

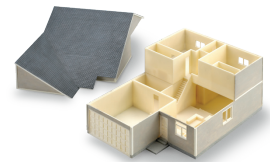


ABS-M30

PRODUCTION-GRADE THERMOPLASTIC
FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	4,550 psi	3,750 psi	31 MPa	26 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	4,650 psi	4,050 psi	32 MPa	28 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	320,000 psi	310,000 psi	2,230 MPa	2,180 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	7%	2%	7%	2%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2%	1%	2%	1%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	8,700 psi	7,000 psi	60 MPa	48 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	300,000 psi	250,000 psi	2,060 MPa	1,760 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	4%	3.5%	4%	3.5%

MECHANICAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
		XZ AXIS	XZ AXIS
IZOD Impact, notched (Method A, 23°C)	ASTM D256	2.4 ft-lb/in	128 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	5.6 ft-lb/in	300 J/m



THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi, 0.125" unannealed	ASTM D648	204°F	96°C
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	180°F	82°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	210°F	99°C
Glass Transition (Tg)	DMA (SSYS)	226°F	108°C
Coefficient of Thermal Expansion (flow)	ASTM E831	4.90x10 ⁻⁰⁵ in/in/°F	8.82x10 ⁻⁰⁵ mm/mm/°C
Coefficient of Thermal Expansion (xflow)	ASTM E831	4.70x10 ⁻⁰⁵ in/in/°F	8.46x10 ⁻⁰⁵ mm/mm/°C
Melting Point	-----	Not Applicable ²	Not Applicable ²

Before placing an order, always consult a FATHOM specialist about material selection.



ABS-M30

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

Stratasys FDM (fused deposition modeling) technology—the industry’s leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts.

FDM systems use a wide range of thermoplastics with advanced mechanical properties.

ELECTRICAL PROPERTIES ³	TEST METHOD	ORIENTATION	VALUE RANGE
Volume Resistivity	ASTM D257	XZ Axis	4.0x10 ¹⁵ - 3.3x10 ¹⁶ ohm-cm
Dielectric Constant	ASTM D150-98	XZ Axis	2.6 - 2.86
Dissipation Factor	ASTM D150-98	XZ Axis	0.0048 - 0.0054
Dielectric Strength	ASTM D149-09, Method A	XY Axis	100 V/mil
Dielectric Strength	ASTM D149-09, Method A	XZ Axis	360 V/mil

OTHER ¹	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.04
Rockwell Hardness	ASTM D785	109.5

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus [®] 360mc™ Fortus 380mc™ Fortus 400mc™ Fortus 450mc™ Fortus 900mc™ Stratasys F123 Series	0.013 inch (0.330 mm) 0.010 inch (0.254 mm) 0.007 inch (0.178 mm) 0.005 inch (0.127 mm) ⁴	Soluble Supports	<input type="checkbox"/> Ivory <input type="checkbox"/> White <input checked="" type="checkbox"/> Black <input checked="" type="checkbox"/> Dark Grey <input checked="" type="checkbox"/> Red <input checked="" type="checkbox"/> Blue

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.

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¹Literature value unless otherwise noted.

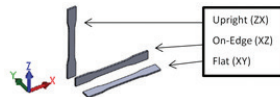
²Due to amorphous nature, material does not display a melting point.

³All 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.

⁴0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc.

Colors: The test data was collected using ABS-M30 Ivory (natural) specimens. ABS-M30 colored material will have similar properties, but can vary by up to 10%. 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"



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Before placing an order, always consult a FATHOM specialist about material selection.



ASA

A UV-STABLE, PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES

TEST METHOD	STANDARD	ENGLISH		METRIC	
		XZ ORIENTATION	ZX ORIENTATION	XZ ORIENTATION	ZX ORIENTATION
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	4,200 psi	3,850 psi	29 MPa	27 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	4,750 psi	4,300 psi	33 MPa	30 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	290,000 psi	280,000 psi	2,010 MPa	1,950 MPa
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	9%	3%	9%	3%
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	8,700 psi	6,900 psi	60 MPa	48 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	270,000 psi	240,000 psi	1,870 MPa	1,630 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No Break	4%	No Break	4%

