stratasys | alphacam
SOLUTIONS FOR A 3D WORLD®

BROCHURE
FDM

Stratasys
FDM 3D Printers and Materials

Reliable. Repeatable. Exceptional.



Stronger.
Faster.
Better.

The FDM technology with unmatched versatility and proven performance.



Flexible options. Durable results.

FDM® (fused deposition modeling) 3D printers offer unparalleled versatility to turn your CAD files into durable parts. These parts are tough enough to be used as advanced conceptual models, functional prototypes, manufacturing tools and production parts. Engineers can produce a wide variety of products just by loading different files and materials. No traditional machining process can do that.





Superior materials. Unrivalled repeatability.

FDM technology works with standard, engineering and high-performance thermoplastics to build strong, long-lasting and dimensionally stable parts with unmatched accuracy and repeatability. FDM printers make parts with common plastics such as ASA and ABS, as well as more specialty thermoplastics such as composites, thermoplastic polyurethane, PEKK and PEEK-based materials. This broad range of FDM materials enables a wide range of applications that include manufacturing tooling, prototyping and production parts.



Bigger parts.
Improved designs.

FDM systems are as versatile and durable as the parts they produce. FDM 3D printers boast the largest build envelopes and material capacities in their class, delivering longer, uninterrupted build times, bigger parts and higher production run quantities than other additive manufacturing systems. Plus, they're true production workhorses, delivering the high throughput, duty cycles and utilization rates that make digital manufacturing not only possible, but practical.





Faster workflow. Efficient processes.

FDM 3D printers can streamline processes from design through manufacturing, reducing costs and eliminating traditional barriers along the way. With FDM technology a designer can create an idea and test it the same day. Industries can cut lead times and costs, products turn out better and get to market faster. Breakthrough designs, process innovations, just-in-time manufacturing — whatever you can imagine, FDM technology can make it happen.

Optimize your FDM printing experience with GrabCAD Print software.

Experience a new level of print control and precision with GrabCAD Print for FDM. Gain in-depth insights into your models, tray layout, and slice previews, along with tools that enhance part accuracy and consistency. Our software provides proven standard functionality to support high-performance prototypes and efficient scale manufacturing. With purpose-based tools to boost part precision, reduce preparation time, prioritize parts, refine details, and make high-level geometric adjustments with ease. For even more comprehensive capabilities, GrabCAD Print Pro™ offers additional features such as labeling for traceability, automation, part cost estimation, automatic model correction, and more.

More Materials.
More Benefits.

Material	Highlights
ABS-CF10 (acrylonitrile butadiene styrene - carbon fiber)	• Strong, stiff material filled with carbon fiber for jigs, fixtures and other tooling applications • Over 50% stiffer and 15% stronger than ABS-M30
ABS Draft	• Low-cost draft material with 80% of ABS-M30's mechanical performance • Produces quick prototypes and parts where aesthetics is not a requirement. • Stratasys Validated Material
ABS-ESD7™ (acrylonitrile butadiene styrene - static dissipative)	• Electrostatic-dissipative with surface resistance 104-109 ohms • Makes great assembly tools for electronic and static-sensitive products • Widely used for functional prototypes of cases, enclosures and packaging
ABS-M30i™ (acrylonitrile butadiene styrene - biocompatible)	• Strong, biocompatible material capable of sterilization and suitable for use in medical devices • Complies with the test requirements of ISO 10993, USP Class VI and ISO 18562
ABS-M30™ (acrylonitrile butadiene styrene)	• Versatile material: good for form, fit and functional applications • Familiar production material for accurate prototyping
Antero® 800NA (polyetherketoneketone)	• High heat and chemical resistance • Low outgassing and high dimensional stability • Excellent strength, toughness and wear-resistant properties
Antero® 840CN03 (polyetherketoneketone)	• Excellent ESD (electrostatic dissipative) properties • High heat and chemical resistance • Low outgassing and high dimensional stability • Excellent strength, toughness and wear-resistant properties
ASA (acrylonitrile styrene acrylate)	• Build UV-stable parts with the best aesthetics of any FDM material • Ideal for production parts for outdoor infrastructure and commercial use, outdoor functional prototyping and automotive parts and accessory prototypes



