Fused Deposition Modeling

PC

Polycarbonate

Product Description

Polycarbonates are known for their strength, mechanical durability, toughness, and temperature resistance. This material has a high glass transition temperature making it ideal for components that involve exposure to high temperatures. Polycarbonate is the material trusted by engineers and professionals for its unbeatable combination of strength, heat resistance, and versatility.

Applications

Its use is universal but especially suitable for functional prototypes, industrial parts, and components that require exceptional toughness and impact resistance.

Tolerances

For well-designed parts, tolerances of ±0.012 in. plus ±0.002 in./in. for each additional inch can typically be achieved depending on part geometry. Note that tolerances may change depending on part geometry.

Key Material Benefits

- Extreme Toughness & Strength
- High Heat Resistance
- Excellent Chemical Resistance
- Great Durability

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Properties

PC (Polycarbonate)

Material Properties	Value	Test Method
Colors	Natural, Jet Black, Urban Grey, Orange	-
Density [g/cm3]	1.22	ISO 1183
Moisture Absorption in 24 hours [%] 24 °C; humidity 22 %	0.13	Supplier Tested
Moisture Absorption in 7 days [%] 24 °C; humidity 22 %	0.15	Supplier Tested
Heat Deflection Temperature (0.45 MPa) [°C]	113	ISO 75
Heat Deflection Temperature (1.80 MPa) [°C]	93	ISO 75
Tensile Yield Strength for Filament [MPa]	58 ± 1	ISO 527
Hardness – Shore D	79	Supplier Tested

Mechanical Properties	Value (X-Y)	Value (X-Z)	Test Method
Tensile Yield Strength [MPa]	63 ± 1	63 ± 1	ISO 527-1
Tensile Modulus [GPa]	1.9 ± 0.1	2.0 ± 0.1	ISO 527-1
Elongation at Yield Point [%]	25.8 ± 0.3	5.8 ± 0.2	ISO 527-1
Flexural Strength [MPa]	88 ± 1	94 ± 2	ISO 178
Flexural Modulus [GPa]	2.1 ± 0.1	2.2 ± 0.1	ISO 178
Deflection at Flexural Strength [mm]	11 ± 0.2	10.7 ± 0.2	ISO 178
Impact Strength Charpy [kJ/m2] - Charpy Unnotched	No Break	No Break	ISO 179-1
Impact Strength Charpy Notched [kJ/m2] - Charpy Notched	12 ± 1	12 ± 1	ISO 179-1

*Technical Values from Supplier Data Sheet