, or Microsoft Windows Server 2012 R2 GrabCAD Print, GrabCAD Print Pro, and OpenAM: Windows 10 and newer, Windows Server 2016 and newer. Only 64-bit versions of Windows are supported.



Ready to accelerate production?

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