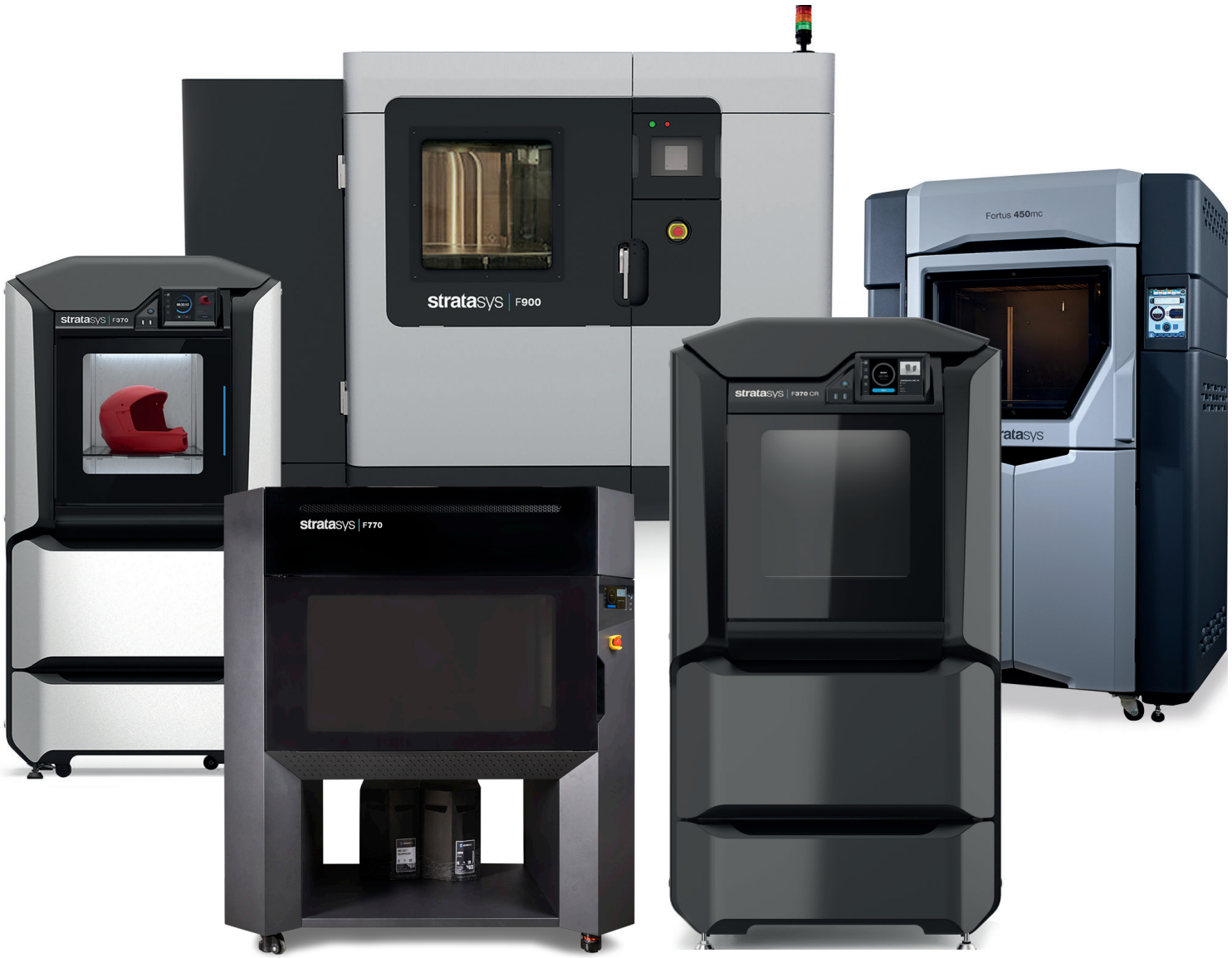
Stratasys

FDM 3D Printers and Materials.

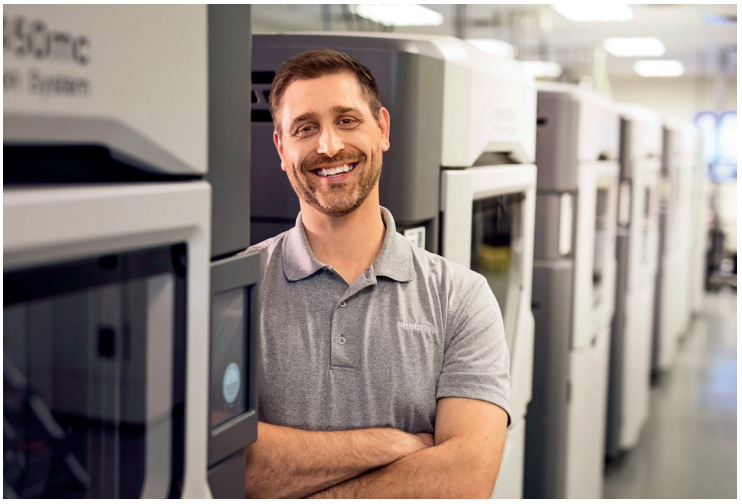
Reliable. Repeatable. Exceptional.