Material	Highlights
Diran™ 410MF07 (nylon-based polymer)	• Good mechanical properties and toughness • Smooth texture with low sliding friction • Best fit for production of jigs, fixtures and manufacturing aids
FDM® HIPS (high-impact polystyrene)	• Similar properties to ABS but with much higher impact resistance • Lower-cost material for general purpose printing • Stratasys Validated Material
FDM® Nylon 12 (polyamide 12)	• The toughest nylon in additive manufacturing • Excellent for repetitive snap fits, press fit inserts and fatigue-resistant applications • Simple, clean process – free of powders
FDM® Nylon 12CF™ (polyamide 12 carbon fiber)	• Nylon 12 with 35% chopped carbon fiber by weight • Carbon fiber reinforced thermoplastic with excellent structural characteristics • Highest flexural strength and highest stiffness-to-weight ratio
FDM® Nylon 6 (polyamide 6)	• Combines strength and toughness superior to other thermoplastics • Produces durable parts with a clean finish and high break resistance
FDM® Nylon-CF10 (polyamide blend with carbon fiber)	• Nylon-blend polymer with 10% chopped carbon fiber by weight • Falls between ABS-CF10 and FDM Nylon 12CF composite materials in strength and stiffness • Strongest material on the F123CR series and offers good chemical resistance • Compatible with QSR soluble support and SUP4000B breakaway support
FDM® PA6/66-GF30-FR (polyamide 6/66)	• Nylon 6/66 with 30% glass fiber by weight • Delivers excellent stiffness, tensile strength and durability • Certified fire safety for rail applications (EN 45545-2 HL2) • High quality parts with easy support removal
FDM™ TPU 92A (thermoplastic polyurethane)	• Elastomer material with Shore A value of 92 • Extremely flexible, durable, and resilient material compatible with soluble support • Accelerates elastomer prototyping without the need for molds • TPU 92A Red available as a Stratasys Validated Material
PC (polycarbonate)	• Accurate, durable and stable for strong parts, patterns for metal bending and composite work • Great for demanding prototyping needs, tooling and fixtures • PC-Red and PC-Black are available as Stratasys Validated Materials
PC-ABS (polycarbonate - acrylonitrile butadiene styrene)	• Superior mechanical properties and heat resistance of PC • Excellent feature definition and surface appeal of ABS • PC-ABS red is available as a Stratasys Validated Material
PC-ESD (electrostatic dissipative polycarbonate)	• Strong, durable, ESD material with a higher allowable usage temperature • Excellent mechanical properties and good chemical resistance • Stratasys Validated Material
PC-ISO™ (polycarbonate - biocompatible and sterilizable)	• Sterilizable using gamma radiation or ethylene oxide (EtO) sterilization methods • Best fit for applications requiring higher strength and sterilization
PLA (polylactic acid)	• Fast printing • Economical and user-friendly • Ideal for concept models
PPSF (polyphenylsulfone)	• Mechanically superior material, greatest strength • Ideal for applications in caustic and high heat environments
ST-130™ (sacrificial tooling)	• Designed specifically for hollow composite parts • Fast, hands-free dissolution time • High heat and autoclave pressure resistance
ULTEM™ 1010 resin (polyetherimide)	• Highest heat resistance, chemical resistance and tensile strength • Outstanding strength and thermal stability
ULTEM™ 9085 resin (polyetherimide)	• High heat and chemical resistance; highest flexural strength • Meets FST (flame, smoke, toxicity) requirements • Additional colors beyond standard natural and black are available as Stratasys Validated Materials
VICTREX AM™ 200 (polyetheretherketone)	• Based on LMPAEK™ technology, VICTREX AM 200 is part of the PEEK family in the PAEK polymer group • Optimized for FDM printing allowing greater control over crystallinity rates • Compatible with SR-100 soluble support and SUP8000B breakaway support • Stratasys Validated Material

A Printer for Every Purpose.






	F170™	F190™CR	F370™	F370®CR
Build Envelope	254 x 254 x 254 mm (10 x 10 x 10 in.)	305 x 254 x 305 mm (12 x 10 x 12 in.)	355 x 254 x 355 mm (14 x 10 x 14 in.)	355 x 254 x 355 mm (14 x 10 x 14 in.)
System Size/Weight	1,626 x 864 x 711 mm (64 x 34 x 28 in.) 227 kg (500 lbs) with consumables	1,626 x 864 x 711 mm (64 x 34 x 28 in.) 227 kg (500 lbs) with consumables	1,626 x 864 x 711 mm (64 x 34 x 28 in.) 227 kg (500 lbs) with consumables	1,626 x 864 x 711 mm (64 x 34 x 28 in.) 227 kg (500 lbs) with consumables
Material Options	ABS-CF10, ABS-M30, ASA, FDM TPU 92A, PLA	ABS-CF10, ABS-M30, ASA, FDM TPU 92A, FDM Nylon-CF10	ABS-CF10, ABS-ESD7, ABS-M30, ASA, Diran 410MF07, FDM TPU 92A, PC-ABS, PLA	ABS-CF10, ABS-ESD7, ABS-M30, ASA, Diran 410MF07, FDM Nylon 12CF, FDM Nylon-CF10, FDM TPU 92A, PC-ABS
Achievable Accuracy[1]	Parts are produced within an accuracy of: +/- 0.008 in. (0.200 mm), or +/- 0.002 in./in. (0.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of: +/- 0.008 in. (0.200 mm), or +/- 0.002 in./in. (0.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of: +/- 0.008 in. (0.200 mm), or +/- 0.002 in./in. (0.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of: +/- 0.008 in. (0.200 mm), or +/- 0.002 in./in. (0.002 mm/mm), whichever is greater.
Software	**Insight™:** Insight software prepares 3D digital part files (output as an STL) to be manufactured on an FDM 3D printer by automatically slicing and generating support structures and material extrusion paths in one push of a button. If necessary, users can override Insight's defaults to manually edit parameters that control the look, strength and precision of parts as well as the time, throughput, expense and efficiency of the FDM process. (on F370 and F370CR only) **Control Center™:** Software that manages and monitors the production status of a fleet of printers. Control Center maximizes efficiency, throughput, and utilization, while minimizing response time. It is included with Insight software and is compatible with the F370 and F370CR. **GrabCAD Print™:** A comprehensive solution for programming jobs for all Stratasys print technologies. Import a boundary representation (BREP) or faceted model, and print using the last selected printer and its default settings. Or choose a different printer and customize settings; for the tray, for a model, for a body in a model. Set the printing order, preview the toolpath, click Print, and monitor the progress of this job and others in the shop. **GrabCAD Print Pro™:** Subscription software that expands the power of GrabCAD Print. Analyze a model for thickness issues. Eliminate voids or separate into a multi-body part. Auto repair geometry errors. Split models in half for smaller printers or create an array to better use Z space. Add a texture for aesthetics, or a label for identification. Calculate the per part cost- in money, or carbon footprint. These abilities- and much more!			

