stratasys

BROCHURE
FDM

Stratasys FDM 3D Printers and Materials

Reliable. Repeatable. Exceptional.

Energy Group
3D Printing Solutions for Industry

a SolidWorld Group company

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Stronger. Faster. Better.

The FDM technology with unmatched versatility and proven performance.

Flexible options. Durable results.

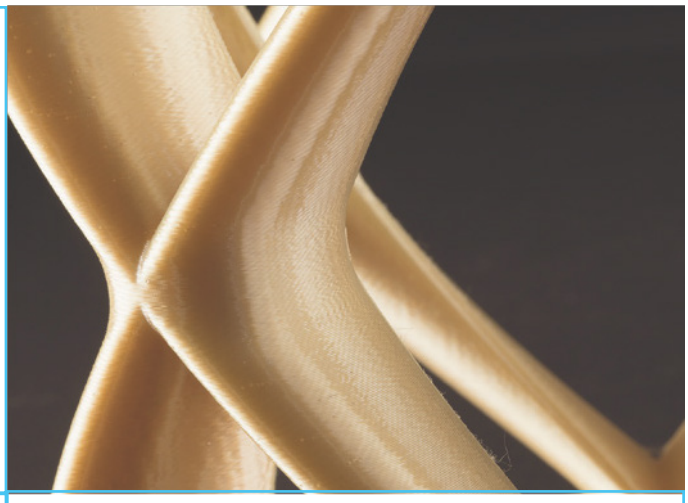
FDM® (fused deposition modeling) 3D printers offer unparalleled versatility to turn your CAD files into durable parts. These parts are tough enough to be used as advanced conceptual models, functional prototypes, manufacturing tools and production parts. Engineers can produce a wide variety of products 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
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 • Accurate, durable and stable for strong parts, patterns for metal bending and composite work • Great for demanding prototyping needs,
PC (polycarbonate)	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 • Build UV-stable parts
ASA (acrylonitrile styrene acrylate)	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 104-109 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 • Strong, stiff material filled with
ABS-CF10 (acrylonitrile butadiene styrene - carbon fiber)	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 • Fast printing
PLA (polylactic acid)	• 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 material compatible with soluble support • Accelerates elastomer prototyping without the need for molds • TPU 92A Red available as a Stratasys Validated Material
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
Kimya PC-FR (polycarbonate)	• Flame-retardant polycarbonate • Meets European railway fire protection standard EN 45545-2 • Stratasys Validated Material • Similar properties to ABS but with
FDM HIPS (high-impact polystyrene)	much higher impact resistance • Lower-cost material for general purpose printing • Stratasys Validated Material • Based on LMPAEK™ technology, VICTREX AM 200 is part of the
VICTREX AM™ 200 (polyetheretherketone)	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
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

A Printer for Every Purpose.




	F170™	F190™CR	F370™	F370®CR
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)	14 x 10 x 14 in. (355 x 254 x 355 mm)
System Size/Weight	64 x 34 x 28 in. (1,626 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	64 x 34 x 28 in. (1,626 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	ABS, ASA, FDM TPU 92A, ABS-CF10, PC-ABS, Diran 410MF07, ABS-ESD7, FDM Nylon-CF10
Achievable Accuracy[1]	Parts are produced within an Parts are produced within an Parts are produced within an Parts are produced within an mm), or +/- .002 in./in. (.002 mm), or +/- .002 in./in. (.002 (.200 mm), or +/- .002 in./in. (.200 mm), or +/- .002 in./in. mm/mm), whichever is greater. accuracy of +/- .008 in. (.200 accuracy of +/- .008 in. (.200 accuracy of: +/- .008 in. mm/mm), whichever is greater. accuracy of: +/- .008 in. (.002 mm/mm), whichever is (.002 mm/mm), whichever is greater. 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 and F370CR only)			




	F770™	Fortus 450mc™	F900®	F3300™
Build Envelope	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)	23.6 x 23.6 x 31.5 in. (600 x 600 x 800 mm)
System Size/ Weight	69 x 49 x 77 in. (1,752 x 1,244 x 1,955 mm) 1,450 lbs (658 Kg)	51 x 35.5 x 78.1 in. (1,295 x 901.7 x 1,984 mm) 1,325 lbs (601 kg)	109.1 x 66.3 x 89.8 in. (2,772 x 1,683 x 2,281 mm) 6,325 lbs (2,869 kg)	80 x 64 x 93 in. (2,032 x 1,626 x 2,362 mm) 3,000 lbs (1,360 kg)
Material Options	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, Kimya PC-FR, VICTREX AM 200, FDM HIPS, PC-ESD	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, VICTREX AM 200, Kimya PC-FR, FDM HIPS, PC-ESD	ASA, PC, FDM Nylon 12CF, ULTEM™ 9085 resin
Achievable Accuracy[1]	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. (0.089 mm) or +/- .0015 in./in. (.0015 mm/mm), whichever is greater	Parts are produced within an accuracy of: +/- .0026 in. (0.067 mm) or +/-.0015 in./in. (0.0015 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. **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 surfaces, 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 correction. **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.