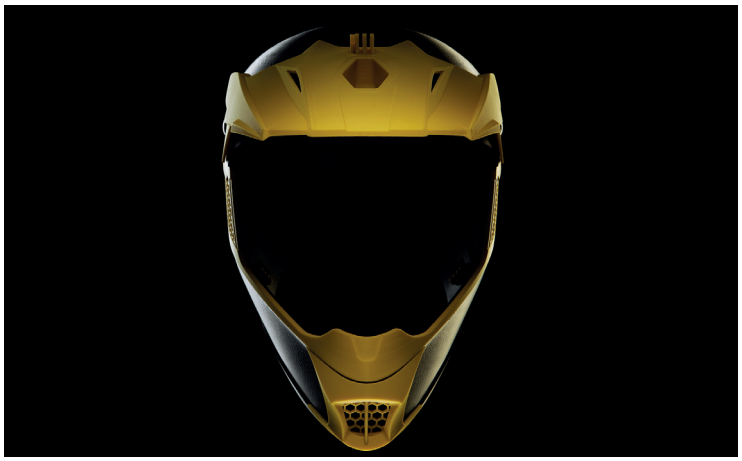


FDM

Stronger. Faster. Better.

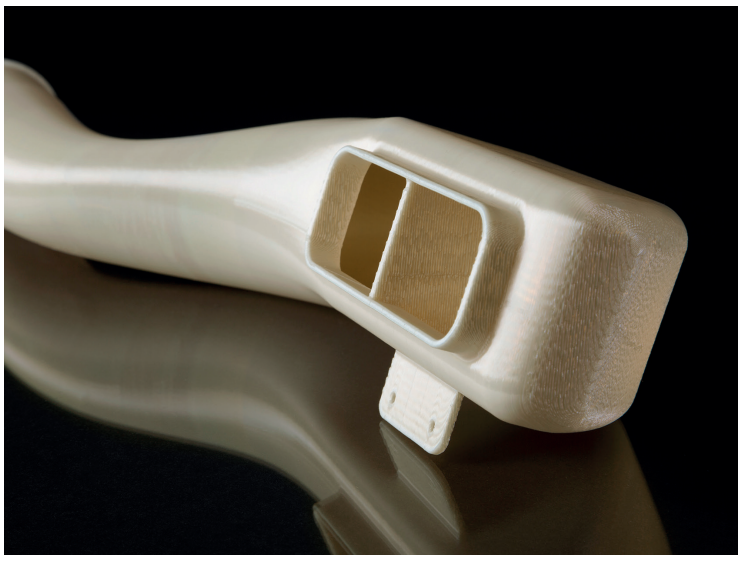
The FDM technology with unmatched versatility and proven performance.





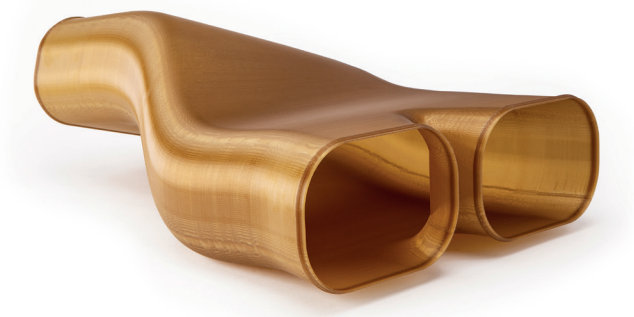
Flexible options.
Durable results.

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.