[1] Accuracy is geometry-dependent. Achievable accuracy specification derived from statistical data at 95% dimensional yield. Z part accuracy includes an additional tolerance of -0.000/+slice height.







	F770™	F870™	Fortus® 450mc™
Build Envelope	1,000 x 610 x 610 mm (39.4 x 24 x 24 in.)	1,000 x 610 x 610 mm (39.4 x 24 x 24 in.)	406 x 355 x 406 mm (16 x 14 x 16 in.)
System Size/Weight	1,752 x 1,244 x 1,955 mm (69 x 49 x 77 in.) 658 kg (1,450 lbs)	1,752 x 1,244 x 1,955 mm (69 x 49 x 77 in.) 817 kg (1,800 lbs)	1,295 x 901.7 x 1,984 mm (51 x 35.5 x 78.1 in.) 601 kg (1,325 lbs)
Material Options	ABS-M30, ASA	ABS-M30, ABS Draft (Gray), ASA, FDM Nylon 12CF	ABS-ESD7, ABS-M30, ABS-M30i, Antero 800NA, Antero 840CN03, ASA, FDM HIPS, FDM Nylon 12, FDM Nylon 12CF, FDM PA6/66-GF30-FR, PC, PC-ABS, PC-ESD, PC-ISO, ST-130, ULTEM™ 1010 resin, ULTEM™ 9085 resin, VICTREX AM™ 200
Achievable Accuracy[1]	Parts are produced within an accuracy of: +/- 0.254 mm (0.010 in.) or +/- 0.002 mm/mm (0.002 in./in.) whichever is greater.	Parts are produced within an accuracy of: +/- 0.254 mm (0.010 in.) or +/- 0.002 mm/mm (0.002 in./in.) whichever is greater.	Parts are produced within an accuracy of: +/- 0.127 mm (0.005 in.) or +/- 0.0015 mm/mm (0.0015 in./in.), whichever is greater.
Software	**Insight:** Insight software prepares 3D digital part files (output as an STL) to be manufactured on an FDM 3D printer by automatically slicing and generating support structures and material extrusion paths in one push of a button. If necessary, users can override Insight's defaults to manually edit parameters that control the look, strength and precision of parts as well as the time, throughput, expense and efficiency of the FDM process. **Control Center:** Software that manages and monitors the production status of a fleet of printers. Control Center maximizes efficiency, throughput, and utilization, while minimizing response time. It is included with Insight software. **GrabCAD Print:** A comprehensive solution for programming jobs for all Stratasys print technologies. Import a boundary representation (BREP) or faceted model, and print using the last selected printer and its default settings. Or choose a different printer and customize settings; for the tray, for a model, for a body in a model. Set the printing order, preview the toolpath, click Print, and monitor the progress of this job and others in the shop. **GrabCAD Print Pro:** Subscription software that expands the power of GrabCAD Print. Analyze a model for thickness issues. Eliminate voids or separate into a multi-body part. Auto repair geometry errors. Split models in half for smaller printers or create an array to better use Z space. Add a texture for aesthetics, or a label for identification. Calculate the per part cost- in money, or carbon footprint. These abilities- and much more! **OpenAM:** The OpenAM™ software/hardware application allows modification of machine controls to augment 3D printing capabilities. This includes modifying Stratasys Preferred and Validated Material characteristics to enhance the properties of printed parts, use and modification of non-Stratasys generic materials to accommodate application needs, and development of new material formulations. (Available only on the Fortus 450mc and F900)		

[1] Accuracy is geometry-dependent. Achievable accuracy specification derived from statistical data at 95% dimensional yield. Z part accuracy includes an additional tolerance of -0.000/+slice height.





