



FILATECH
Making It Better

PC Filament

PC – POLYCARBONATE

Polycarbonate (PC) Polycarbonate is strong and very resistant to impact, this material is used when making bullet-proof glass. Not only is polycarbonate an extremely tough and durable thermoplastic material it is also very resistant to temperature.

This material is malleable when cool and can bend without cracking.

PC has a very high impact strength, far greater than glass and more than ten times that of an acrylic material like PMMA.

At the same time, it has less than half the density of glass, but with comparably high level of transparency. In fact, polycarbonate transmits visible light better than many kinds of glass.

It is this relatively light weight and transparency, combined with incredible strength, which makes polycarbonate such an attractive material choice for a wide variety of commercial uses. Our Polycarbonate filaments are available in different colors and 1.75mm and 2.85mm diameter.

OPTIONS:

Size:	1.75	mm +/- 0.03 mm
	2.85	mm +/- 0.03 mm
Color:	Full Color Range (Special Colors By Order)	
Packaging:	0.5	Kg Spools
	1.0	Kg Spools
	6.0	Kg Spools

FEATURES:

Higher melting temperature for better mechanical strength at higher temperature.

Free from harmful or hazardous materials.

Strong, impact resistant thermoplastic.

Produces objects with extreme toughness.

Machine bendable at room temperature.

Extremely durable.

Parts can withstand temperatures of up to 140 °C and higher without losing strength.

Transparent with excellent light transmittance.

Dichloromethane soluble.

Shall be printed on heat bed.

SPECIFICATIONS:

Filament Material:	PC	
Specific Gravity:	1.20	gr/cm ³
Size:	1.75	mm +/- 0.03 mm
	2.85	mm +/- 0.03 mm
Printing Information:	Extruder: 270 – 310 °C	
	Bed:	90 – 120 °C
Working Temperature:	Withstands up to 140 °C	

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ENGINEERING PROPERTIES:

Mechanical Properties:

Properties	Condition	Unit	Standard	Value
Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2400
Yield stress	50 mm/min	MPa	ISO 527-1,-2	66
Yield strain	50 mm/min	%	ISO 527-1,-2	6.2
Nominal strain at break	50 mm/min	%	ISO 527-1,-2	> 50
Stress at break	50 mm/min	MPa	ISO 527-1,-2	70
Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	130
Tensile creep modulus	1 h	MPa	ISO 899-1	2200
Tensile creep modulus	1000 h	MPa	ISO 899-1	1900
Flexural modulus	2 mm/min	MPa	ISO 178	2400
Flexural strength	2 mm/min	MPa	ISO 178	97
Flexural strain at flexural strength	2 mm/min	%	ISO 178	7.1
Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	73
Charpy impact strength	23 °C	kJ/m ²	ISO 179/1eU	N
Charpy impact strength	-30 °C	kJ/m ²	ISO 179/1eU	N
Charpy impact strength	-60 °C	kJ/m ²	ISO 179/1eU	N
Charpy notched impact strength	23 °C/ 3 mm	kJ/m ²	ISO 7391/b.o. ISO 179/1eA	75P
Charpy notched impact strength	-30 °C/ 3 mm	kJ/m ²	ISO 7391/b.o. ISO 179/1eA	16C
Izod notched impact strength	23 °C/ 3 mm	kJ/m ²	ISO 7391/b.o. ISO 180/A	70P
Izod notched impact strength	-30 °C/ 3 mm	kJ/m ²	ISO 7391/b.o. ISO 180/A	15C
Puncture impact properties - maximum force	23 °C	N	ISO 6603-2	5400
Puncture impact properties - maximum force	-30 °C	N	ISO 6603-2	6300
Puncture energy	23 °C	J	ISO 6603-2	60
Puncture energy	-30 °C	J	ISO 6603-2	65
Ball indentation hardness		N/mm ²	ISO 2039-1	115

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Thermal Properties:

