

# PC-ABS

for FORTUS 3D Production Systems

**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. Additionally, a PC-ABS part manufactured on a Fortus 3D Production System is 5-60 percent stronger than a part made on previous FDM systems. When combined with a Fortus system, PC-ABS gives you Real Parts™ conceptual modeling, functional prototyping, manufacturing tools, and end-use-parts.



| Mechanical Properties <sup>1</sup>            | 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  | 1,917 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  | 1,931 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 <sup>3</sup>  | 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                  | ASTM D1525  | 234°F                       | 112°C                       |
| Coefficient of Thermal Expansion | -----       | 4.10 E -05 in/in/°F         | -----                       |
| Glass Transition Temp (Tg)       | DMA (SSYS)  | 257°F                       | 125°C                       |
| Melt Point                       | -----       | Not Applicable <sup>2</sup> | Not Applicable <sup>2</sup> |

| Other <sup>3</sup>           | Test Method | Value                     |
|------------------------------|-------------|---------------------------|
| Specific Gravity             | ASTM D792   | 1.20                      |
| Density                      | ASTM D792   | 0.0397 lb/in <sup>3</sup> |
| Flame Classification         | UL94        | HB (0.0335", 0.85 mm)     |
| Rockwell Hardness            | ASTM D785   | R110                      |
| Dielectric Strength          | IEC 60112   | 35.0 kV/mm                |
| Dielectric Constant @ 100 Hz | IEC 60250   | 3.1                       |
| Dielectric Constant @ 1 Mhz  | IEC 60250   | 3.0                       |

► See reverse for color options and system availability.

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.

<sup>1</sup> Build orientation is on side long edge. <sup>2</sup> Due to amorphous nature, material does not display a melting point. <sup>3</sup> Literature value unless otherwise noted.



| System Availability                                       | Layer Thickness Capability  | Support Structure | Available Colors |
|---|---|-------------------|------------------|
| Fortus 400mc<br>Fortus 360mc<br>Fortus 900mc <sup>1</sup> | 0.013 inch (0.330 mm)<br>0.010 inch (0.254 mm)<br>0.007 inch (0.178 mm)<br>0.005 inch (0.127 mm) <sup>2</sup> | Soluble Supports  | ■ Black          |

<sup>1</sup>PC-ABS will be available for Fortus 900mc Q2 2009.

<sup>2</sup>0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc

## 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 fabrication 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 or resins 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: [www.fortus.com/benchmark](http://www.fortus.com/benchmark).

For more information about Fortus systems, materials and applications, call 650-369-5335 x-11 or visit [www.protopulsion.com](http://www.protopulsion.com)

ProtoPulsion Inc.  
635 Bair Island Rd. Suite 106  
Redwood City, CA 94063  
650.369.5335

650-649-1898 (Fax)  
[www.protopulsion.com](http://www.protopulsion.com)  
[info@protopulsion.com](mailto:info@protopulsion.com)

©2009 Stratasys Inc. All rights reserved. Stratasys and FDM are registered trademarks and Fortus, Real Parts, Fortus 200mc, Fortus 400mc, Fortus 900mc, Insight, Control Center and FDM TEAM are trademarks of Stratasys Inc., registered in the United States and other countries. \*ULTEM 9085 is a trademark of SABIC Innovative Plastics IP BV. All other trademarks are the property of their owners. Product specifications subject to change without notice. Printed in the USA. MS-PC-ABS 02/09

Fortus 360mc,  
Fortus 400mc,  
Fortus 900mc,  
Insight, Control Center  
and FDM TEAM are  
registered trademarks  
of Stratasys Inc.

**FORTUS**<sup>™</sup>  
3D PRODUCTION SYSTEMS