	F900®	F3300®
Build Envelope	914 x 610 x 914 mm (36 x 24 x 36 in.)	600 x 600 x 800 mm (23.6 x 23.6 x 31.5 in.)
System Size/Weight	2,772 x 1,683 x 2,281 mm (109.1 x 66.3 x 89.8 in.) 2,869 kg (6,325 lbs)	2,032 x 1,626 x 2,362 mm (80 x 64 x 93 in.) 1,360 kg (3,000 lbs)
Material Options	ABS-ESD7, ABS-M30, ABS-M30i, Antero 800NA, Antero 840CN03, ASA, FDM HIPS, FDM Nylon 12, FDM Nylon 12CF, FDM Nylon 6, FDM PA6/66-GF30-FR, PC, PC-ABS, PC-ESD, PC-ISO, PPSF, ST-130, ULTEM™ 1010 resin, ULTEM™ 9085 resin, VICTREX AM™ 200	ABS Draft, ABS-ESD7, Antero 800NA CG, ASA, FDM Nylon 12CF, PC, ULTEM™ 1010 resin, ULTEM™ 9085 resin, ULTEM™ 9085 resin CG
Achievable Accuracy[1]	Parts are produced within an accuracy of: +/- 0.089 mm (0.0035 in.) or +/- 0.0015 mm/mm (0.0015 in./in.), whichever is greater.[2]	XY part accuracy +/- 0.089 mm (0.0035 in.) or +/- 0.0015 mm/mm (0.0015 in./in.) whichever is greater. Z part accuracy +/- 0.200 mm (0.008 in.) or +/- 0.002 mm/mm (0.002 in./in.) plus 1 layer height.
Software	**Insight:** Insight software prepares 3D digital part files (output as an STL) to be manufactured on an FDM 3D printer by automatically slicing and generating support structures and material extrusion paths in one push of a button. If necessary, users can override Insight's defaults to manually edit parameters that control the look, strength and precision of parts as well as the time, throughput, expense and efficiency of the FDM process. **Control Center:** Software that manages and monitors the production status of a fleet of printers. Control Center maximizes efficiency, throughput, and utilization, while minimizing response time. It is included with Insight software. **GrabCAD Print:** A comprehensive solution for programming jobs for all Stratasys print technologies. Import a boundary representation (BREP) or faceted model, and print using the last selected printer and its default settings. Or choose a different printer and customize settings; for the tray, for a model, for a body in a model. Set the printing order, preview the toolpath, click Print, and monitor the progress of this job and others in the shop. **GrabCAD Print Pro:** Subscription software that expands the power of GrabCAD Print. Analyze a model for thickness issues. Eliminate voids or separate into a multi-body part. Auto repair geometry errors. Split models in half for smaller printers or create an array to better use Z space. Add a texture for aesthetics, or a label for identification. Calculate the per part cost- in money, or carbon footprint. These abilities- and much more! **ProtectAM™:** Enables STIG compliance required by U.S. government agencies via Red Hat® Enterprise Linux® technology. (available on the F900 only) **OpenAM:** The OpenAM™ software/hardware application allows modification of machine controls to augment 3D printing capabilities. This includes modifying Stratasys Preferred and Validated Material characteristics to enhance the properties of printed parts, use and modification of non-Stratasys generic materials to accommodate application needs, and development of new material formulations. (Available only on the Fortus 450mc and F900)	

[1] Accuracy is geometry-dependent. Achievable accuracy specification derived from statistical data at 95% dimensional yield. Z part accuracy includes an additional tolerance of -0.000/+slice height.

[2] See Fortus 900mc accuracy study white paper for more information.

Premium Materials.
Premium Performance.

FDM 3D printers use a variety of engineering-grade and high-performance thermoplastics to manufacture functional parts directly from digital data. When combined with FDM 3D printers, FDM thermoplastics deliver high-quality parts for concept modeling, functional prototyping, manufacturing tools, and production parts.

Stratasys FDM materials are categorized in tiers based on the level of testing each material has received. Stratasys Preferred Materials are developed by Stratasys or a third-party provider and have been engineered and tested to provide the optimal combination of material and printer performance.

Stratasys Validated Materials are developed by Stratasys or a third-party provider and have received basic reliability testing to meet Stratasys quality standards for use with Stratasys FDM printers.

