Fortus 450mc

Increase manufacturing efficiency with the Fortus 450mc™ 3D printer.

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.

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Brochure

Built for streamlined manufacturing.

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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 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.

Smart-factory integration.

Companies embracing Industry 4.0 concepts of automation, on-demand manufacturing and data safeguards need connected 3D printing solutions that securely integrate with their smart factory infrastructure.

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 Shop™ 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. You can also apply changes directly to inserts, self-supporting holes, and hard infills.

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.

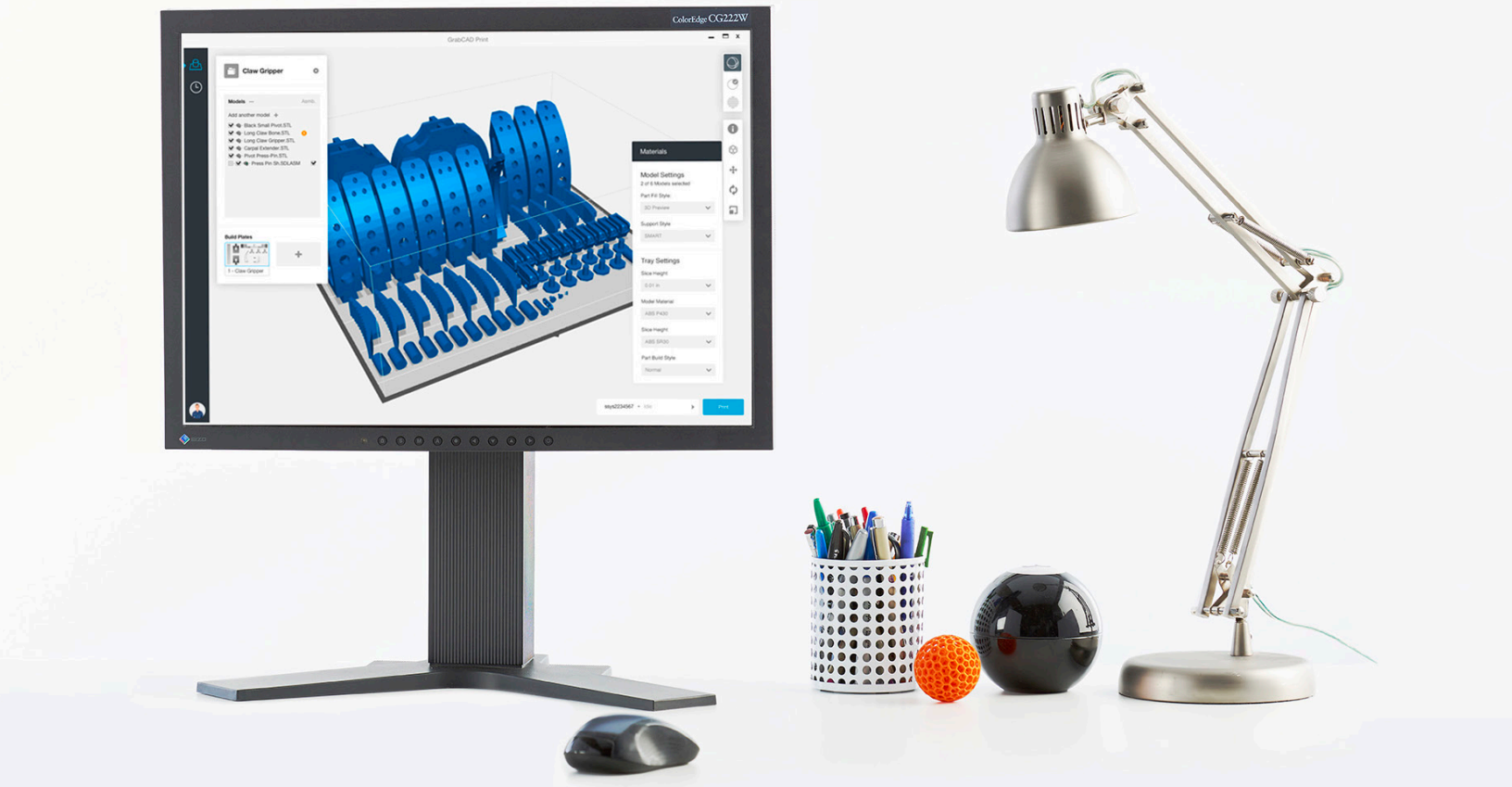
With Insight, you can fine-tune part performance and material use for greater cost efficiency. The Fortus 450mc also features an intuitive touchscreen interface that requires little to no training to navigate.

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.

