Polycarbonate (PC)

PC is the strongest and most heat-resistant of our standard FDM thermoplastics. With heat deflection around 140 °C and tensile strength near 94 MPa, it is what we print when a part needs to carry real load or take heat that would soften ABS or ASA.

140 °C
Heat deflection at 264 psi (ASTM D648)

93.9 MPa
Tensile yield strength, XZ orientation

1.20
Specific gravity at 23 °C (ASTM D792)

About this material

Polycarbonate is a true industrial engineering plastic, and FDM PC brings its high strength, impact resistance, dimensional stability, and heat resistance to 3D printing. Heat deflection lands near 140 °C at 264 psi, roughly 40 °C above the ABS family, and it is the strongest of our standard grades. White is standard; black and red are validated colors. For prolonged outdoor exposure, ASA is a better fit since PC loses some strength under sustained UV.

Typical applications

High-heat components and fixtures, strong functional prototypes, manufacturing tooling that demands more than commodity plastics, and structural brackets and mounts where stiffness matters under load.

Physical properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Specific gravity	1.20 (at 23 °C)	ASTM D792
HDT at 66 psi	144.0 °C (291.2 °F)	ASTM D648 B
HDT at 264 psi	140.7 °C (285.3 °F)	ASTM D648 B
Glass transition (Tg)	142.5 °C (288.6 °F)	ASTM D7426
Thermal conductivity (30 °C)	0.285 W/m·K	ASTM E1952
Flammability	UL 94 HB (Blue Card)	UL 94

Tensile properties (ASTM D638), F900 white

PROPERTY	XZ ORIENTATION	ZX ORIENTATION
Yield strength [MPa]	93.9	53.1
Elongation at yield [%]	4.8	1.9
Strength at break [MPa]	54.1	52.6
Elongation at break [%]	12	1.9
Tensile modulus [GPa]	2.94	2.88

XZ (on-edge) runs the layers along the load and prints stronger. ZX (upright) stacks the layers across the load. Typical values at 0.25 mm (0.010 in.) layer height.

Flexural, compression, and impact (F900)

PROPERTY	XZ ORIENTATION	ZX ORIENTATION
Flexural strength at break [MPa]	No break	85.3
Flexural strength at 5% strain [MPa]	144	—
Flexural modulus [GPa]	3.43	2.80
Compressive yield strength [MPa]	106	106
Izod impact, notched [J/m]	45.8	30.7
Izod impact, unnotched [J/m]	1930	143.2

Flexural per ASTM D790, compression per ASTM D695, Izod impact per ASTM D256.

Source and notes

Values are drawn from the Stratasys PC material data sheet, document MDS_FDM_PC_1025a (OEM source). Stratasys lists these as typical values for reference and comparison, not for design specifications or quality control. Properties vary with orientation, color, layer height, and machine. PC loses strength under prolonged UV; use ASA for outdoor parts.

Full page: https://www.evologymfg.com/manufacturing-capabilities/fdm-fused-deposition-modeling/pc