Preferred Materials

	Antero® 800NA	Antero® 840CN03	ULTEM™ 1010 resin	ULTEM™ 9085 resin	PPSF	ST-130
System Availability	Fortus 450mc, F900, F3300	Fortus 450mc, F900	Fortus 450mc, F900, F3300	Fortus 450mc, F900, F3300	F900	Fortus 450mc, F900
Available Layer Thicknesses[1]	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)	0.25 mm (0.010 in.) 0.33 mm (0.013 in.) 0.51 mm (0.020 in.)	0.188 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.) 0.51 mm (0.020 in.)	0.25 mm (0.010 in.)	0.33 mm (0.013 in.)
Support Structure	SUP8000B™ breakaway	SUP8000B breakaway	SUP9000B breakaway	SUP8500B breakaway	PPSF support breakaway	ST-130 support breakaway
Available Colors	■ Natural	■ Natural	■ Natural	■ Natural ■ Black	■ Natural	■ Natural
Tensile Strength (peak)[2]	**XZ:** 73.0 MPa (10,600 psi) **ZX:** 59.7 MPa (8,650 psi)	**XZ:** 54.1 MPa (7,850 psi) **ZX:** 52.6 MPa (7,630 psi)	**XZ:** 79.2 MPa (11,500 psi) **ZX:** 28.2 MPa (4,080 psi)	**XZ:** 69.2 MPa (10,000 psi) **ZX:** 39.4 MPa (5,710 psi)	**ZX:** 55 MPa (8,000 psi)	–
Tensile Elongation at break[2]	**XZ:** 6.1% **ZX:** 2.3%	**XZ:** 12% **ZX:** 1.9%	**XZ:** 4.0% **ZX:** 1.1%	**XZ:** 5.4% **ZX:** 1.9%	**XZ:** 3.0%	–
Flexural Strength[2]	**XZ:** No break **ZX:** 106 MPa (15,400 psi)	**XZ:** No break **ZX:** 85.3 MPa (12,400 psi)	**XZ:** No break **ZX:** 81.6 MPa (11,800 psi)	**XZ:** 104 MPa (15,000 psi) **ZX:** 73.1 MPa (10,600 psi)	**XZ:** 110 MPa (15,900 psi)	–
IZOD Impact, Notched[2]	**XZ:** 41.1 J/m (0.770 ft*lb/in) **ZX:** 33.3 J/m (0.623 ft*lb/in)	**XZ:** 45.8 J/m (0.858 ft*lb/in) **ZX:** 30.7 J/m (0.575 ft*lb/in)	**XZ:** 26.6 J/m (0.498 ft*lb/in) **ZX:** 21.7 J/m (0.407 ft*lb/in)	**XZ:** 88.5 J/m (1.66 ft*lb/in) **ZX:** 39.2 J/m (0.735 ft*lb/in)	**XZ:** 58.7 J/m (1.1 ft*lb/in.)	–
Molded HDT at 264 psi[2]	147.23 °C (297.01 °F)	150.8 °C (303.4 °F)	212.2 °C (413.9 °F)	172.9 °C (343.2 °F)	189 °C (372 °F)	108 °C (226 °F)
Unique Properties	High strength, heat and chemical resistance, low outgassing, aerospace grade available	Electrostatic dissipative (ESD) properties, high chemical resistance	High heat resistance and good compression strength for composite tooling	Flame, smoke, and toxicity (FST) rated, ULTEM™ 9085 resin Aerospace grade available	High heat resistance	Soluble for sacrificial tooling applications

[1] Reference the specific printer spec sheet, the specific material datasheet, Insight, or GrabCAD Print for more information on compatible layer thicknesses.
[2] See individual material datasheets for testing details.

	FDM® Nylon 6	FDM® Nylon-CF10	FDM® Nylon 12	FDM® Nylon 12CF™	FDM® PA6/66-GF30-FR	PC
System Availability	F900	F190CR, F370CR	Fortus 450mc, F900	F370CR, F870, Fortus 450mc, F900, F3300	Fortus 450mc, F900	Fortus 450mc, F900, F3300
Available Layer Thicknesses[1]	0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.25 mm (0.010 in.) 0.51 mm (0.020 in.)	0.25 mm (0.010 in.) 0.33 mm (0.013 in.) 0.51 mm (0.020 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)
Support Structure	SR-110™ soluble support	QSR soluble support, SUP4000B™ breakaway support	SR-110 soluble support	SR-35™ soluble support, SR-110 soluble support	SUP4050B breakaway	PC support breakaway, SR-100™ soluble support, SR-110 soluble support[2]
Available Colors	■ Black	■ Dark Gray	■ Black	■ Black	■ Black	❑ White
Tensile Strength (peak)[3]	**XZ:** 67.6 MPa (9,800 psi) **ZX:** 36.5 MPa (5,300 psi)	**XZ:** 69.1 MPa (10,034 psi) **ZX:** 25.4 MPa (3,684 psi)	**XZ:** 49.3 MPa (7,140 psi) **ZX:** 41.8 MPa (6,060 psi)	**XZ:** 83.5 MPa (12,100 psi) **ZX:** 32.7 MPa (4,750 psi)	**XZ:** 61.1 MPa (8,860 psi) **ZX:** 23.7 MPa (3,440 psi)	**XZ:** 57.9 MPa (8,390 psi) **ZX:** 35.5 MPa (5,150 psi)
Tensile Elongation at break[3]	**XZ:** 38.0% **ZX:** 3.2%	**XZ:** 4.74% **ZX:** 2.41%	**XZ:** 30.0% **ZX:** 6.5%	**XZ:** 2.4% **ZX:** 1.2%	**XZ:** 4.6% **ZX:** 1.1%	**XZ:** 5.2% **ZX:** 2.0%
Flexural Strength[3]	**XZ:** 97.2 MPa (14,100 psi) **ZX:** 82 MPa (11,900 psi)	**XZ:** 123.7 MPa (17,940 psi) **ZX:** 39.7 MPa (5,751 psi)	**XZ:** No break **ZX:** No break	**XZ:** 153 MPa (22,200 psi) **ZX:** 62.4 MPa (9,080 psi)	**XZ:** 121 MPa (17,500 psi) **ZX:** 47.4 MPa (6,880 psi)	**XZ:** No break **ZX:** 75.0 MPa (10,900 psi)
IZOD Impact, Notched[3]	**XZ:** 106 J/m (2.0 ft*lb/in) **ZX:** 43 J/m (0.8 ft*lb/in)	**XZ:** 202.7 J/m (3.79 ft*lb/in) **ZX:** 36.4 J/m (0.68 ft*lb/in)	**XZ:** 138 J/m (2.58 ft*lb/in) **ZX:** 71.0 J/m (1.33 ft*lb/in)	**XZ:** 106 J/m (1.99 ft*lb/in) **ZX:** 24.0 J/m (0.45 ft*lb/in)	**XZ:** 74.6 J/m (1.4 ft*lb/in) **ZX:** 17.2 J/m (0.322 ft*lb/in)	**XZ:** 76.8 J/m (1.44 ft*lb/in) **ZX:** 26.9 J/m (0.503 ft*lb/in)
Molded HDT at 264 psi[3]	93 °C (199 °F)	62 °C (144 °F)[4]	84.3 °C (183.8 °F)[5]	153.7 °C (308.7 °F)[4]	**XY:** 35 °C (95 °F) **XZ:** 153 °C (307.4 °F)	142.2 °C (288.0 °F)
Unique Properties	Very high strength and toughness combined	Carbon fiber filled 10%	Fatigue resistance, high elongation at break	Stiffest FDM material	Flame-retardant nylon that meets EN 45545-2 flammability requirements.	Strong (tension)