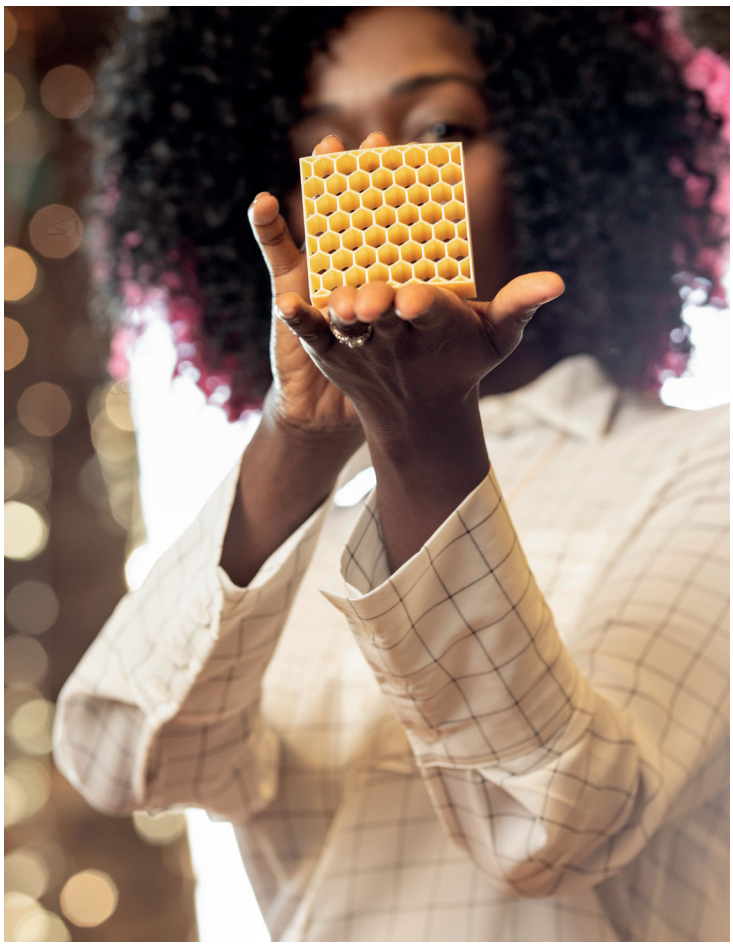
Superior materials.
Unrivalled repeatability.

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 carbon fiber, thermoplastic polyurethane and PEKK-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.

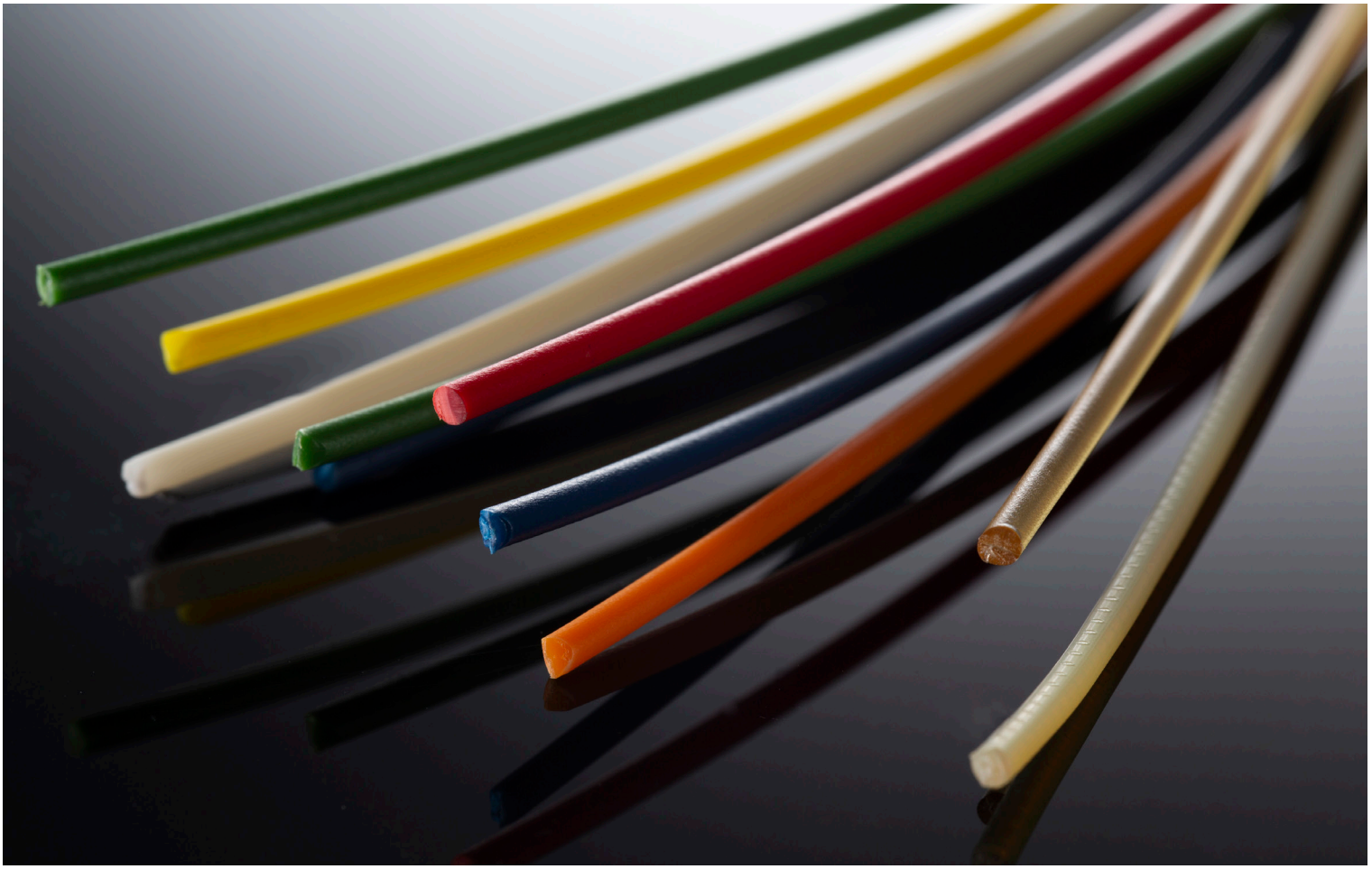
FDM systems are as versatile and durable as the parts they produce. FDM 3D printers boast the largest build envelopes and material capacities in their class, delivering longer, uninterrupted build times, bigger parts and higher production run quantities than other additive manufacturing systems. Plus, 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.