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648	208°F	98°C
Heat Deflection (HDT) @ 264 psi	ASTM D648	196°F	91°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	217°F	103°C
Glass Transition Temperature (Tg)	DMA (SSYS)	226°F	108°C
Coefficient of Thermal Expansion (flow)	ASTM E831	4.90E-06 in/in/°F	8.79E-06 mm/mm/°C
Coefficient of Thermal Expansion (xflow)	ASTM E831	4.60E-06 in/in/°F	8.28E-06 mm/mm/°C

ELECTRICAL PROPERTIES	TEST METHOD	ORIENTATION	VALUE RANGE
Volume Resistivity	ASTM D257	XZ	1.0E14 - 1.0E15 ohm-cm
Dielectric Constant	ASTM D150-98	XZ	2.97 - 3.04
Dissipation Factor	ASTM D150-98	XZ	0.009
Dielectric Strength	ASTM D149-09, Method A	XZ	329 V/mil
Dielectric Strength	ASTM D149-09 Method A	ZX	414 V/mil



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ASA

A UV-STABLE, PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

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FDM systems use a wide range of thermoplastics with advanced mechanical properties.

MECHANICAL PROPERTIES			
TEST METHOD	STANDARD	ENGLISH	METRIC
Notched Impact, XZ orientation (Method A, 23°C)	ASTM D256	1.2 ft-lb/in	64 J/m
Unnotched Impact, XZ orientation (Method A, 23°C)	ASTM D256	6 ft-lb/in	321 J/m

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.05
Rockwell Hardness	ASTM D785 (Scale R, 73°F)	82

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS ²
Fortus 360mc	0.013 inch (0.330 mm)	Soluble Support	■ Black ■ Dark Blue
Fortus 380mc	0.010 inch (0.254 mm)		■ Dark Gray ■ Green
Fortus 400mc	0.007 inch (0.178 mm)		■ Light Gray ■ Yellow
Fortus 450mc	0.005 inch (0.127 mm)		□ White ■ Orange
Fortus 900mc ³			■ Ivory ■ Red
Stratasys F123 Series			

Tests were conducted according to published Stratasys FDM material testing methods, in compliance with the relevant ASTM standards.

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¹ Literature value unless otherwise noted.

² The test data was collected using ASA (Natural) specimens. ASA colored material will have similar properties, but can vary by up to 10%.

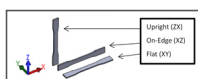
³ Fortus 900mc does not have the 0.005 inch (0.127 mm) layer thickness capability.

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"



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FDM Nylon 12

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

CONDITIONED*					
MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	4,600 psi	4,100 psi	32 MPa	28 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	6,650 psi	5,600 psi	46 MPa	38.5 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	186,000 psi	165,000 psi	1,282 MPa	1,138 MPa
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	30%	5.4%	30%	5.4%
Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.4%	2.7%	2.4%	2.7%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	9,700 psi	8,800 psi	67 MPa	61 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	185,000 psi	171,000 psi	1,276 MPa	1,180 MPa
Flexural Strain at Break	ASTM D790	No Break	>10%	No Break	>10%
IZOD impact - notched (Method A, 23°C)	ASTM D256	2.5 ft-lb/in	1 ft-lb/in	135 J/m	53 J/m
IZOD impact - unnotched (Method A, 23°C)	ASTM D256	31 ft-lb/in	3.7 ft-lb/in	1,656 J/m	200 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	7,400 psi	7,900 psi	51 MPa	55 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	24,200 psi	800 psi	167 MPa	6 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	730,000 psi	155,000 psi	5,033 MPa	1,069 MPa

UNCONDITIONED (DRY)**					
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	7,700 psi	6,900 psi	53 MPa	48 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	190,000 psi	180,000 psi	1,310 MPa	1,241 MPa
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	9.5%	5%	9.5%	5%
Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	6.5%	5%	6.5%	5%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	10,000 psi	8,600 psi	69 MPa	60 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	190,000 psi	180,000 psi	1,300 MPa	1,250 MPa
Flexural Strain at Break	ASTM D790	No Break	>10%	No Break	>10%
IZOD impact - notched (Method A, 23°C)	ASTM D256	2.8 ft-lb/in	0.9 ft-lb/in	150 J/m	50 J/m
IZOD impact - unnotched (Method A, 23°C)	ASTM D256	>37.4 ft-lb/in	5.1 ft-lb/in	>2,000 J/m	275 J/m

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FDM Nylon 12

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

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FDM systems use a wide range of thermoplastics with advanced mechanical properties.

