PC-ABS

Production-Grade Thermoplastic for Fortus 3D Production Systems

PC-ABS (polycarbonate-ABS) is one of the most widely used industrial thermoplastics. PC-ABS offers the most desirable properties of both materials — the superior strength and heat resistance of PC and the flexibility of ABS. PC-ABS blends are commonly used in automotive, electronics and telecommunications applications. PC-ABS parts are ideal for conceptual modeling, functional prototyping, manufacturing tools and end-use-parts.

Mechanical Properties	Test Method	English		Metric	
		XZ Axis	ZX Axis	XZ Axis	ZX Axis
Tensile Strength, Yield (Type 1, 0.125”, 0.2”/min)	ASTM D638	4,250 psi	4,000 psi	29 MPa	28 MPa
Tensile Strength, Ultimate (Type 1, 0.125”, 0.2”/min)	ASTM D638	5,000 psi	4,300 psi	34 MPa	30 MPa
Tensile Modulus (Type 1, 0.125”, 0.2”/min)	ASTM D638	260,000 psi	250,000 psi	1,810 MPa	1,720 MPa
Tensile Elongation at Break (Type 1, 0.125”, 0.2”/min)	ASTM D638	5%	2%	5%	2%
Tensile Elongation at Yield (Type 1, 0.125”, 0.2”/min)	ASTM D638	2%	2%	2%	2%
Flexural Strength (Method 1, 0.05”/min)	ASTM D790	8,500 psi	6,000 psi	59 MPa	41 MPa
Flexural Modulus (Method 1, 0.05”/min)	ASTM D790	250,000 psi	225,000 psi	1,740 MPa	1,550 MPa
Flexural Strain at Break (Method 1, 0.05”/min)	ASTM D790	4%	3%	4%	3%

Mechanical Properties	Test Method	English	Metric
		XZ Axis	XZ Axis
IZOD Impact, notched (Method A, 23°C)	ASTM D256	4 ft-lb/in	235 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	12 ft-lb/in	642 J/m

Thermal Properties	Test Method	English	Metric
Heat Deflection (HDT) @ 66 psi	ASTM D648	230°F	110°C
Heat Deflection (HDT) @ 264 psi	ASTM D648	205°F	96°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	234°F	112°C
Glass Transition Temperature (Tg)	DMA (SSYS)	257°F	125°C
Coefficient of Thermal Expansion (flow)	ASTM E831	4.10^{-05} in/in/°F	7.38^{-05} mm/mm/°C
Melting Point	- - - - - - - - -	Not Applicable[2]	Not Applicable[2]

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Electrical Properties[3]	Test Method	Orientation	Value Range
Volume Resistivity	ASTM D257	XZ Axis	3.7E15 - 1.8E16 ohm-cm
Dielectric Constant	ASTM D150-98	XZ Axis	2.78 - 2.83
Dissipation Factor	ASTM D150-98	XZ Axis	0.0048 - 0.0054
Dielectric Strength	ASTM D149-09, Method A	XZ Axis	130 V/mil
Dielectric Strength	ASTM D149-09 Method A	ZX Axis	320 V/mil

Other	Test Method	Value
Specific Gravity	ASTM D792	1.10
Density	ASTM D792	0.0397 lb/in^3
Flame Classification	UL94	HB
Rockwell Hardness	ASTM D785	R110
UL File Number	- - - - - - - - -	E345258

System Availability	Layer Thickness Capability	Support Structure	Available Colors
Fortus 360mc™	0.013 inch (0.330 mm)	Soluble Supports	■ Black
Fortus 400mc™	0.010 inch (0.254 mm)		
Fortus 900mc™	0.007 inch (0.178 mm)		
	0.005 inch (0.127 mm)[4]		

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Tested parts were built on Fortus 400mc @ 0.010" (0.254 mm) slice. Product specifications are subject to change without notice.

The performance characteristics of these materials may vary according to application, operating conditions or end use. Each user is responsible for determining that the Stratasys material is safe, lawful and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Stratasys makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use or warranty against patent infringement.

[1] *Literature value unless otherwise noted.*

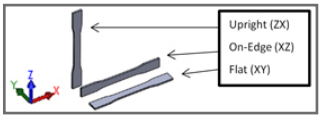
[2] *Due to amorphous nature, material does not display a melting point.*

[3] *All Electrical Property values were generated from the average of test plaques built with default part density (solid). Test plaques were 4.0 x 4.0 x 0.1 inches (102 x 102 x 2.5 mm) and were built both in the flat and vertical orientation. The range of values is mostly the result of the difference in properties of test plaques built in the flat vs. vertical orientation.*

[4] *0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc*

Orientation: See Stratasys Testing white paper for more detailed description of build orientations.

- *XZ = X or "on edge"*
- *XY = Y or "flat"*
- *ZX = or "upright"*



At the core: Advanced FDM Technology

Fortus systems are based on patented Stratasys® FDM® (fused deposition modeling) technology. FDM is the industry's leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts.

Fortus systems use a wide range of thermoplastics with advanced mechanical properties so your parts can endure high heat, caustic chemicals, sterilization and high-impact applications.

No special facilities needed

You can install a Fortus 3D Production System just about anywhere. No special venting is required because Fortus systems don't produce noxious fumes, chemicals or waste.

No special skills needed

Fortus 3D Production Systems are easy to operate and maintain compared to other additive fabrication systems because there are no messy powders to handle and contain. They're so simple, an operator can be trained to operate a Fortus system in less than 30 minutes.

Get your benchmark on the future of manufacturing

Fine details. Smooth surface finishes. Accuracy. Strength. The best way to see the advantages of a Fortus 3D Production System is to have your own part built on a Fortus system. Get your free part at: stratasys.com.

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