More materials. More benefits.



Material	Highlights
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
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

Material	Highlights
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
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® 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)	• Carbon fiber reinforced thermoplastic with excellent structural characteristics • Highest flexural strength • Highest stiffness-to-weight ratio
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-ISO™ (polycarbonate - biocompatible and sterilizable)	• Sterilizable using gamma radiation or ethylene oxide (EtO) sterilization methods • Best fit for applications requiring higher strength and sterilization
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
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
ABS-ESD7™ (acrylonitrile butadiene styrene - static dissipative)	• Electrostatic-dissipative with surface resistance 10^4-10^9 ohms • Makes great assembly tools for electronic and static-sensitive products • Widely used for functional prototypes of cases, enclosures and packaging
ABS-M30™ (acrylonitrile butadiene styrene)	• Versatile material: good for form, fit and functional applications • Familiar production material for accurate prototyping
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
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
PLA (polylactic acid)	• Fast printing • Economical and user-friendly • Ideal for concept models
FDM™ TPU 92A (thermoplastic polyurethane)	• Elastomer material with Shore A value of 92 • Extremely flexible, durable and resilient • Compatible with soluble support • Accelerates elastomer prototyping without the need for molds
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
Addigy® PA6/66-GF20 FR LS (nylon-based)	• Glass-filled nylon compliant with transportation industry safety regulations • Meets European railway fire protection standard EN 45545 • Stratasys Validated Material
Kimya PC-FR (polycarbonate)	• Flame-retardant polycarbonate • Meets European railway fire protection standard EN 45545 • Stratasys Validated Material
Victrex AM™ 200 (polyaryletherketone)	• PEEK-based copolymer produced using Victrex's low-melt PAEK technology • Designed for additive manufacturing to achieve PAEK polymer performance • Stratasys Validated Material
FDM HIPS (high-impact polystyrene)	• Similar properties to ABS but with much higher impact resistance • Lower-cost material for general purpose printing

A printer for every purpose.

	F170™	F190™CR	F370™
Build Envelope	10 x 10 x 10 in. (254 x 254 x 254 mm)	12 x 10 x 12 in. (305 x 254 x 305 mm)	14 x 10 x 14 in. (355 x 254 x 355 mm)
System Size/Weight	64 x 34 x 28 in. (1626 x 864 x 711 mm) 500 lbs (227 kg) with consumables	64 x 34 x 28 in. (1626 x 864 x 711 mm) 500 lbs (227 kg) with consumables	64 x 34 x 28 in. (1,626 x 864 x 711 mm) 500 lbs (227 kg) with consumables
Material Options	ABS-M30, ASA, FDM TPU 92A, ABS-CF10, PLA	ABS-M30, ASA, FDM TPU 92A, ABS-CF10, FDM Nylon-CF10	ABS-M30, ASA, FDM TPU-92A, ABS-CF10, PLA, PC-ABS, Diran 410MF07, ABS-ESD7
Part Accuracy[1]	Parts are produced within an accuracy of +/- .008 in. (.200 mm), or +/- .002 in./in. (.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of +/- .008 in. (.200 mm), or +/- .002 in./in. (.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of: +/- .008 in. (.200 mm), or +/- .002 in./in. (.002 mm/mm), whichever is greater.
Software	**GrabCAD Print™:** Designed specifically for FDM printed parts, GrabCAD Print is a free solution offering advanced 3D slicer software which allows you to prioritize parts, enhance details and apply high-level geometrical changes. Before parts are sent to the printer, you can access in-depth views of your model, tray, and slice preview. This results in accurate FDM models achieved with every print. **GrabCAD Print Pro™:** This upgraded version provides enhanced features that support high-performance end-use parts or prototypes utilized in process-controlled conditions. This includes labeling for traceability, automation, templates, part cost estimation, a sustainability calculator, and automatic model correct. **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 only)		