	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, F3300	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)
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:** 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:** 15,400 psi (106 MPa)	**XZ:** No break **ZX:** 12,400 psi (85.3 MPa)	**XZ:** No break **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[2]	**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)
Molded HDT @ 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)
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	High heat resistance

	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, F3300	Fortus 450mc, F900, F3300
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-100™ soluble support, SR-110 soluble support[3]
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[2]	—	**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:** No break **ZX:** No break	**XZ:** 22,200 psi (153 MPa) **ZX:** 9,080 psi (62.4 MPa)	**XZ:** No break **ZX:** 10,900 (75.0 MPa)
IZOD Impact, Notched[2]	—	**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)
Molded HDT @ 264 psi[2]	108 °C (226 °F)	93 °C (199 °F)	62 °C (144 °F)[11]	84.3 °C (183.8 °F)[12]	153.7 °C (308.7 °F)[11]	142.2 °C (288.0 °F)
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)

	PC-ISO	PC-ABS	ASA	ABS-ESD7	ABS-M30
System Availability	Fortus 450mc, F900	F370CR, F370, Fortus 450mc, F900	F190CR, F370CR, F170, F370, F770[8], Fortus 450mc, F900, F3300	F370CR, F370, Fortus 450mc, F900	F190CR, F370CR, F170, F370, F770[9], 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	Translucent Natural	Black White[7]	Ivory Black Dark Gray Light Gray Red White Orange Yellow Green Dark Blue	Black	Ivory White Black 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[2]	**XZ:** 13,100 psi (90 MPa)	**XZ:** No break **ZX:** 6,700 psi (46.2 MPa)	**XZ:** No break **ZX:** 7,390 psi (51.0 MPa)	**XZ:** No break **XZ:** 6,440 psi (44.3 MPa)	**XZ:** No break **ZX:** 6,910 psi (47.7 MPa)
IZOD Impact, Notched[2]	**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)
Molded HDT @ 264 psi[2]	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

	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
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)	0.005 inch (0.127 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	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	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[2]	**XZ:** No break **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[2]	**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)
Molded HDT @ 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 0.005 in. (0.127 mm) layer thickness not available for the Stratasys F900.
2 See individual material datasheets for testing details.
3 PC paired with SR-110 soluble support is only available on the F3300.
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, Red, White, Yellow, Blue, Black and Light Gray on the F770.
9 ABS-M30 is only available in Black on the F770.
10 Available only on the F900.
11 Data is as-printed XZ/ZX.
12 Data is as-printed XY.

Stratasys Validated Materials

	Kimya PC-FR	ULTEM™ 9085 resin Aircraft Gray	ULTEM™ 9085 resin Gunship Gray
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	Fortus 450mc, F900
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.010 inch (0.254 mm)
Support Structure	SR-100 soluble support	SUP8500B breakaway support	SUP8500B breakaway support
Available Colors	Light Gray	Medium Gray	Dark Gray
Unique Properties	Flame retardant polycarbonate; meets EU railway fire standard EN 45545-2	High-performance PEI polymer in medium gray color	High-performance PEI polymer in dark gray color
	ULTEM™ 9085 resin White 7362	**ULTEM™ 9085 resin Dream Gray**	**ULTEM™ 9085 resin Jana White**
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	Fortus 450mc, F900
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	White	Light Gray	White
Unique Properties	High-performance PEI polymer in white color. Matches Airbus color AIC 12.16.	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.
	ULTEM™ 9085 resin Red	**PC-Red**	**PC-Black**
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	Fortus 450mc
Layer Thickness	0.010 inch (0.254 mm) 0.013 inch (0.330 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SUP8500B breakaway support	SR-100 soluble support	SR-100 soluble support
Available Colors	Red	Red	Black
Unique Properties	High-performance PEI polymer in red color	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 Red	**FDM HIPS**	**VICTREX AM 200**
System Availability	Fortus 450mc, F900	Fortus 450mc, F900	Fortus 450mc, F900
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)
Support Structure	SR-110 soluble support	SUP1500B breakaway support	SR-100 soluble support, SUP8000B breakaway support
Available Colors	Red	Light Gray	Natural
Unique Properties	PC-ABS blend in red color (alternative to PC-ABS white Stratasys Preferred Material)	High-impact polystyrene FDM filament	Low-melt PEEK-based polymer designed for additive manufacturing
	PC-ESD	**FDM TPU 92A**	
System Availability	Fortus 450mc, F900	F170, F190CR, F370, F370CR	
Layer Thickness	0.010 inch (0.254 mm)	0.010 inch (0.254 mm)	
Support Structure	SR-110 soluble support	QSR soluble support	
Available Colors	Black	Red	
Unique Properties	PC based ESD-safe material	Elastomer	