

## FDM Materials

### Fused Deposition Modeling (FDM)

We can convert your CAD files into 3D objects, dimensionally accurate very fast, using the FDM method. ABS is a additive manufacturing real thermoplastic material for functional testing, product design models can be built up to 36" x 24" x 36" (914mm x 610mm x 914mm). Larger models of virtually any size may be sectioned and assembled upon completion.

Accuracy is  $\pm .005$ " for the first 5 inches and  $\pm .0005$ " inch per inch thereafter. Smooth surface with visible layer lines resolution dependant and smoothest features are built vertically. Minimum recommended wall thickness is 0.032" in standard mode and 0.020" in high res mode. The Flame Classification is UL 94 (value – HB).

### Process FDM

<b>Product:</b>	ABS - Plastic
<b>Elongation at Break % (ASTM D638):</b>	6 %
<b>Flexural Strength (ASTM D790):</b>	6,000 PSI (41 MPa)
<b>Flexural Modulus (ASM D790):</b>	266,000 PSI (1,834 MPa)
<b>Glass Transition Temperature (DMA):</b>	219°F (104°C)
<b>Heat Deflection Temperature (HDT) @ 66 PSI (ASTM D648):</b>	195°F (90°C)
<b>(HDT) @ 264 PSI:</b>	169°F (76°C)
<b>Impact Strength notched (ASTM D256):</b>	2 ft-lb/in (106.78 J/m)
<b>Un-notched:</b>	4 ft-lb/in (213.56 J/m)
<b>Appearance &amp; Colors:</b>	Low-gloss, Black, Blue, Red, (White-std), Steel Gray, and other colors upon request.
<b>Applications:</b>	Additive Manufacturing, Conceptual Modeling, Consumer Electronics, Jigs & Fixtures, Functional Models, Medical Devices.

Disclaimer: All tolerance specifications reflect the approximate range of a process's capabilities and should be viewed only as a guide. Actual capabilities are dependent upon manufacturing, equipment, material, and part requirements.