

Fortus 3D Printers

MABE Maker Space



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

Fortus 250 MC

- ❑ 10 x 10 x 12 inches
- ❑ 1 Material type (ABS)
- ❑ Layers of 0.007, 0.010, or 0.013 in



Fortus 400 MC

□ 16 x 14 x 16 inches

□ Several Material types

□ Layers of 0.005, 0.007, or 0.010 in



Material Options for Fortus Machines

Colors boxed in red are kept in stock. For questions about other available colors, contact the lab.

MATERIAL OPTIONS	
Layer Thickness:	ABSplus-P430
0.013 inch (0.330 mm)	X
0.010 inch (0.254 mm)	X
0.007 inch (0.178 mm)	X
Support Structure:	Soluble
Available Colors:	<input checked="" type="checkbox"/> Ivory <input checked="" type="checkbox"/> Red <input type="checkbox"/> Fluorescent Yellow <input type="checkbox"/> White <input checked="" type="checkbox"/> Blue <input type="checkbox"/> Custom Colors <input checked="" type="checkbox"/> Black <input type="checkbox"/> Olive Green <input type="checkbox"/> Dark Grey <input checked="" type="checkbox"/> Nectarine

250mc

MATERIAL OPTIONS									
Layer Thickness:	ABSi	ABS-M30	ABS-M30i	ABS-E307	PC-ABS	PEEK	PC	ULTEM® 9085	PEGF
0.013 inch (0.330 mm)	X	X	X	X	X	X	X		X
0.010 inch (0.254 mm)	X	X	X	X	X	X	X	X	X
0.007 inch (0.178 mm)	X	X	X	X	X	X	X		X
0.005 inch (0.127 mm)	X	X	X	X	X	X	X*		X
Support Structure:	Soluble	Soluble	Soluble	Soluble	Soluble	BASS	BASS, Soluble	BASS	BASS
Available Colors:	<input checked="" type="checkbox"/> Translucent Natural <input checked="" type="checkbox"/> Translucent Amber <input type="checkbox"/> Translucent Red	<input checked="" type="checkbox"/> Ivory <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> Red <input type="checkbox"/> Blue <input type="checkbox"/> Dark Grey	<input type="checkbox"/> Ivory <input type="checkbox"/> Black	<input type="checkbox"/> Black	<input type="checkbox"/> Black	<input type="checkbox"/> Translucent Natural <input type="checkbox"/> White	<input type="checkbox"/> White <input checked="" type="checkbox"/> Tan <input type="checkbox"/> Black	<input type="checkbox"/> Tan	

400mc

Physical Properties of Fortus Polymers

3D Printing Material Summary Fact Sheet

Both Machines:

Property	ABS		ABS-M30		PC		PC-ABS		Ultem 9084	
	English	Metric	English	Metric	English	Metric	English	Metric	English	Metric
Mechanical										
Tensile Strength	5400 psi	37 MPa	5200 psi	36 MPa	9800 psi	68 MPa	5900 psi	41 MPa	10400 psi	71.6 MPa
Tensile Modulus	277.7 kpsi	1920 MPa	350 kpsi	2400 MPa	330 kpsi	2300 MPa	278 kpsi	1900 MPa	322 kpsi	2200 MPa
Tensile Elongation	4%	4%	4%	4%	5%	5%	6%	6%	6%	6%
Flexural Strength	8980 psi	62 MPa	8800 psi	61 MPa	15100 psi	104 MPa	9800 psi	68 MPa	16700 psi	115.1 MPa
Flexural Modulus	278 kpsi	1920 MPa	336 kpsi	2300 MPa	324 kpsi	2200 MPa	280 kpsi	1900 MPa	362.6 kpsi	2500 MPa
IZOD Impact, notched	1.8 ft-lb/in	96.4 J/m	2.6 ft-lb/in	139 J/m	1 ft-lb/in	53 J/m	3.7 ft-lb/in	196 J/m	2.0 ft-lb/in	106 J/m
IZOD Impact, un-notched	3.6 ft-lb/in	191.1 J/m	5.3 ft-lb/in	283 J/m	6 ft-lb/in	320 J/m	9 ft-lb/in	481 J/m	11.5 ft-lb/in	613.8 J/m
Compression Strength									15.2 ksi	104 MPa
Compression Modulus									280 ksi	1930 MPa
Shear Strength									8.3 ksi	57 MPa
Thermal Properties										
Heat Deflection (at 66 psi)	188 °F	86 °C	204 °F	96 °C	280 °F	138 °C	230 °F	110 °C	--	--
Heat Deflection (at 264 psi)	163 °F	73 °C	180 °F	82 °C	261 °F	127 °C	205 °F	96 °C	307 °F	153 °C
Vicat Softening			210 °F	99 °C	281 °F	138 °C	234 °F	112 °C		
Glass Transition Temp	240 °F	116 °C	226 °F	108 °C	322 °F	161 °C	257 °F	125 °C	367 °F	186 °C
Coefficient of Thermal Expansion	6.7e-06 in/in/°F	12.1e-05 mm/mm/°C	4.9e-05 in/in/°F	8.82e-05 mm/mm/°C			4.1e-05 in/in/°F	--	3.67e-05 in/(in-F°)	65.27 µm/(m-C°)
Electrical Properties										
	Value Range		Value Range		Value Range		Value Range		Value Range	
Volume Resistivity	6.1*10e10 - 1.5*10e9 ohms		4.0*10e14 - 5.0*10e13 ohms		2.0*10e14 - 6.0*10e13 ohms		2.0*10e14 - 4.4*10e13 ohms		1.0*10e14 - 6.0*10e13 ohms	
Dielectric Constant	3.6 - 3.4		2.9 - 2.7		3.0 - 2.8		2.9 - 2.7		3.2 - 3.0	
Dissipation Factor	0.15 - 0.12		0.0052 - 0.0049		0.0006 - 0.0005		0.0035 - 0.0032		0.0027 - 0.0026	
Dielectric Strength	320 - 100 V/mil		370 - 71 V/mil		360 - 80 V/mil		340 - 90 V/mil		290 - 110 V/mil	
Other										
	Value		Value		Value		Value		Value	
Specific Gravity	1.08		1.04		1.2		1.1		1.34	
Rockwell Hardness	R108		109.5		R115		R110		--	
Flame classification	HB (0.059", 1.5 mm)		HB (0.09", 2.5 mm)		HB		HB		V-0	
UL File Number			E345258		E345258		E345258		E345258	