[1] Reference the specific printer spec sheet, the specific material datasheet, Insight, or GrabCAD Print for more information on compatible layer thicknesses.
[2] PC paired with SR-110 soluble support is only available on the F3300.
[3] See individual material datasheets for testing details.
[4] Data is as-printed XZ/ZX.
[5] Data is as-printed XY.

	PC-ISO™	PC-ABS	ASA	ABS-ESD7™	ABS-M30™
System Availability	Fortus 450mc, F900	F370CR, F370, Fortus 450mc, F900	F190CR, F370CR, F170, F370, F770, F870, Fortus 450mc, F900, F3300	F370, F370CR, Fortus 450mc, F900, F3300	F190CR, F370CR, F170, F370, F770, F870, Fortus 450mc, F900
Available Layer Thicknesses[1]	0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.) 0.51 mm (0.020 in.)	0.18 mm (0.007 in.) 0.25 mm (0.010 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)
Support Structure	PC support breakaway	QSR soluble support, SR-110™ soluble support	QSR soluble support, SR-30™ soluble support, SR-35 soluble support	QSR soluble support, SR-30 soluble support, SR-35 soluble support	QSR soluble support, SR-30 soluble support, SR-35 soluble support
Available Colors[2]	□ White ■ Translucent Natural	■ Black □ White	■ Natural ■ Black ■ Dark Gray ■ Light Gray □ White ■ Red ■ Orange ■ Yellow ■ Green ■ Camouflage Green ■ Camouflage Tan ■ Dark Blue	■ Black	■ Natural □ White ■ Black ■ Dark Gray ■ Red ■ Blue ■ Orange ■ Yellow ■ Green
Tensile Strength (peak)[3]	**XZ:** 57 MPa (8,300 psi)	**XZ:** 36.5 MPa (5,300 psi) **ZX:** 25.9 MPa (3,760 psi)	**XZ:** 32.8 MPa (4,750 psi) **ZX:** 28.3 MPa (4,110 psi)	**XZ:** 35.4 MPa (5,130 psi) **ZX:** 27.0 MPa (3,920 psi)	**XZ:** 4,470 psi (30.8 MPa) **ZX:** 27.5 MPa (3,990 psi)
Tensile Elongation at break[3]	**XZ:** 4.0%	**XZ:** 4.7% **ZX:** 1.8%	**XZ:** 5.9% **ZX:** 1.8%	**XZ:** 3.40% **XZ:** 1.59%	**XZ:** 8.1% **ZX:** 1.8%
Flexural Strength[3]	**XZ:** 90 MPa (13,100 psi)	**XZ:** No break **ZX:** 46.2 MPa (6,700 psi)	**XZ:** No break **ZX:** 51.0 MPa (7,390 psi)	**XZ:** No break **XZ:** 44.3 MPa (6,440 psi)	**XZ:** No break **ZX:** 47.7 MPa (6,910 psi)
IZOD Impact, Notched[3]	**XZ:** 86 J/m (1.6 ft*lb/in)	**XZ:** 241 J/m (4.52 ft*lb/in) **ZX:** 34.0 J/m (0.637 ft*lb/in)	**XZ:** 43.1 J/m (0.808 ft*lb/in) **ZX:** 23.8 J/m (0.445 ft*lb/in)	**XZ:** 36.2 J/m (0.678 ft*lb/in) **ZX:** 20.5 J/m (0.384 ft*lb/in)	**XZ:** 101 J/m (1.89 ft*lb/in) **ZX:** 32.2 J/m (0.603 ft*lb/in)
Molded HDT at 264 psi[3]	126 °C (260 °F)	102.9 °C (217.2 °F)	97.9 °C (208.3 °F)	101.4 °C (214.6 °F)	99.9 °C (211.7 °F)
Unique Properties	Biocompatible	Strong (impact)	UV stable with the best aesthetics of any FDM material	Electrostatic-dissipative (ESD) properties	Variety of color options

[1] Reference the specific printer spec sheet or the specific material datasheet for more information on compatible layer thicknesses.
[2] Reference the specific printer spec sheet or the specific material datasheet for more information on compatible colors.
[3] See individual material datasheets for testing details.