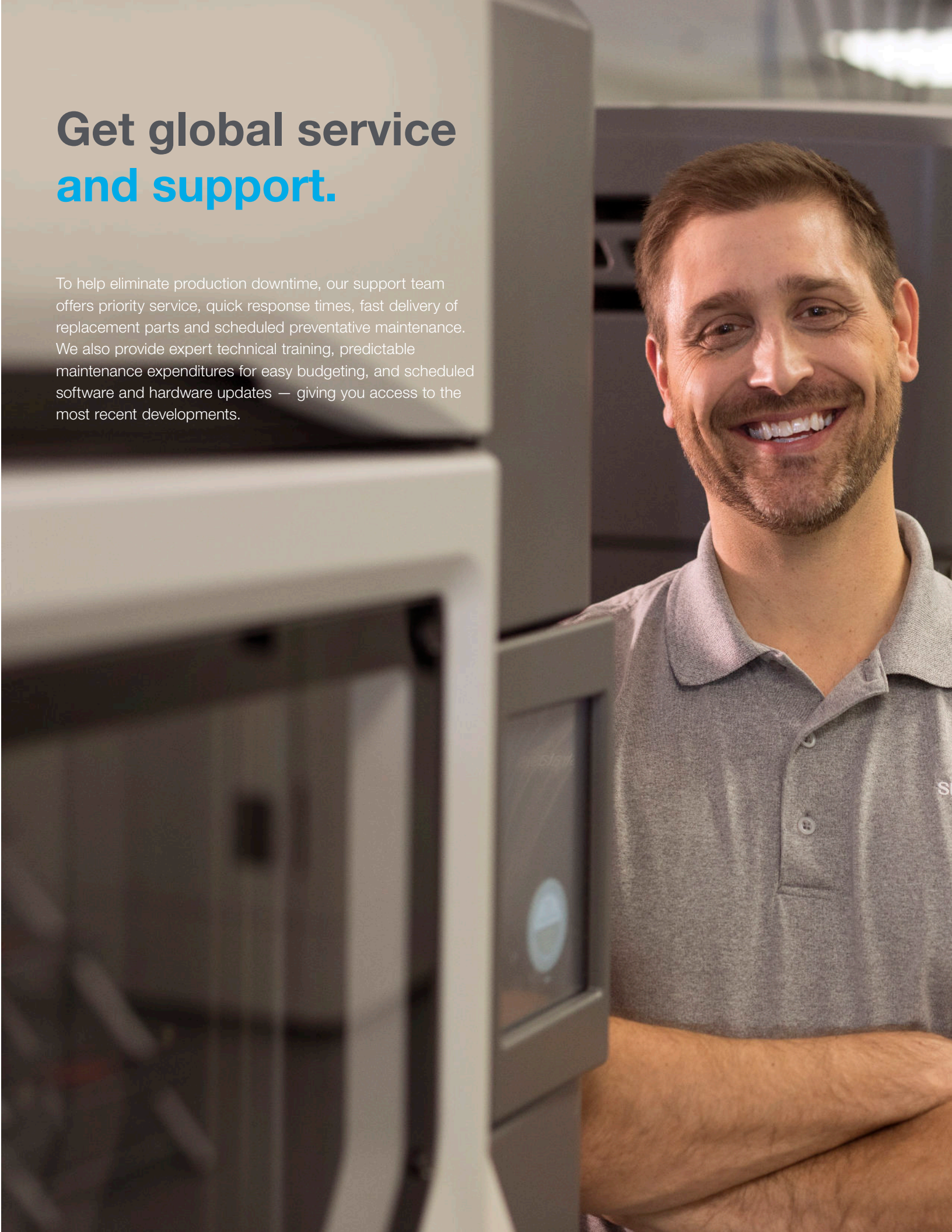
OpenAM works with all three Stratasys material tiers. You can develop your own unique materials or optimize a Stratasys Preferred or Stratasys Validated material to meet your specific design requirements.

OpenAM software is accessible through a separately purchased Open Material License (OML).



Get global service and support.