THERMAL PROPERTIES ¹	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi annealed	ASTM D648	207°F	97°C
Heat Deflection (HDT) @ 66 psi unannealed	ASTM D648	167°F	75°C
Heat Deflection (HDT) @ 264 psi annealed	ASTM D648	180°F	82°C
Heat Deflection (HDT) @ 264 psi unannealed	ASTM D648	131°F	55°C
Melting Point	-----	352°F	178°C

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.00



SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT MATERIAL	COLOR
Fortus 360mc	0.013 inch (0.330 mm)	SR-110	■ Black
Fortus 380mc	0.010 inch (0.254 mm)		
Fortus 400mc	0.007 inch (0.178 mm)		
Fortus 450mc			
Fortus 900mc			

¹Conditioned = 20°C and 50% RH for 72 hours
²Unconditioned (Dry) = Direct from FDM system
 — Annealed = 2 hours @ 140°C
 — Unannealed = direct from FDM system

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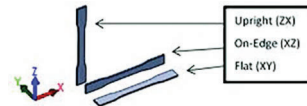
¹Literature value unless otherwise noted.

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"





PC (polycarbonate)

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	5,800 psi	4,300 psi	40 MPa	30 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	8,300 psi	6,100 psi	57 MPa	42 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	282,000 psi	284,000 psi	1,944 MPa	1,958 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	4.8%	2.5%	4.8%	2.5%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.2%	2%	2.2%	2%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	13,000 psi	9,900 psi	89 MPa	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	291,000 psi	261,000 psi	2,006 MPa	1,800 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	4%	No break	4%
IZOD Impact, notched (Method A, 23°C)	ASTM D256	1.4 ft-lb/in	0.5 ft-lb/in	73 J/m	28 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	16.4 ft-lb/in	3.5 ft-lb/in	877 J/m	187 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	10,000 psi	9,200 psi	69 MPa	64 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	28,000 psi	9,400 psi	193 MPa	65 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	1,100,000 psi	227,000 psi	7,564 MPa	1,565 MPa

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648	280°F	138°C
Heat Deflection (HDT) @ 264 psi	ASTM D648	261°F	127°C
Vicat Softening	ASTM D1525	282°F	139°C
Glass Transition (T _g)	DMA (SSYS)	322°F	161°C
Melting Point	-----	Not Applicable ³	Not Applicable ³



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PC (polycarbonate)

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

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ELECTRICAL PROPERTIES ⁴	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	6.0x10 ¹³ - 2.0x10 ¹⁴ ohm-cm
Dielectric Constant	ASTM D150-98	2.8 - 3.0
Dissipation Factor	ASTM D150-98	.0005 - .0006
Dielectric Strength	ASTM D149-09, Method A	80 - 360 V/mil

OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.2
Coefficient of Thermal Expansion	ASTM E831	3.8x10 ⁻⁵ in/in/°F
Rockwell Hardness	ASTM D785	R115

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 360mc™	0.013 inch (0.330 mm)	Breakaway,	<input type="checkbox"/> White
Fortus 380mc™ Fortus 400mc™	0.010 inch (0.254 mm)	Soluble	
Fortus 450mc™	0.007 inch (0.178 mm)		
Fortus 900mc™	0.005 inch (0.127 mm) ⁵		

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¹Build orientation is on side long edge.

²Literature value unless otherwise noted.

³Due to amorphous nature, material does not display a melting point.

⁴All 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.

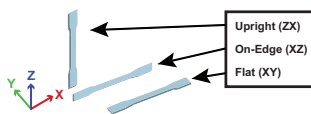
⁵PC can attain 0.005 inch (0.127mm) layer thickness when used with SR-100 soluble support. 0.005 inch layer thickness is not available on the Fortus 900mc.