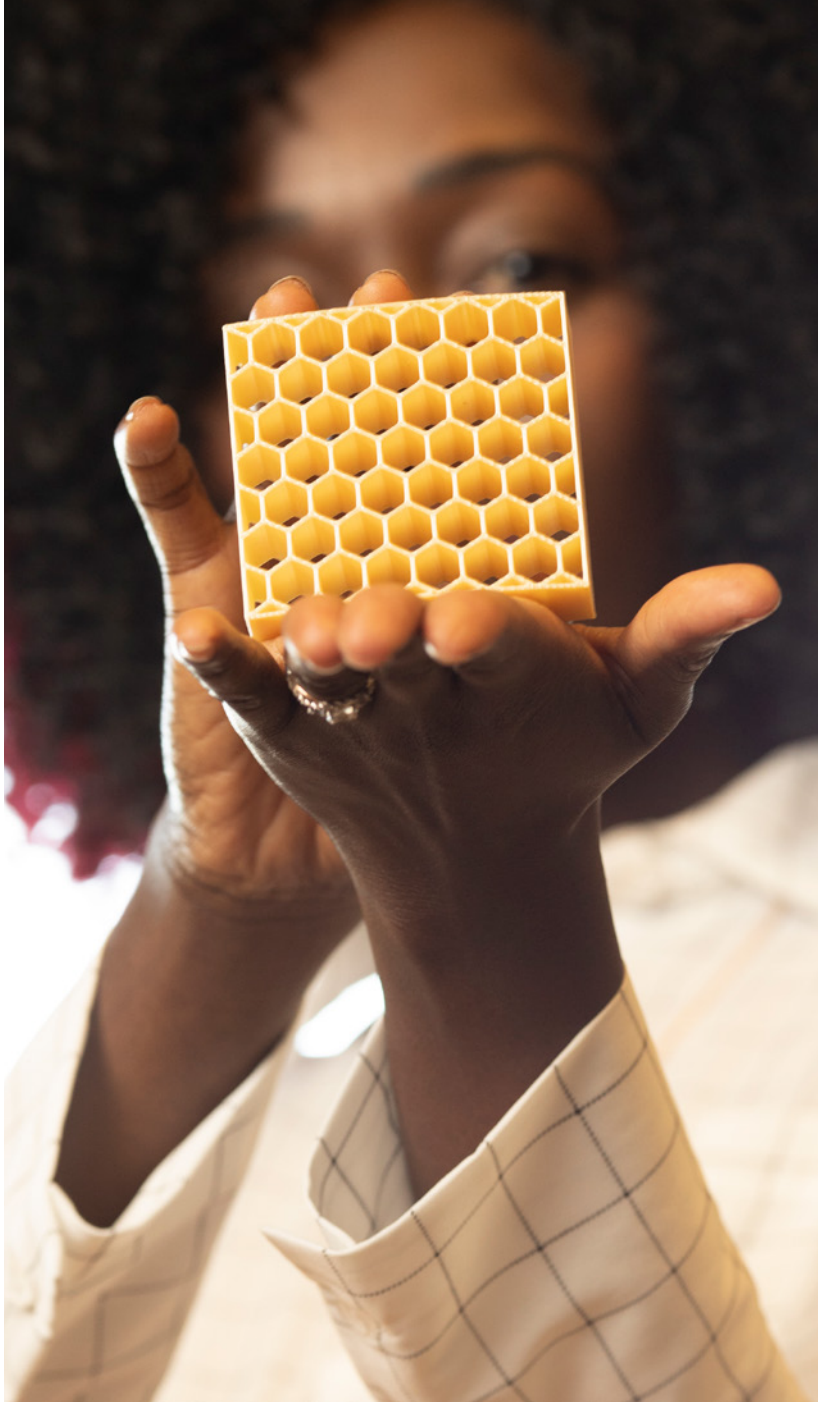
	Diran™ 410MF07	PLA	FDM® TPU 92A	ABS-CF10	ABS-M30i™
System Availability	F370CR, F370	F170, F370	F190CR, F370CR, F170, F370	F190CR, F370CR, F170, F370	Fortus 450mc, F900
Available Layer Thicknesses[1]	0.18 mm (0.007 in.) 0.25mm (0.010 in.) 0.33 mm (0.013 in.)	0.25 mm (0.010 in.)	0.18 mm (0.007 in.) 0.25 mm (0.010 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.13 mm (0.005 in.) 0.18 mm (0.007 in.) 0.25 mm (0.010 in.) 0.33 mm (0.013 in.)
Support Structure	SUP4000B breakaway support	PLA model (breakaway)	QSR soluble support	QSR soluble support	SR-30 soluble support, SR-35 soluble support
Available Colors	■ Dark Gray	■ Black □ White ■ Light Gray ■ Medium Gray ■ Red ■ Blue ■ Natural Translucent ■ Red Translucent ■ Blue Translucent ■ Yellow Translucent ■ Green Translucent	■ Black	■ Black	■ Natural
Tensile Strength (peak)[2]	**XZ:** 44.8 MPa (6,490 psi) **ZX:** 30.7 MPa (4,460 psi)	**XZ:** 48 MPa (6,990 psi) **ZX:** 26 MPa (3,830 psi)	**XY:** 16.8 MPa (2,432 psi) **XZ:** 17.4 MPa (2,519 psi)	**XZ:** 37.7 MPa (5,465 psi) **ZX:** 21.3 MPa (3,100 psi)	**XZ:** 36 MPa (4,650 psi)
Tensile Elongation at break[2]	**XZ:** 12.0% **ZX:** 3.1%	**XZ:** 2.5% **ZX:** 1.0%	**XY:** 552% **XZ:** 482%	**XZ:** 2.70% **ZX:** 1.49%	**XZ:** 4%
Flexural Strength[2]	**XZ:** No break **ZX:** 46.7 MPa (6,770 psi)	**XZ:** 84 MPa (12,190 psi) **ZX:** 45 MPa (6,570 psi)	-	**XZ:** 69.0 MPa (10,000 psi) **ZX:** 29.2 MPa (4,240 psi)	**XZ:** 61 MPa (8,800 psi)
IZOD Impact, Notched[2]	**XZ:** 442 J/m (8.28 ft*lb/in) **ZX:** 26.8 J/m (0.502 ft*lb/in)	**XZ:** 27 J/m (0.5 ft*lb/in)	-	**XZ:** 51.4 J/m (0.962 ft*lb/in) **ZX:** 20.3 J/m (0.381 ft*lb/in)	**XZ:** 139 J/m (2.6 ft*lb/in)
Molded HDT at 264 psi[2]	70 °C (158 °F)	51 °C (124 °F)	-	99 °C (210 °F)	82 °C (180 °F)
Unique Properties	Smooth, lubricious texture with low sliding friction	Low-cost, fast-draft printing	Elastomer	Carbon fiber-filled 10%	Biocompatible