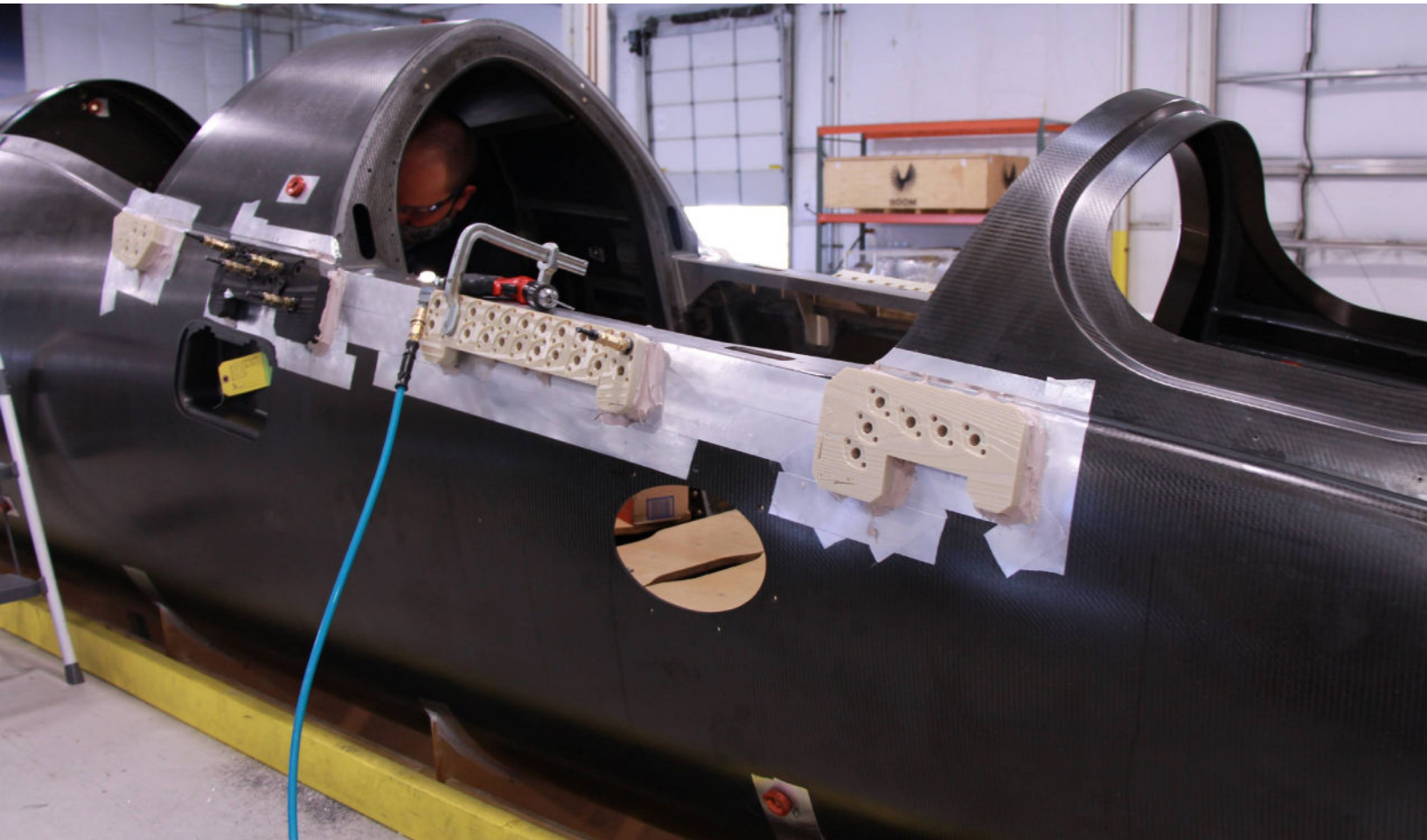
To help eliminate production downtime, our support team offers priority service, quick response times, fast delivery of replacement parts and scheduled preventative maintenance. We also provide expert technical training, predictable maintenance expenditures for easy budgeting, and scheduled software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



See the specs.

Product Specifications							
Stratasys Preferred Materials							
Material	**Layer Thickness**				**Support Structure**	**Available Colors**	
	0.330 mm (0.013 in.)	0.254 mm (0.010 in.)	0.178 mm (0.007 in.)	0.127 mm (0.005 in.)			
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
FDM Nylon 12™	●	●	●	○	Soluble	■ Black	
FDM Nylon 12CF™	○	●	○	○	Soluble	■ Black	
PC	●	●	●	●	Breakaway, Soluble	□ White	
PC-ABS	●	●	●	●	Soluble	■ Black	
PC-ISO™	●	●	●	○	Breakaway	■ Translucent Natural	□ White
ULTEM™ 9085 resin	●	●	○	○	Breakaway	■ Tan	■ Black
ULTEM™ 1010 resin	●	●	○	○	Breakaway	■ Natural	
ST-130	●	○	○	○	Breakaway	■ Tan	
Stratasys Validated Materials							
FDM HIPS	○	●	○	○	Breakaway	■ Light Gray	
Addigy® PA6/66-GF20 FR LS	○	●	○	○	Breakaway	■ Black	
Victrex AM™ 200	○	●	○	○	Soluble	■ Natural	
Kimya Kepstan® PEKK-SC	○	●	○	○	Breakaway	■ Natural	
Kimya PC-FR	○	●	○	○	Soluble	■ Light Gray	
ULTEM® 9085 Resin (colored)	○	●	○	○	Breakaway	■ Red ■ JanaWhite ■ Dream Gray	□ White 7362 ■ Gunship Gray ■ Aircraft Gray
PC (polycarbonate)	○	●	○	○	Soluble	■ Red	■ Black
PC-ABS (polycarbonate/ABS blend)	○	●	○	○	Soluble	■ Red	

Product Specifications	
System Size and Weight	129.5 cm x 90.2 cm x 198.4 cm (51 x 35.5 x 78.1 in.) 601 kg (1325 lbs.)
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.
Operator Attendance	Limited attendance for job start and stop required.
Power Requirements	208 VAC (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 job reports, scheduling and remote monitoring. OpenAM software is available through the purchase of an Open Material License.
Operating System	Windows 10 and newer, Windows Server 2016 and newer. Only 64-bit versions of Windows are supported.



Ready to accelerate production?

Learn more about the Fortus 450mc 3D printer at Stratasys.com.

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