

# FORTUS MATERIALS OVERVIEW

Fortus 3D Production Systems use a variety of production-grade thermoplastics to manufacture functional parts direct from digital data. Fortus thermoplastics are environmentally stable, so overall shape and part accuracy don't change with ambient conditions over time, unlike the resins and powders in competitive processes. Materials are easy to change on Fortus systems, with no mess or complicated processes. When combined with Fortus systems, Fortus thermoplastics give you production quality thermoplastic parts that are ideal for concept modeling, functional prototyping, manufacturing tools, or end-use parts.



Material:	ABSplus-P430	ABSi	ABS-M30	ABS-M30i	ABS-ESD7	PC-ABS	PC-ISO	PC	ULTEM* 9085	PPSF
<b>System Availability</b>	Fortus 250mc	Fortus 400mc Fortus 900mc	Fortus 360mc Fortus 400mc Fortus 900mc	Fortus 400mc Fortus 900mc	Fortus 400mc Fortus 900mc	Fortus 360mc Fortus 400mc Fortus 900mc	Fortus 400mc Fortus 900mc	Fortus 360mc Fortus 400mc Fortus 900mc	Fortus 400mc Fortus 900mc	Fortus 400mc Fortus 900mc
<b>Layer Thickness:</b>										
0.013 inch (0.330 mm)	X	X	X	X		X	X	X	X <sup>3</sup>	X <sup>4</sup>
0.010 inch (0.254 mm)	X	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 <sup>1</sup>	X <sup>1</sup>	X <sup>1</sup>		X <sup>1</sup>		X <sup>1,6</sup>		
<b>Support Structure</b>	Soluble	Soluble	Soluble	Soluble	Soluble	Soluble	BASS	BASS, Soluble	BASS	BASS
<b>Available Colors</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f0f0f0; border: 1px solid #ccc; margin-right: 5px;"></span> Ivory</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #fff; border: 1px solid #ccc; margin-right: 5px;"></span> White</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #000; border: 1px solid #ccc; margin-right: 5px;"></span> Black</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #444; border: 1px solid #ccc; margin-right: 5px;"></span> Dark Grey</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f00; border: 1px solid #ccc; margin-right: 5px;"></span> Red</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00f; border: 1px solid #ccc; margin-right: 5px;"></span> Blue</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #808000; border: 1px solid #ccc; margin-right: 5px;"></span> Olive Green</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffa500; border: 1px solid #ccc; margin-right: 5px;"></span> Nectarine</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffff00; border: 1px solid #ccc; margin-right: 5px;"></span> Fluorescent Yellow</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #fff; border: 1px solid #ccc; margin-right: 5px;"></span> Custom Colors</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ccc; border: 1px solid #ccc; margin-right: 5px;"></span> Translucent Natural</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffa500; border: 1px solid #ccc; margin-right: 5px;"></span> Translucent Amber</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f00; border: 1px solid #ccc; margin-right: 5px;"></span> Translucent Red</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f0f0f0; border: 1px solid #ccc; margin-right: 5px;"></span> Ivory</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #fff; border: 1px solid #ccc; margin-right: 5px;"></span> White</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #000; border: 1px solid #ccc; margin-right: 5px;"></span> Black</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #444; border: 1px solid #ccc; margin-right: 5px;"></span> Dark Grey</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #f00; border: 1px solid #ccc; margin-right: 5px;"></span> Red</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00f; border: 1px solid #ccc; margin-right: 5px;"></span> Blue</li> </ul>	<span style="display: inline-block; width: 10px; height: 10px; background-color: #f0f0f0; border: 1px solid #ccc; margin-right: 5px;"></span> Ivory	<span style="display: inline-block; width: 10px; height: 10px; background-color: #000; border: 1px solid #ccc; margin-right: 5px;"></span> Black	<span style="display: inline-block; width: 10px; height: 10px; background-color: #000; border: 1px solid #ccc; margin-right: 5px;"></span> Black	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #fff; border: 1px solid #ccc; margin-right: 5px;"></span> White</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ccc; border: 1px solid #ccc; margin-right: 5px;"></span> Translucent Natural</li> </ul>	<span style="display: inline-block; width: 10px; height: 10px; background-color: #d2b48c; border: 1px solid #ccc; margin-right: 5px;"></span> Tan	<span style="display: inline-block; width: 10px; height: 10px; background-color: #d2b48c; border: 1px solid #ccc; margin-right: 5px;"></span> Tan	
<b>Tensile Strength<sup>2</sup></b>	5,300 psi (37 MPa)	5,400 psi (37 MPa)	5,200 psi (36 MPa)	5,200 psi (36 MPa)	5,200 psi (36 MPa)	5,900 psi (41 MPa)	8,265 psi (57 MPa)	9,800 psi (68 MPa)	10,390 psi (72 MPa)	8,000 psi (55 MPa)
<b>Tensile Elongation<sup>2</sup></b>	3.0%	4.4%	4.0%	4.0%	3.0%	6.0%	4.3%	4.8%	5.9%	3.0%
<b>Flexural Stress</b>	7,600 psi (53 MPa)	8,980 psi (62 MPa)	8,800 psi (61 MPa)	8,800 psi (61 MPa)	8,800 psi (61 MPa)	9,800 psi (68 MPa)	13,089 psi (90 MPa)	15,100 psi (104 MPa)	16,700 psi (115 MPa)	15,900 psi (110 MPa)
<b>IZOD Impact, notched</b>	2.0 ft-lb/in (106 J/m)	1.8 ft-lb/in (96 J/m)	2.6 ft-lb/in (139 J/m)	2.6 ft-lb/in (139 J/m)	2.1 ft-lb/in (111 J/m)	3.7 ft-lb/in (196 J/m)	1.6 ft-lb/in (86 J/m)	1.0 ft-lb/in (53 J/m)	2.0 ft-lb/in (106 J/m)	1.1 ft-lb/in (59 J/m)
<b>Heat Deflection</b>	204°F (96°C)	188°F (87°C)	204°F (96°C)	204°F (96°C)	204°F (96°C)	230°F (110°C)	271°F (133°C)	280°F (138°C)	333°F (167°C)	372°F (189°C)
<b>Unique Properties</b>	Variety of color options	Translucent material	Variety of color options	ISO 10993 USP Class VI <sup>5</sup>	Static dissipative, target surface resistance of 10 <sup>7</sup> ohms <sup>†</sup>	Highest impact resistance	ISO 10993 USP Class VI <sup>5</sup>	Highest tensile strength	Flame, smoke, toxicity (FST) certified	Highest heat and chemical resistance

<sup>†</sup>Actual surface resistance may range from 10<sup>9</sup> to 10<sup>6</sup> ohms, depending upon geometry, build style and finishing techniques.

<sup>1</sup> 0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc.

<sup>2</sup> See individual material spec sheets for testing details.

<sup>3</sup> 0.013 inch (0.330 mm) layer thickness for ULTEM not available on Fortus 400mc.

<sup>4</sup> 0.013 inch (0.330 mm) layer thickness for PPSF not available on Fortus 900mc.

<sup>5</sup> 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.

<sup>6</sup> PC can attain 0.005 inch (0.127mm) layer thickness when used with SR-100 soluble support.