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

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XY = Y or "flat"

ZX = or "upright"



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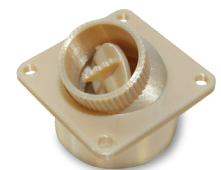


ULTEM™ 9085

PRODUCTION-GRADE THERMOPLASTIC FOR
FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		ZX ORIENTATION	ZX ORIENTATION	ZX ORIENTATION	ZX ORIENTATION
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	6,800 psi	4,800 psi	47 MPa	33 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	9,950 psi	6,100 psi	69 MPa	42 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	312,000 psi	329,000 psi	2,150 MPa	2,270 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	5.8%	2.2%	5.8%	2.2%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.2%	1.7%	2.2%	1.7%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	16,200 psi	9,900 psi	112 MPa	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	331,000 psi	297,000 psi	2,300 MPa	2,050 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	3.7%	No break	3.7%
IZOD Impact, notched (Method A, 23°C)	ASTM D256	2.2 ft-lb/in	0.9 ft-lb/in	120 J/m	48 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	14.6 ft-lb/in	3.2 ft-lb/in	781 J/m	172 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	14,500 psi	12,700 psi	100 MPa	87 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	26,200 psi	13,100 psi	181 MPa	90 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	1,030,000 psi	251,000 psi	7,012 MPa	1,731 MPa

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	307°F	153°C
Glass Transition Temperature (T _g)	DSC (SSYS)	367°F	186°C
Coefficient of Thermal Expansion	ASTM E831	3.67x10 ⁻⁰⁵ in/(in·°F)	65.27 μm/(m·°C)
Melting Point	-----	Not Applicable ³	Not Applicable ³



¹ULTEM 9085 Aerospace grade filaments are canisters of ULTEM 9085 filament produced in accordance with specifications that meet the requirements of the aerospace industry.

Before placing an order, always consult a FATHOM specialist about material selection.



ULTEM™ 9085

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

Stratasys FDM (fused deposition modeling) technology—the industry’s leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts.

FDM systems use a wide range of thermoplastics with advanced mechanical properties.

ELECTRICAL PROPERTIES	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	4.9 x10 ¹⁵ - 8.2x10 ¹⁵ ohm-cm
Dielectric Constant	ASTM D150-98	3 - 3.2
Dissipation Factor	ASTM D150-98	.0026 - .0027
Dielectric Strength	ASTM D149-09, Method A	110 - 290 V/mil

OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.34
Rockwell Hardness	ASTM D785	---
Oxygen Index	ASTM D2863	0.49
OSU Total Heat Release (2 min test, .060" thick)	FAR 25.853	16 kW min/m ²
UL File Number	-----	E345258
Outgassing		
Total Mass Loss (TML)	ASTM E595	0.41% (1.00% maximum)
Collected Volatile Condensable Material (CVCM)	ASTM E595	-0.1% (0.10% maximum)
Water Vapor Recovered (WVR)	ASTM E595	-0.37% (report)
Fungus Resistance (Method 508.6)	MIL-STD-810G	Passed
Burn Testing		
Horizontal Burn (15 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
Vertical Burn (60 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
Vertical Burn (12 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
45° Ignition	14 CFR/FAR 25.853	Passed (0.060" thick)
Heat Release	14 CFR/FAR 25.853	Passed (0.060" thick)
NBS Smoke Density (flaming)	ASTM F814/E662	Passed (0.060" thick)
NBS Smoke Density (non-flaming)	ASTM F814/E662	Passed (0.060" thick)

Before placing an order, always consult a FATHOM specialist about material selection.



ULTEM™ 9085

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 400mc™ Fortus 450mc™ Fortus 900mc™	0.013 inch (0.330 mm) 0.010 inch (0.254 mm)	Breakaway	■ Tan (Natural) ■ Black

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¹Build orientation is on side long edge.

²Literature value unless otherwise noted.

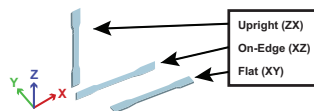
³Due to amorphous nature, material does not display a melting point.

⁴All 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.

XZ = X or "on edge"

XY = Y or "flat"

ZX = or "upright"



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Before placing an order, always consult a FATHOM specialist about material selection.