	F370®CR	F770™	Fortus 450mc™	F900™
Build Envelope	14 x 10 x 14 in. (355 x 254 x 355 mm)	39.4 x 24 x 24 in. (1,000 x 610 x 610 mm)	16 x 14 x 16 in. (406 x 355 x 406 mm)	36 x 24 x 36 in. (914 x 610 x 914 mm)
System Size/Weight	64 x 34 x 28 in. (1,626 x 864 x 711 mm) 500 lbs (227 kg) with consumables	69 x 49 x 77 in. (1,752 x 1,244 x 1,955 mm) 1450 lbs (658 Kg)	50 x 35.5 x 76.5 in. (1,270 x 901.7 x 1,984 mm) 1,325 lbs (601 kg)	109.1 x 66.3 x 79.8 in. (2,772 x 1,683 x 2,027 mm) 6,325 lbs (2,869 kg)
Material Options	ABS, ASA, FDM TPU-92A, ABS-CF10, PC-ABS, Diran 410MF07, ABS-ESD7, FDM Nylon-CF10	ABS-M30, ASA	ABS-M30, ABS-M30i, ABS-ESD7, Antero 800NA, Antero 840CN03, ASA, PC-ISO, PC, PC-ABS, FDM Nylon 12, FDM Nylon 12CF, ST-130, ULTEM™ 9085 resin, ULTEM™ 1010 resin, Addigy PA6/66-GF20 FR LS, Kimya PC-FR, Victrex AM 200, FDM HIPS	ABS-M30, ABS-M30i, ABS-ESD7, Antero 800NA, Antero 840CN03, ASA, PC-ISO, PC, PC-ABS, PPSF, FDM Nylon 12, FDM Nylon 12CF, FDM Nylon 6, ST-130, ULTEM™ 9085 resin, ULTEM™ 1010 resin
Part Accuracy[1]	Parts are produced within an accuracy of: +/- .008 in. (.200 mm), or +/- .002 in./in. (.002 mm/mm), whichever is greater.	Parts are produced within an accuracy of +/- .010 in. (.254 mm) or +/- .002 in./in. (.002 mm/mm) whichever is greater.	Parts are produced within an accuracy of +/- .005 in. (.127 mm) or +/- .0015 in./in. (.0015 mm/mm), whichever is greater.	Parts are produced within an accuracy of: +/- .0035 in. (.09 mm) or +/- .0015 in./in. (.0015 mm/mm), whichever is greater.[2]

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™:** Control Center is the software that communicates between the user workstation(s) and the FDM system(s), managing jobs and monitoring the production status of FDM systems. This software application provides the control to maximize efficiency, throughput and utilization while minimizing response time. Control Center is included with Insight software. **GrabCAD Print™:** GrabCAD Print offers advanced 3D slicer software which enables you to improve part details, incorporate complex geometrical changes, and customize part files. Before sending parts to the printer, review in-depth views of your model, tray, and slice preview. Unlike other print preparation software, you can select native features such as surface, holes, and bodies with GrabCAD Print. **GrabCAD Print Pro™:** This upgraded version provides enhanced features that support high-performance end-use parts or prototypes utilized in process-controlled conditions. This includes labeling for traceability, automation, templates, part cost estimation, a sustainability calculator, and automatic model correct. **ProtectAM™:** Enables STIG compliance required by U.S. government agencies via Red Hat® Enterprise Linux® technology. (available on the F900 only)

[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.

