ASA vs. ABS

How to Choose the Right General-Purpose Thermoplastic for Your Fortus 3D Production Systems

Offering a variety of production-grade thermoplastics, FDM® technology creates parts that are highly accurate, tough and suitable for both functional prototyping and end-use parts. ABS is the most common material used as it boasts good mechanical properties and high name recognition. Compared with ASA, ABS may be more familiar because of its popularity in mass production.

ASA is a thermoplastic, poised to become the most popular all-purpose prototyping material for operators of Fortus® 360mc™, 380mc™, 400mc™, 450mc™ and 900mc™ 3D Production Systems. ASA matches or exceeds the mechanical properties of standard ABS and has greater heat resistance. Moreover, ASA demonstrates exceptional UV stability and, with its matte finish, offers the best aesthetics of any FDM thermoplastic. It's especially suited for end-use parts in outdoor commercial and infrastructure applications, and its wide array of color options surpasses that of ABS.

ASA vs. ABS

Material:	ABS-M30™	ASA
System Availability	Fortus 360mc Fortus 380mc Fortus 400mc Fortus 450mc Fortus 900mc	Fortus 360mc Fortus 380mc Fortus 400mc Fortus 450mc Fortus 900mc
Layer Thickness:		
0.013 inch (0.330 mm)	X	X
0.010 inch (0.254 mm)	X	X
0.007 inch (0.178 mm)	X	X
0.005 inch (0.127 mm)	X[1]	X
Support Structure	Soluble	Soluble
Available Colors	Ivory, Blue, White, Black, Dark Grey, Red	Black[3], Dark Blue, Dark Gray, Green, Light Gray, Yellow, White, Orange, Ivory, Red
Tensile Strength[2]	XY: 4,680 psi (32 MPa) Z: 4,055 psi (28 MPa)	XY: 4,720 psi (33 MPa) Z: 4,300 psi (30 MPa)
Tensile Elongation[2]	XY: 7% Z: 2%	XY: 9% Z: 3%
IZOD Impact, unnotched	5.6 ft-lb/in (299 J/m)	6.0 ft-lb/in (321 J/m)
Z-Strength Ratio	87%	91%
Unique Properties	Variety of color options	UV-stable with the best aesthetics of any FDM material

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

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 at 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.

[1]Build orientation is on side long edge.

[2]Literature value unless otherwise noted.

[3]Material properties listed are for ivory; some values vary slightly in black.

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At the core: Advanced FDM technology

Fortus systems are based on FDM technology. FDM 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 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: stratasys.com.