








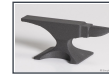




## Filament Properties Table

This table summarizes a wide variety of properties and characteristics for each material. We have also included a built-in comparison tool so that you can easily compare a selection of materials against one another. Just select the materials that you want to compare by toggling the checkbox in the first row, and then choose "Compare Selected". To exit the comparison and return to the complete table, choose "Show All".

													
	ABS	Flexible	PLA	HIPS	PETG	Nylon	Carbon Fiber Filled	ASA	Polycarbonate	Polypropylene	Metal Filled	Wood Filled	PVA
	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>
Compare Selected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ultimate Strength	40 MPa	26 - 43 MPa	65 MPa	32 MPa	53 MPa	40 - 85 MPa	45 - 48 MPa	55 MPa	72 MPa	32 MPa	20 - 30 MPa	46 MPa	78 MPa
Stiffness	5 / 10	1 / 10	7.5 / 10	10 / 10	5 / 10	5 / 10	10 / 10	5 / 10	6 / 10	4 / 10	10 / 10	8 / 10	3 / 10
Durability	8 / 10	9 / 10	4 / 10	7 / 10	8 / 10	10 / 10	3 / 10	10 / 10	10 / 10	9 / 10	4 / 10	3 / 10	7 / 10
Maximum Service Temperature	98 °C	60 - 74 °C	52 °C	100 °C	73 °C	80 - 95 °C	52 °C	95 °C	121 °C	100 °C	52 °C	52 °C	75 °C
Coefficient of Thermal Expansion	90 µm/m-°C	157 µm/m-°C	68 µm/m-°C	80 µm/m-°C	60 µm/m-°C	95 µm/m-°C	57.5 µm/m-°C	98 µm/m-°C	69 µm/m-°C	150 µm/m-°C	33.75 µm/m-°C	30.5 µm/m-°C	85 µm/m-°C
Density	1.04 g/cm <sup>3</sup>	1.19 - 1.23 g/cm <sup>3</sup>	1.24 g/cm <sup>3</sup>	1.03 - 1.04 g/cm <sup>3</sup>	1.23 g/cm <sup>3</sup>	1.06 - 1.14 g/cm <sup>3</sup>	1.3 g/cm <sup>3</sup>	1.07 g/cm <sup>3</sup>	1.2 g/cm <sup>3</sup>	0.9 g/cm <sup>3</sup>	2 - 4 g/cm <sup>3</sup>	1.15 - 1.25 g/cm <sup>3</sup>	1.23 g/cm <sup>3</sup>
Price (per kg)	\$10 - \$40	\$30 - \$70	\$10 - \$40	\$24 - \$32	\$20 - \$60	\$25 - \$65	\$30 - \$80	\$38 - \$40	\$40 - \$75	\$60 - \$120	\$50 - \$120	\$25 - \$55	\$40 - \$110
Printability	8 / 10	6 / 10	9 / 10	6 / 10	9 / 10	8 / 10	8 / 10	7 / 10	6 / 10	4 / 10	7 / 10	8 / 10	5 / 10
Extruder Temperature	220 - 250 °C	225 - 245 °C	190 - 220 °C	230 - 245 °C	230 - 250 °C	220 - 270 °C	200 - 230 °C	235 - 255 °C	260 - 310 °C	220 - 250 °C	190 - 220 °C	190 - 220 °C	185 - 200 °C
Bed temperature	95 - 110 °C	45 - 60 °C	45 - 60 °C	100 - 115 °C	75 - 90 °C	70 - 90 °C	45 - 60 °C	90 - 110 °C	80 - 120 °C	85 - 100 °C	45 - 60 °C	45 - 60 °C	45 - 60 °C
Heated Bed	Required	Optional	Optional	Required	Required	Required	Optional	Required	Required	Required	Optional	Optional	Required
Recommended Build Surfaces	Kapton Tape, ABS Slurry	PEI, Painter's Tape	Painter's Tape, Glue Stick, Glass Plate, PEI	Glass Plate, Glue Stick, Kapton Tape	Glue Stick, Painter's Tape	Glue Stick, PEI	Painter's Tape, Glue Stick, Glass Plate, PEI	Glue Stick, PEI	PEI, Commercial Adhesive, Glue Stick	Packing Tape, Polypropylene Sheet	Painter's Tape, Glue Stick, PEI	Painter's Tape, Glue Stick, PEI	PEI, Painter's Tape

ABS

Flexible

PLA

HIPS

PETG

Nylon

Carbon Fiber  
Filled

ASA











Polycarbonate

Polypropylene

Metal Filled

Wood Filled

PVA

	 ABS <a href="#">Learn More</a>	 Flexible <a href="#">Learn More</a>	 PLA <a href="#">Learn More</a>	 HIPS <a href="#">Learn More</a>	 PETG <a href="#">Learn More</a>	 Nylon <a href="#">Learn More</a>	 Carbon Fiber Filled <a href="#">Learn More</a>	 ASA <a href="#">Learn More</a>	 Polycarbonate <a href="#">Learn More</a>	 Polypropylene <a href="#">Learn More</a>	 Metal Filled <a href="#">Learn More</a>	 Wood Filled <a href="#">Learn More</a>	 PVA <a href="#">Learn More</a>
Other Hardware Requirements	Heated Bed, Enclosure Recommended	Part Cooling Fan	Part Cooling Fan	Heated Bed, Enclosure Recommended	Heated Bed, Part Cooling Fan	Heated Bed, Enclosure Recommended, May Require All Metal Hotend	Part Cooling Fan	Heated Bed	Heated Bed, Enclosure Recommended, All Metal Hotend	Heated Bed, Enclosure Recommended, Part Cooling Fan	Wear Resistant or Stainless Steel Nozzle, Part Cooling Fan	Part Cooling Fan	Heated Bed, Part Cooling Fan
Flexible	—	✓	—	—	—	✓	—	—	—	✓	—	—	✓
Elastic	—	✓	—	—	—	—	—	—	—	—	—	—	—
Impact Resistant	✓	—	—	✓	—	✓	—	✓	✓	—	—	—	—
Soft	—	✓	—	—	—	—	—	—	—	✓	—	—	✓
Composite	—	—	—	—	—	—	✓	—	—	—	✓	✓	—
UV Resistant	—	—	—	—	—	—	—	✓	—	—	—	—	—
Water Resistant	—	—	—	—	✓	—	—	—	—	✓	—	—	—
Dissolvable	—	—	—	✓	—	—	—	—	—	—	—	—	✓
Heat Resistant	✓	—	—	✓	—	✓	—	✓	✓	✓	—	—	—
Chemically Resistant	—	—	—	—	✓	—	—	—	—	—	—	—	—
Fatigue Resistant	—	✓	—	—	✓	✓	—	—	✓	✓	—	—	✓
Heated Bed Not Required	—	✓	✓	—	—	—	✓	—	—	—	✓	✓	—
	ABS	Flexible	PLA	HIPS	PETG	Nylon	Carbon Fiber Filled	ASA	Polycarbonate	Polypropylene	Metal Filled	Wood Filled	PVA