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PRODUCTION-GRADE THERMOPLASTIC FOR
FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH	METRIC
Tensile Strength (Type 1, 0.125", 0.2"/min)	ASTM D638	5,200 psi	36 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	350,000 psi	2,400 MPa
Tensile Elongation (Type 1, 0.125", 0.2"/min)	ASTM D638	3%	3%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	8,800 psi	61 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	350,000 psi	2,400 MPa
IZOD Impact, notched (Method A, 23°C)	ASTM D256	0.5 ft-lb/in	28 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	1.1 ft-lb/in	55 J/m

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi, 0.125" unannealed	ASTM D648	204°F	96°C
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	180°F	82°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	210°F	99°C
Glass Transition (Tg)	DSC (SSYS)	226°F	108°C
Coefficient of Thermal Expansion (flow)	ASTM E831	4.9 ⁵ in/in/°F	8.82 ⁵ mm/mm/°C
Coefficient of Thermal Expansion (xflow)	ASTM E831	4.7 ⁵ in/in/°F	8.46 ⁵ mm/mm/°C
Melting Point	-----	Not Applicable ³	Not Applicable ³

ELECTRICAL PROPERTIES ⁴	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	3.0x10 ⁹ - 4.0x10 ¹⁰ ohm-cm
Surface Resistance	ASTM D257	10 ⁸ - 10 ⁹ ohms



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ABS-ESD7

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

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FDM systems use a wide range of thermoplastics with advanced mechanical properties.

OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.04
Rockwell Hardness	ASTM D785	109.5

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus [®] 380mc [™]	0.010 inch (0.254 mm)	Soluble Supports	■ Black
Fortus 400mc [™]	0.007 inch (0.178 mm)		
Fortus 450mc [™]			
Fortus 900mc [™]			

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⁴All 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.



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Nylon 12CF (carbon fiber-filled)

FOR FUSED DEPOSITION MODELING (FDM)



MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ Axis	ZX Axis	XZ Axis	ZX Axis
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min) PSI	ASTM D638	9,190 psi	4,170 psi	63.4 MPa	28.8 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min) PSI	ASTM D638	10,960 psi	4,990 psi	75.6 Mpa	34.4 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min) PSI	ASTM D638	1.1 Msi	0.33 Msi	7515 MPa	2300 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min) %	ASTM D638	1.9%	1.2%	1.9%	1.2%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min) %	ASTM D638	0.9%	1.1%	0.9%	1.1%
Flexural Strength (Method 1, 0.05"/min) PSI	ASTM D790	20,660 psi	8,430 psi	142 MPa	58.1 MPa
Flexural Modulus (Method 1, 0.05"/min) PSI	ASTM D790	1.5 Msi	0.3 Msi	10,620 Mpa	1830 MPa
Flexural Strain at Break (Method 1, 0.05"/min) PSI	ASTM D790	3%	3%	3%	3%
IZOD Impact, notched (Method A, 23 °C) ft-lbf/in	ASTM D256	1.6 ft-lb/in	0.4 ft-lb/in	85 J/m	21.4 J/m
IZOD Impact, un-notched (Method A, 23 °C) ft-lbf/in	ASTM D256	5.8 ft-lb/in	1.6 ft-lb/in	310 J/m	85 J/m

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648		
Heat Deflection (HDT) @ 264 psi	ASTM D648	289 °F	143 °C
Vicat Softening Temperature (Rate B/50)	ASTM D1525		
Glass Transition Temperature (Tg)	DMA (SSYS)		
Coefficient of Thermal Expansion (flow)	ASTM E831		
Coefficient of Thermal Expansion (xflow)	ASTM E831		
Melting Temperature		433 °F	223 °C

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FDM Nylon 12CF

FOR FUSED DEPOSITION MODELING (FDM)

Stratasys FDM (fused deposition modeling) technology—the industry’s leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts. FDM systems use a wide range of thermoplastics with advanced mechanical properties.

ELECTRICAL PROPERTIES	TEST METHOD	VALUE
Volume Resistivity (kOhms)	ASTM D257	5.4E+03 - 3.9E+04
Surface Resistivity (kOhms)	ASTM D257	3.3E+03 - 6.9E+04
Dielectric Constant	ASTM D150-98	
Dissipation Factor	ASTM D150-98	
Dielectric Strength	ASTM D149-09, Method A	

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.15
Rockwell Hardness	ASTM D785	

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 450mc	0.010"		Black

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² Literature value unless otherwise noted.