Stratasys Preferred Materials

	Antero 800NA	Antero 840CN03	ULTEM™ 1010 resin	ULTEM™ 9085 resin	PPSF
System Availability	Fortus 450mc F900	Fortus 450mc F900	Fortus 450mc F900	Fortus 450mc F900	F900
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm) 0.013 inch (0.330 mm) 0.020 inch[10] (0.508 mm)	0.010 inch (0.254 mm) 0.013 inch (0.330 mm) 0.020 inch (0.508 mm)[10]	0.010 inch (0.254 mm)[3]
Support Structure	SUP8000B™ breakaway	SUP8000B breakaway	SUP9000B™ breakaway	SUP8500B™ breakaway	PPSF support breakaway
Available Colors	■ Natural	■ Natural	■ Natural	■ Natural ■ Black	■ Natural
Tensile Strength (peak)[2]	**XZ:** 10,600 psi (73.0 MPa) **ZX:** 8,650 psi (59.7 MPa)	**XZ:** 7,850 psi (54.1 MPa) **ZX:** 7,630 psi (52.6 MPa)	**XZ:** 11,500 psi (79.2 MPa) **ZX:** 4,080 psi (28.2 MPa)	**XZ:** 10,000 psi (69.2 MPa) **ZX:** 5,710 psi (39.4 MPa)	**XZ:** 8,000 psi (55 MPa)
Tensile Elongation @ break[2]	**XZ:** 6.1% **ZX:** 2.3 %	**XZ:** 11.9% **ZX:** 1.9%	**XZ:** 4.0% **ZX:** 1.1%	**XZ:** 5.4% **ZX:** 1.9%	**XZ:** 3.0%
Flexural Strength	**XZ:** 19,800 psi (136 MPa) **ZX:** 15,400 psi (106 MPa)	**XZ:** 20,800 psi (144 MPa) **ZX:** 12,400 psi (85.3 MPa)	**XZ:** 18,600 psi (128 MPa) **ZX:** 11,800 (81.6 MPa)	**XZ:** 15,000 psi (104 MPa) **ZX:** 10,600 psi (73.1 MPa)	**XZ:** 15,900 psi (110 MPa)
IZOD Impact, Notched	**XZ:** 0.770 ft-lb/in (41.1 J/m) **ZX:** 0.623 ft-lb/in (33.3 J/m)	**XZ:** 0.858 ft-lb/in (45.8 J/m) **ZX:** 0.575 ft-lb/in (30.7 J/m)	**XZ:** 0.498 ft-lb/in (26.6 J/m) **ZX:** 0.407 ft-lb/in (21.7 J/m)	**XZ:** 1.66 ft-lb/in (88.5 J/m) **ZX:** 0.735 ft-lb/in (39.2 J/m)	**XZ:** 1.1 ft-lb/in. (58.7 J/m)
Heat Deflection at 264 psi	147.23 °C	150.8 °C	212.2 °C	172.9 °C	189 °C
Unique Properties	High strength, and heat and chemical resistance, low outgassing	Electrostatic dissipative (ESD) properties, and 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	

	ST-130	FDM Nylon 6	FDM Nylon-CF10	FDM Nylon 12	FDM Nylon 12CF	PC
System Availability	Fortus 450mc F900	F900	F190CR F370CR	Fortus 450mc F900	Fortus 450mc F900	Fortus 450mc F900
Layer Thickness	0.013 inch (0.330 mm)	0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.010 inch (0.254 mm) 0.020 inch (0.508 mm)[10]	0.005 inch (0.127 mm)[1, 5] 0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch[5] (0.330 mm)
Support Structure	ST-130 support breakaway	SR-110 soluble support	QSR soluble support, SUP4000B breakaway support	SR-110 soluble support	SR-110 soluble support	PC support breakaway, SR-110 soluble support
Available Colors	■ Natural	■ Black	■ Dark Gray	■ Black	■ Black	□ White
Tensile Strength (peak)[2]		**XZ:** 9,800 psi (67.6 MPa) **ZX:** 5,300 psi (36.5 MPa)	**XZ:** 10034 psi (69.1 MPa) **ZX:** 3684 psi (25.4 MPa)	**XZ:** 7,140 psi (49.3 MPa) **ZX:** 6,060 psi (41.8 MPa)	**XZ:** 12,100 psi (83.5 MPa) **ZX:** 4,750 psi (32.7 MPa)	**XZ:** 8,390 psi (57.9 MPa) **ZX:** 5,150 psi (35.5 MPa)
Tensile Elongation @ break[2]		**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:** 5.2% **ZX:** 2.0%
Flexural Strength		**XZ:** 14,100 psi (97.2 MPa) **ZX:** 11,900 psi (82 MPa)	**XZ:** 17,940 psi (123.7 MPa) **ZX:** 5751 psi (39.7 MPa)	**XZ:** 8,190 psi (56.5 MPa) **ZX:** 7,900 psi (54.5 MPa)	**XZ:** 22,200 psi (153 MPa) **ZX:** 9,080 psi (62.4 MPa)	**XZ:** 13,100 psi (90.0 MPa) **ZX:** 10,900 (75.0 MPa)
IZOD Impact, Notched		**XZ:** 2.0 ft-lb/in (106 J/m) **ZX:** 0.8 ft-lb/in (43 J/m)	**XZ:** 3.79 ft-lb/in (202.7 J/m) **ZX:** 0.68 ft-lb/in (36.4 J/m)	**XZ:** 2.58 ft-lb/in (138 J/m) **ZX:** 1.33 ft-lb/in (71.0 J/m)	**XZ:** 1.99 ft-lb/in (106 J/m) **ZX:** 0.45 ft-lb/in (24.0 J/m)	**XZ:** 1.44 ft-lb/in (76.8 J/m) **ZX:** 0.503 ft-lb/in (26.9 J/m)
Heat Deflection at 264 psi	108 °C	93 °C	62 °C	84.3 °C	153.7 °C	142.2 °C
Unique Properties	Soluble for sacrificial tooling applications	Very high strength and toughness combined	Carbon fiber filled 10%	Fatigue resistance, high elongation at break	Stiffest FDM material	Strong (tension)

