



# 3D COMPOSITES

Transforming ideas into 3-dimensional objects



## Polycarbonate

A true industrial thermoplastic, PC (polycarbonate) is widely used in automotive, aerospace, medical and many other applications. PC offers accuracy, durability and stability, creating strong parts that withstand functional testing. It also has superior mechanical properties to ABS and a number of other thermoplastics. PC gives you strong parts for conceptual modeling, functional prototyping, manufacturing tools, and end-use parts.

Color options: White

MECHANICAL PROPERTIES	TEST METHOD	ENGLISH		METRIC	
		XZ Axis	ZX Axis	XZ Axis	ZX Axis
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	5,800 psi	4,300 psi	40 MPa	30 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	8,300 psi	6,100 psi	57 MPa	42 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	282,000 psi	284,000 psi	1,944 MPa	1,958 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	4.8%	2.5%	4.8%	2.5%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.2%	2%	2.2%	2%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	13,000 psi	9,900 psi	89 MPa	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	291,000 psi	261,000 psi	2,006 MPa	1,800 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	4%	No break	4%



Continued MECHANICAL PROPERTIES	TEST METHOD	ENGLISH		METRIC	
		XZ Axis	ZX Axis	XZ Axis	ZX Axis
IZOD Impact, notched (Method A, 23°C)	ASTM D256	1.4 ft-lb/in	0.5 ft-lb/in	73 J/m	28 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	16.4 ft-lb/in	3.5 ft-lb/in	877 J/m	187 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	10,000 psi	9,200 psi	69 MPa	64 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	28,000 psi	9,400 psi	193 MPa	65 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	1,100,000 psi	227,000 psi	7,564 MPa	1,565 MPa

THERMAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi	ASTM D648	280°F	138°C
Heat Deflection (HDT) @ 264 psi	ASTM D648	261°F	127°C
Vicat Softening	ASTM D1525	282°F	139°C
Glass Transition (Tg)	DMA (SSYS)	322°F	161°C
Melting Point	-----	Not Applicable	Not Applicable

ELECTRICAL PROPERTIES	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	6.0x10 <sup>13</sup> - 2.0x10 <sup>14</sup> ohm-cm
Dielectric Constant	ASTM D150-98	2.8 - 3.0
Dissipation Factor	ASTM D150-98	.0005 - .0006
Dielectric Strength	ASTM D149-09, Method A	80 - 360 V/mil

OTHER	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.2
Flame Classification	UL94	HB
Coefficient of Thermal Expansion	ASTM E831	3.8x10 <sup>-05</sup> in/in/°F
Rockwell Hardness	ASTM D785	R115
UL File Number	-----	E345258