Antero 800NA (PEKK)

FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES	TEST METHOD	XZ ORIENTATION	ZX ORIENTATION
Tensile Strength, Yield (Type 1, 0.125 in., 0.2 in./min)	ASTM D638	93.1 ± 0.4 MPa (13,504 ± 57 psi)	45.9 ± 5.3 MPa (6,650 ± 765 psi)
Tensile Strength, Ultimate (Type 1, 0.125 in., 0.2 in./min)	ASTM D638	93.1 ± 0.4 MPa (13,504 ± 57 psi)	45.9 ± 5.3 MPa (6,650 ± 765 psi)
Tensile Modulus (Type 1, 0.125 in., 0.2 in./min)	ASTM D638	3.1 ± 0.3 GPa (448.9 ± 39.5 ksi)	3.5 ± 0.7 GPa (505.3 ± 108.2 ksi)
Elongation at Break (Type 1, 0.125 in., 0.2 in./min)	ASTM D638	6.40 ± 1.05% ¹	1.22 ± 0.28% ¹
Elongation at Yield (Type 1, 0.125 in., 0.2 in./min)	ASTM D638	4.31 ± 0.58%	1.11 ± 0.53% ²
Flexural Strength (Method 1, 0.05 in./min)	ASTM D790	142 ± 3 MPa (20,548 ± 477 psi)	64 ± 10 MPa (9,349 ± 1,514 psi)
Flexural Modulus (Method 1, 0.05 in./min)	ASTM D790	3.1 ± 0.1 GPa (445.6 ± 10.8 ksi)	2.7 ± 0.1 GPa (388.7 ± 13.0 ksi)
Flexural Strain at Break (Method 1, 0.05 in./min)	ASTM D790	No break	2.41 ± 0.39% ³
Notched Impact (Method A, 23 °C)	ASTM D256	37 ± 6 J/m (0.69 ± 0.12 ft-lb/in)	27 ± 5 J/m (0.51 ± 0.09 ft-lb/in)
Unnotched Impact (Method A, 23 °C)	ASTM D256	1,826 ± 1,254 J/m (34.2 ± 23.5 ft-lb/in)	75 ± 28 J/m (1.40 ± 0.52 ft-lb/in)
Compressive Strength, Yield (Method 1, 0.05 in./min)	ASTM D695	100 ± 2 MPa (14,572 ± 317 psi)	101 ± 3 MPa (14,595 ± 439 psi)
Compressive Strength, Ultimate (Method 1, 0.05 in./min)	ASTM D696	100 ± 2 MPa (14,572 ± 317 psi)	101 ± 3 MPa (14,595 ± 439 psi)
Compressive Modulus (Method 1, 0.05 in./min)	ASTM D697	2.45 ± 0.01 GPa (355.6 ± 1.6 ksi)	2.3 ± 0.1 GPa (336.3 ± 12.1 ksi)

¹ 5/30 bars did not break; elongation at end of the test for those 5 bars were used in the calculation

² 8/30 bars did not yield per the MTS machine, average calculated with 22 samples

³ 11/30 bars did not break, average calculated with 19 samples



Antero 800NA (PEKK)

FOR FUSED DEPOSITION MODELING (FDM)

THERMAL PROPERTIES	TEST METHOD	VALUE
Heat Deflection (HDT) @ 66 psi	ASTM D648	150 °C (302 °F)
Heat Deflection (HDT) @ 264 psi	ASTM D648	147 °C (296.6 °F)
Glass Transition Temperature (Tg)	ASTM D7426-08	149 °C (300.2 °F)
Coefficient of Thermal Expansion (X)	ASTM E831	39.23 µm/(m·°C) (21.79 µin/(in·°F))
Coefficient of Thermal Expansion (Y)	ASTM E831	53.14 µm/(m·°C) (29.52 µin/(in·°F))
Coefficient of Thermal Expansion (Z)	ASTM E831	50.52 µm/(m·°C) (28.06 µin/(in·°F))

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Ten samples were built on three different machines, resulting in 30 samples total used in each mechanical test in both the XZ and ZX orientations.

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For further testing details please see our Antero 800NA white paper.

