RedEye

PARTS FOR PROTOTYPE AND PRODUCTION · ON DEMAND

ABS

Acrylonitrile/butadiene/styrene

ABS is a strong, durable production-grade thermoplastic used across many industries. ABS is an ideal material for conceptual prototyping through design verification through direct digital manufacturing. The marriage of ABS with FDM technology gives you the ability to create Real Parts™ direct from digital files, in a variety of standard and custom colors. This material is ideal for the rapid production of prototypes, tooling and the direct (tool-less) manufacturing of production parts.

ABS is widely used in applications where impact-resistance and structural strength are necessary. It is accurate, durable and robust enough for field testing or demonstration units. Because of its excellent dimensional stability, it is ideal for pre-production rapid prototypes that can accurately predict performance of injection molded parts.

Mechanical Properties[1]	Test Method	Imperial	Metric
Tensile Strength, Type 1, 0.125	ASTM D638	3,200 psi	22 MPa
Tensile Modulus, Type 1, 0.125	ASTM D638	236,000 psi	1,627 Mpa
Tensile Elongation, Type 1, 0.125	ASTM D638	6 %	6 %
Flexural Strength	ASTM D790	6,000 psi	41 MPa
Flexural Modulus	ASTM D790	266,000 psi	1,834 MPa
IZOD Impact, notched	ASTM D256	2 ft-lb/in	106.78 J/a
IZOD Impact, un-notched	ASTM D256	4 ft-lb/in	213.56 J/a

Thermal Properties	Test Method	Imperial	Metric
Heat Deflection Temperature @ 66 psi	ASTM D648	195° F	90° C
Heat Deflection Temperature @ 264 psi	ASTM D648	169° F	76° C
Glass Transition Temperature (Tg)	DMA (SSYS)	219° F	104° C
Coefficient of Thermal Expansion	ASTM D696	5.60E-05 in/in/F	- - - - -
Melt Point	- - - - - - - - -	Not Applicable[2]	Not Applicable[2]

Other	Test Method	Value
Specific Gravity	ASTM D792	1.05
Flame Classification	UL 94	HB
Rockwell Hardness	ASTM D785	R105
Dielectric Strength kV/mm	IEC 60112	32
Dielectric Constant @ 60Mhz	IEC 60250	2.4

APPEARANCE: White, Black, Blue, Green, Red, Yellow, Grey (light) and Gray (steel)

APPLICATIONS: automotive body parts, dash boards, components and housings, electronic enclosures for business machines and consumer products; sporting goods; manufacturing fixtures; handles and enclosures for power tools; prototypes and end-use parts in other industries such as aerospace, medical, toys and industrial goods.

Masters: RTV molds and vacuum forming, vacuum metallization, electroplating, investment casting.

BENEFITS of Direct Digital Manufacturing:

- Multiple design iterations -design engineers have the flexibility to modify geometry's while in production, which incurs cost and time penalties when tooling starts
- Bridge manufacturing - rapid manufacturing allows you to start production while waiting for your tool to build
- Jigs and Fixtures - Use additive fabrication as a light-weight, lower cost tool for assembly and manufacturing aids during the production of your parts
- Just-in-time or lean manufacturing - DDM can conserve cash flow for manufacturers
- Alpha and Beta product releases - produce accurate, durable products during the early design validation stages - even if you already committed to tooling

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.

[1] Build orientation is on side edge. [2] Do to amorphous nature, material does not display a melting point.

For more information about Redeye services and materials, contact your representative at +1 866-882-6934 or visit www.redeyeondemand.com

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