[1] Reference the specific printer spec sheet, the specific material datasheet, Insight, or GrabCAD Print for more information on compatible layer thicknesses.
[2] See individual material datasheets for testing details.

Stratasys Validated Materials

	ABS Draft	FDM® HIPS	PC-ABS Red
System Availability	F870, F3300	Fortus 450mc, F900	Fortus 450mc, F900
Available Layer Thicknesses	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)
Support Structure	SR-35 soluble support	SUP1500B breakaway support	SR-110 soluble support
Available Colors	■ Gray	■ Light Gray	■ Red
Unique Properties	Low-cost draft material with slightly less mechanical performance to produce quick prototypes and parts where aesthetics are not a requirement.	High-impact polystyrene FDM filament	PC-ABS blend in red color (alternative to PC-ABS white Stratasys Preferred Material)
	PC-Black	**PC-Red**	**PC-ESD**
System Availability	Fortus 450mc	Fortus 450mc, F900	Fortus 450mc, F900
Available Layer Thicknesses	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)
Support Structure	SR-100 soluble support	SR-100 soluble support	SR-110 soluble support
Available Colors	■ Black	■ Red	■ Black
Unique Properties	Polycarbonate material in black color (alternative to PC white Stratasys Preferred Material)	Polycarbonate material in red color (alternative to PC white Stratasys Preferred Material)	PC based ESD-safe material
	FDM® TPU 92A	**ULTEM™ 9085 resin Aircraft Gray**	**ULTEM™ 9085 resin Dream Gray**
System Availability	F170, F190CR, F370, F370CR	Fortus 450mc, F900	Fortus 450mc, F900
Available Layer Thicknesses	0.25 mm (0.010 in.)	0.25 mm (0.010 in.) 0.33 mm (0.013 in.)	0.25 mm (0.010 in.)
Support Structure	QSR soluble support	SUP8500B breakaway support	SUP8500B breakaway support
Available Colors	■ Red	■ Medium Gray	■ Light Gray
Unique Properties	Elastomer	High-performance PEI polymer in medium gray color	High-performance PEI polymer in light gray color. Matches Airbus color AIC 2.49.
	ULTEM™ 9085 resin Gunship Gray	**ULTEM™ 9085 resin Jana White**	**ULTEM™ 9085 resin Red**
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	Fortus 450mc, F900
Available Layer Thicknesses	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)	0.25 mm (0.010 in.) 0.33 mm (0.013 in.)
Support Structure	SUP8500B breakaway support	SUP8500B breakaway support	SUP8500B breakaway support
Available Colors	■ Dark Gray	□ White	■ Red
Unique Properties	High-performance PEI polymer in dark gray color	High-performance PEI polymer in white color. Matches Airbus color AIC 12.36.	High-performance PEI polymer in red color
	ULTEM™ 9085 resin White 7362	**VICTREX AM™ 200**	
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	
Available Layer Thicknesses	0.25 mm (0.010 in.)	0.25 mm (0.010 in.)	
Support Structure	SUP8500B breakaway support	SR-100 soluble support, SUP8000B breakaway support	
Available Colors	□ White	■ Natural	
Unique Properties	High-performance PEI polymer in white color. Matches Airbus color AIC 12.16.	Low-melt PEEK-based polymer designed for additive manufacturing	

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