ELECTRICAL PROPERTIES	TEST METHOD	VALUE RANGE	
		XY	ZX
Volume Resistivity	ASTM D257	> 1.4 x 10 ¹⁴ Ω	> 1.4 x 10 ¹⁴ Ω
Dielectric Constant	ASTM D150-98	3.23	3.32
Dissipation Factor	ASTM D150-98	0.004	0.003

OUTGASSING	TEST METHOD	VALUE
Total Mass Loss (TML)	ASTM E595	0.27%
Collected Volatile Condensable Material (CVCM)	ASTM E595	0.01%
Water Vapor Recovered (WVR)	ASTM E595	0.15%

BURN TESTING	TEST METHOD	VALUE
Horizontal Burn (15 sec)	14 CFR/FAR 25.853	Passed
Vertical Burn (60 sec)	14 CFR/FAR 25.853	Passed
Vertical Burn (12 sec)	14 CFR/FAR 25.853	Passed
45° Ignition	14 CFR/FAR 25.853	Passed
Heat Release	14 CFR/FAR 25.853	Passed
NBS Smoke Density (flaming)	ASTM F814/E662	Passed
NBS Smoke Density (non-flaming)	ASTM F814/E662	Passed

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.28
Chemical Compatibility	MIL-STD-810G	No visible damage



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PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH	METRIC
Tensile Strength (Type 1, 0.125", 0.2"/min)	ASTM D638	8,300 psi	57 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	289,800 psi	2,000 MPa
Tensile Elongation (Type 1, 0.125", 0.2"/min)	ASTM D638	4%	4%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	13,100 psi	90 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	310,400 psi	2,100 MPa
IZOD Impact, notched (Method A, 23°C)	ASTM D256	1.6 ft-lb/in	86 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	1 ft-lb/in	53 J/m

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648	271°F	133°C
Heat Deflection (HDT) @ 264 psi	ASTM D648	260°F	127°C
Glass Transition (T _g)	DMA (SSYS)	322°F	161°C
Vicat Softening	ISO 306	282°F	139°C
Melt Point	-----	Not Applicable ³	Not Applicable ³

ELECTRICAL PROPERTIES ⁴	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	1.5x10e14 - 8.0x10e13 ohm-cm
Dielectric Constant	ASTM D150-98	3.0 - 2.8
Dissipation Factor	ASTM D150-98	.0009 - .0005
Dielectric Strength	ASTM D149-09, Method A	370 - 70 V/mil



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PC-ISO

PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

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OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.2

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 400mc	0.013 inch (0.330 mm)	BASS	<input type="checkbox"/> White
Fortus 900mc	0.010 inch (0.254 mm)		<input type="checkbox"/> Translucent
	0.007 inch (0.178 mm)		Natural

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**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.*

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²Literature value unless otherwise noted.

³Due to amorphous nature, material does not display a melting point.

⁴All 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.

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PRODUCTION-GRADE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH	METRIC
Tensile Strength (Type 1, 0.125", 0.2"/min)	ASTM D638	5,900 psi	41 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	278,000 psi	1,900 MPa
Tensile Elongation (Type 1, 0.125", 0.2"/min)	ASTM D638	6%	6%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	9,800 psi	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	280,000 psi	1,900 MPa
IZOD Impact, notched (Method A, 23°C)	ASTM D256	3.7 ft-lb/in	196 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	9 ft-lb/in	481 J/m

THERMAL PROPERTIES ²	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	ASTM D1525	234°F	112°C
Glass Transition Temperature (Tg)	DMA (SSYS)	257°F	125°C
Coefficient of Thermal Expansion	-----	4.10 E -05 in/in/°F	-----
Melt Point	-----	Not Applicable ³	Not Applicable ³

ELECTRICAL PROPERTIES ⁴	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	2.0x10e14 - 4.4x10e13 ohm-cm
Dielectric Constant	ASTM D150-98	2.9 - 2.7
Dissipation Factor	ASTM D150-98	.0035 - .0032
Dielectric Strength	ASTM D149-09, Method A	340 - 90 V/mil



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OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.10
Density	ASTM D792	0.0397 lb/in ³
Rockwell Hardness	ASTM D785	R110

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus 360mc	0.013 inch (0.330 mm)	Soluble Supports	■ Black
Fortus 380mc	0.010 inch (0.254 mm)		
Fortus 400mc	0.007 inch (0.178 mm)		
Fortus 450mc	0.005 inch (0.127 mm) ⁵		
Fortus 900mc			
Stratasys F370			

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²Literature value unless otherwise noted.