Premium materials.
Premium performance.
(Continued)

	PC-ISO	PC-ABS	ASA	ABS-ESD7	ABS-M30
System Availability	Fortus 450mc F900	F370CR F370 Fortus 450mc F900	F190CR / F370CR F170 / 370 F770 Fortus 450mc F900	F370CR F370 Fortus 450mc F900	F190CR / F370CR F170 / 370 F770 Fortus 450mc F900
Layer Thickness	0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.005 inch (0.127 mm)[1] 0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.005 inch (0.127 mm) 0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm) 0.020 inch[10] (0.508 mm)	0.007 inch (0.178 mm) 0.010 inch (0.254 mm)	0.005 inch (0.127 mm)[1] 0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)
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	❑ White ■ Translucent Natural	■ Black □ White[7]	■ Ivory[8] ■ Black ■ Dark Gray ■ Light Gray ❑ White ■ Red ■ Orange ■ Yellow ■ Green ■ Dark Blue	■ Black	■ Ivory □ White ■ Black[8] ■ Dark Gray ■ Red ■ Blue ■ Orange[6] ■ Yellow[6] ■ Green[6]
Tensile Strength (peak)[2]	**XZ:** 8,300 psi (57 MPa)	**XZ:** 5,300 psi (36.5 MPa) **ZX:** 3,760 psi (25.9 MPa)	**XZ:** 4,750 psi (32.8 MPa) **ZX:** 4,110 psi (28.3 MPa)	**XZ:** 5,130 psi (35.4 MPa) **ZX:** 3,920 psi (27.0 MPa)	**XZ:** 4,470 psi (30.8 MPa) **ZX:** 3,990 psi (27.5 MPa)
Tensile Elongation @ break[2]	**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	**XZ:** 13,100 psi (90 MPa)	**XZ:** 8,970 psi (61.9 MPa) **ZX:** 6,700 psi (46.2 MPa)	**XZ:** 8,930 psi (61.5 MPa) **ZX:** 7,390 psi (51.0 MPa)	**XZ:** 9,800 psi (67.5 MPa) **XZ:** 6,440 psi (44.3 MPa)	**XZ:** 8,510 psi (58.7 MPa) **ZX:** 6,910 psi (47.7 MPa)
IZOD Impact, Notched	**XZ:** 1.6 ft-lb/in. (86 J/m)	**XZ:** 4.52 ft-lb/in (241 J/m) **ZX:** 0.637 ft-lb/in (34.0 J/m)	**XZ:** 0.808 ft-lb/in (43.1 J/m) **ZX:** 0.445 ft-lb/in (23.8 J/m)	**XZ:** 0.678 ft-lb/in (36.2 J/m) **ZX:** 0.384 ft-lb/in (20.5 J/m)	**XZ:** 1.89 ft-lb/in (101 J/m) **ZX:** 0.603 ft-lb/in (32.2 J/m)
Heat Deflection at 264 psi	126°C	102.9 °C	97.9 °C	101.4 °C	99.9 °C
Unique Properties		Strong (impact)	UV stable with the best aesthetics of any FDM material	Electrostatic-dissipative (ESD) properties	Variety of color options

	Diran 410MF07	PLA	FDM TPU 92A	ABS-CF10	ABS-M30i
System Availability	F370CR F370	F170 F370	F190CR / F370CR F170 / 370	F190CR / F370CR F170 / 370	Fortus 450mc F900
Layer Thickness	0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.010 inch (0.254 mm)	0.007 inch (0.178 mm) 0.010 inch (0.254 mm)	0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.005 inch (0.127 mm)[1] 0.007 inch (0.178 mm) 0.010 inch (0.254 mm) 0.013 inch (0.330 mm)
Support Structure	SUP4000B™ breakaway support	PLA model (breakaway)	QSR soluble support	QSR soluble support	QSR 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	■ Ivory
Tensile Strength (peak)[2]	**XZ:** 6,490 psi (44.8 MPa) **ZX:** 4,460 psi (30.7 MPa)	**XZ:** 6,990 psi (48 MPa) **ZX:** 3,830 psi (26 MPa)	**XY:** 2,432 psi (16.8 MPa) **XZ:** 2,519 psi (17.4 MPa)	**XZ:** 5,465 psi (37.7 MPa) **ZX:** 3,100 psi (21.3 MPa)	**XZ:** 4,650 psi (36 MPa)
Tensile Elongation @ 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	**XZ:** 8,690 psi (59.9 MPa) **ZX:** 6,770 psi (46.7 MPa)	**XZ:** 12,190 psi (84 MPa) **ZX:** 6,570 psi (45 MPa)	-	**XZ:** 10,000 psi (69.0 MPa) **ZX:** 4,240 psi (29.2 MPa)	**XZ:** 8,800 psi (61 MPa)
IZOD Impact, Notched	**XZ:** 8.28 ft-lb/in (442 J/m) **ZX:** 0.502 ft-lb/in (26.8 J/m)	**XZ:** 0.5 ft-lb/in. (27 J/m)	-	**XZ:** 0.962 ft-lb/in (51.4 J/m) **ZX:** 0.381 ft-lb/in (20.3 J/m)	**XZ:** 2.6 ft-lb/in (139 J/m)
Heat Deflection at 264 psi	70 °C	51 °C	-	99 °C	82 °C
Unique Properties	Smooth, lubricious texture with low sliding friction	Low-cost, fast-draft printing	Elastomer	Carbon fiber-filled 10%	Biocompatible