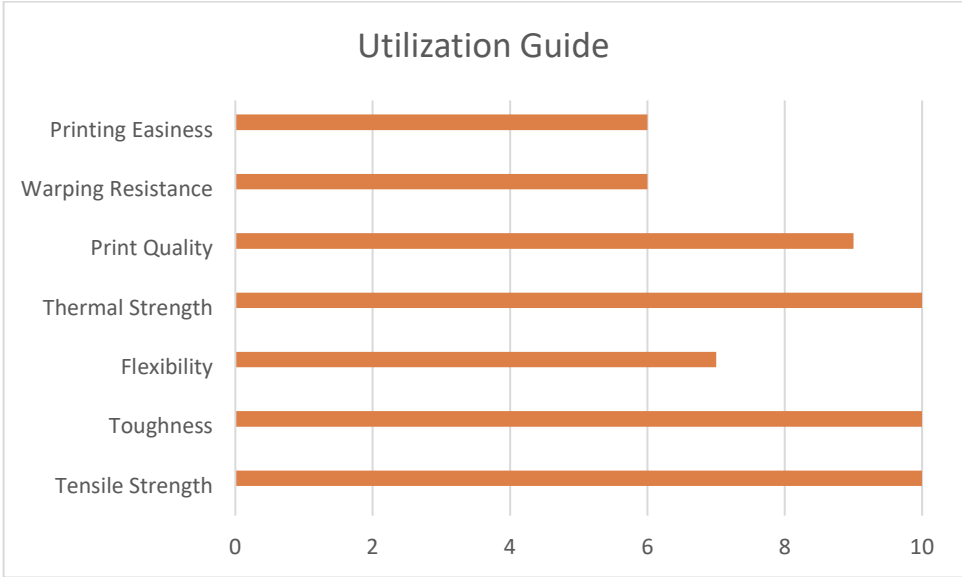
Glass transition temperature	10 °C/min	°C	ISO 11357-1,-2	145
Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	125
Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	137
Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	144
Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	146
Coefficient of linear thermal expansion, parallel	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.65
Coefficient of linear thermal expansion, normal	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.65
Burning behavior UL 94 [UL recognition]	0.75 mm	Class	UL 94	V-2
Burning behavior UL 94 [UL recognition]	2.5 mm	Class	UL 94	HB
Oxygen index	Method A	%	ISO 4589-2	28
Thermal conductivity, normal	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.20
Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	136
Relative temperature index (Tensile strength) [UL recognition]	1.5 mm	°C	UL 746B	125
Relative temperature index (Tensile impact strength) [UL recognition]	1.5 mm	°C	UL 746B	115
Relative temperature index (Electric strength) [UL recognition]	1.5 mm	°C	UL 746B	125
Glow wire test (GWFI)	0.75 mm	°C	IEC 60695-2-12	850
Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	850
Glow wire test (GWFI)	3.0 mm	°C	IEC 60695-2-12	930
Glow wire test (GWIT)	0.75 mm	°C	IEC 60695-2-13	875
Glow wire test (GWIT)	1.0 mm	°C	IEC 60695-2-13	875
Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	875
Glow wire test (GWIT)	3.0 mm	°C	IEC 60695-2-13	900
Glow wire test	1.5 mm	°C	b.o. EDF HN60 E.02	750
Glow wire test	3.0 mm	°C	b.o. EDF HN60 E.02	750
Application of flame from small burner	Method K and F/ 2.0 mm	Class	DIN 53438-1,-3	K1, F1
Needle flame test	Method K/ 1.5 mm	s	IEC 60695-11-5	5
Needle flame test	Method K/ 2.0 mm	s	IEC 60695-11-5	5
Needle flame test	Method K/ 3.0 mm	s	IEC 60695-11-5	10
Needle flame test	Method F/ 1.5 mm	s	IEC 60695-11-5	60
Needle flame test	Method F/ 2.0 mm	s	IEC 60695-11-5	60
Needle flame test	Method F/ 3.0 mm	s	IEC 60695-11-5	120
Burning rate (US-FMVSS)	>=1.0 mm	mm/min	ISO 3795	passed
Flash ignition temperature		°C	ASTM D1929	480
Self ignition temperature		°C	ASTM D1929	550

UTILIZATION GUIDE:

(Comparative, Out of 10)

Tensile Strength	10
Toughness	10
Flexibility	7
Thermal Strength	10
Print Quality	9
Warping Resistance	6
Printing Easiness	6

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CERTIFICATES:

Management: BS EN ISO 9001:2015
Quality: CE (CE-2924)
Environment: RoHS (UQ-5724)