³Due to amorphous nature, material does not display a melting point.

⁴All 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.

⁵ 0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc

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ULTEM 1010 Resin

HIGH-PERFORMANCE THERMOPLASTIC
FOR FUSED DEPOSITION MODELING (FDM)

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	9,300 psi	6,100 psi	64 MPa	42 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	11,700 psi	5,400 psi	81 MPa	37 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	402,000 psi	322,000 psi	2,770 MPa	2,200 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	3.3%	2.0%	3.3%	2.0%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.2%	1.5%	2.2%	1.5%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	21,000 psi	11,100 psi	144 MPa	77 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	409,000 psi	324,000 psi	2,820 MPa	2,230 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	3.5%	No break	3.5%
IZOD Impact, notched (Method A, 23°C)	ASTM D256	0.8 ft-lb/in	0.4 ft-lb/in	41 J/m	24 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	6.1 ft-lb/in	2.6 ft-lb/in	326 J/m	138 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	19,500 psi	15,100 psi	134 MPa	107 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	No break	15,500 psi	No break	1,125 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	1,450,000 psi	305,000 psi	10,000 MPa	1,120 MPa

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi, 0.125" unannealed	ASTM D648	421°F	216°C
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	415°F	213°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	416°F	214°C
Glass Transition Temperature (T _g)	DSC (SSYS)	419°F	215°C
Coefficient of Thermal Expansion	ASTM E831	26x10 ⁻⁶ in/(in·°F)	47 μm/(m·°C)
Coefficient of Thermal Expansion (xflow)	ASTM E831	25x10 ⁻⁶ in/(in·°F)	41 μm/(m·°C)
Melting Point	-----	Not Applicable ³	Not Applicable ³

ELECTRICAL PROPERTIES	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	1.0x10 ¹⁴ - 8.96x10 ¹⁵ ohm-cm
Dielectric Constant	ASTM D150-98	2.67
Dissipation Factor	ASTM D150-98	.001
Dielectric Strength	ASTM D149-09, Method A	240 V/mil

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ULTEM 1010 Resin

HIGH-PERFORMANCE THERMOPLASTIC FOR FUSED DEPOSITION MODELING (FDM)

Stratasys FDM (fused deposition modeling) technology—the industry’s leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts.

FDM systems use a wide range of thermoplastics with advanced mechanical properties.

Other ²	Test Method	Value
Specific Gravity	ASTM D792	1.27
Rockwell Hardness	ASTM D785	109
Oxygen Index	ASTM D2863	0.44
Vertical Burn	FAR 25.853 (Test a (60s), passes at)	4 seconds
OSU Total Heat Release (2 min test, .060" thick)	FAR 25.853	35.7 kW min/m ²
UL File Number	-----	E345258
Food Safety Certification ⁴	NSF 51	Certified
Bio-Compatibility Certification ⁴	ISO 10993/USP Class VI	Certified

BURN TESTING		
Horizontal Burn (15 sec)	14 CFR/FAR 25.853	Passed (.060" thick)
Vertical Burn (60 sec)	14 CFR/FAR 25.853	Passed (.060" thick)
Vertical Burn (12 sec)	14 CFR/FAR 25.853	Passed (.060" thick)
45° Ignition	14 CFR/FAR 25.853	Passed (.060" thick)
Heat Release	14 CFR/FAR 25.853	Passed (.060" thick)
NBS Smoke Density (flaming)	ASTM F814/E662	Passed (.060" thick)
NBS Smoke Density (non-flaming)	ASTM F814/E662	Passed (.060" thick)

System Availability	Layer Thickness Capability	Support Structure	Available Colors
Fortus 400mc™ Fortus 450mc™ Fortus 900mc™	0.010 inch (0.254 mm) 0.013 inch (0.333 mm)	Breakaway	■ Natural

The performance characteristics of these materials may vary according to application, operating conditions, or end use. 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.

¹Build orientation is on side long edge.

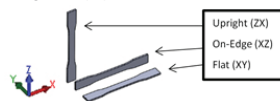
²Literature value unless otherwise noted

³Due to amorphous nature, material does not display a melting point.

⁴Available for ULTEM 1010 CG (certified grade) canisters.

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

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



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