[1] 0.005 in. (0.127 mm) layer thickness not available for the Stratasys F900.

[2] See individual material datasheets for testing details.

[3] 0.013 in. (0.330 mm) layer thickness for PPSF not available on the Stratasys F900.

[4] It is the responsibility of the finished device manufacturer to determine the suitability of all the component parts and materials used in their finished products.

[5] PC can attain 0.013 in. (0.330 mm) layer thickness when used with breakaway support. PC can attain 0.005 in. (0.127mm) layer thickness when used with SR-100™ soluble support.

[6] Available on the F123™ Series (including F190CR / F370CR composite-ready printers).

[7] PC-ABS White is available on the F370 / F370CR only. It is not available on the Fortus 450mc and the F900.

[8] ASA is only available in Ivory on the F770.

[9] ABS-M30 is only available in Black on the F770.

[10] Available only on the F900.

Stratasys Validated Materials

(Refer to the individual material datasheets for information on specific physical and mechanical properties.)

	Addigy PA6/66-GF20 FR LS	Kimya PC-FR	Victrex AM-200
System Availability	Fortus 450mc	Fortus 450mc	Fortus 450mc
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SUP4000B breakaway support	SR-100 soluble support	SR-100 soluble support
Available Colors	■ Black	■ Light Gray	■ Natural
Unique Properties	Fire retardant nylon; meets EU railway fire standard EN 45545	Flame retardant polycarbonate; meets EU railway fire standard EN 45545	Low-melt PAEK polymer designed for additive manufacturing

	ULTEM™ 9085 resin Aircraft Gray	ULTEM™ 9085 resin Gunship Gray	ULTEM™ 9085 resin White 7362
System Availability	Fortus 450mc	Fortus 450mc	Fortus 450mc
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SUP8500B breakaway support	SUP8500B breakaway support	SUP8500B breakaway support
Available Colors	■ Medium Gray	■ Dark Gray	□ White
Unique Properties	High-performance PEI polymer in medium gray color	High-performance PEI polymer in dark gray color	High-performance PEI polymer in white color. Matches Airbus color AIC 12.16.

	ULTEM™ 9085 resin Dream Gray	ULTEM™ 9085 resin Jana White	ULTEM™ 9085 resin Red
System Availability	Fortus 450mc	Fortus 450mc	Fortus 450mc
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SUP8500B breakaway support	SUP8500B breakaway support	SUP8500B breakaway support
Available Colors	■ Light Gray	□ White	■ Red
Unique Properties	High-performance PEI polymer in light gray color. Matches Airbus color AIC 2.49.	High-performance PEI polymer in white color. Matches Airbus color AIC 12.36.	High-performance PEI polymer in red color

	PC-Red	PC-Black	PC-ABS Red	FDM HIPS
System Availability	Fortus 450mc	Fortus 450mc	Fortus 450mc	Fortus 450mc
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SR-100 soluble support	SR-100 soluble support	SR-110 soluble support	SUP1500B breakaway support
Available Colors	■ Red	■ Black	■ Red	■ Light Gray
Unique Properties	Polycarbonate material in red color (alternative to PC white Stratasys Preferred Material	Polycarbonate material in black color (alternative to PC white Stratasys Preferred Material	PC-ABS blend in red color (alternative to PC-ABS white Stratasys Preferred Material	High-impact styrene FDM filament

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HEADQUARTERS

USA
7665 Commerce Way,
Eden Prairie, MN 55344, USA

+1 800 801 6491 (US Toll Free)
+1 952 937 3000 (Intl)
+1 952 937 0070 (Fax)

Israel
1 Holtzman St., Science Park,
PO Box 2496 Rehovot 76124, Israel

+972 74 745 4000
+972 74 745 5000 (Fax)

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