

# Bambu Filament Guide

This filament guide offers a comprehensive comparison of properties, application, and printing requirements for Bambu filaments, aiming to help users select the best-suited material for needs.For detailed technical information, download filament Technical data sheets (TDS) on product pages

## Shop All Filaments

|                          |                                                         | PLA                                                                                                                            | PETG HF                                                                                             | ABS                                                                   | ABS-GF                                                                | ASA                                                                   | ASA-CF                                                                | PC                                                                    | PC FR                                                                 | TPU 95A HF                                                           | TPU for AMS                                                          | PLA-CF                                                                                              | PETG-CF                                                                                             | PET-CF                                                                                                | PAHT-CF                                                                    | PA6-CF                                                                     | PA6-GF                                                                     | PPA-CF                                                                                                                                                                                           | PPS-CF                                                                                                                                                                                           |
|--------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Filament Properties      | <b>Toughness</b><br>Impact Strength - XY                | <div><div></div></div> 26.6 kJ/m²                                                                                              | <div><div></div></div> 31.5 kJ/m²                                                                   | <div><div></div></div> 39.3 kJ/m²                                     | <div><div></div></div> 14.5 kJ/m²                                     | <div><div></div></div> 41.0 kJ/m²                                     | <div><div></div></div> 14.0 kJ/m²                                     | <div><div></div></div> 34.8 kJ/m²                                     | <div><div></div></div> 55.0 kJ/m²                                     | <div><div></div></div> 123.2 kJ/m²                                   | <div><div></div></div> 124.3 kJ/m²                                   | <div><div></div></div> 23.2 kJ/m²                                                                   | <div><div></div></div> 41.2 kJ/m²                                                                   | <div><div></div></div> 36.0 kJ/m²                                                                     | <div><div></div></div> 57.5 kJ/m²                                          | <div><div></div></div> 40.3 kJ/m²                                          | <div><div></div></div> 27.2 kJ/m²                                          | <div><div></div></div> 41.7 kJ/m²                                                                                                                                                                | <div><div></div></div> 27.8 kJ/m²                                                                                                                                                                |
|                          | <b>Strength</b><br>Bending Strength - XY                | <div><div></div></div> 76 MPa                                                                                                  | <div><div></div></div> 64 MPa                                                                       | <div><div></div></div> 62 MPa                                         | <div><div></div></div> 68 MPa                                         | <div><div></div></div> 65 MPa                                         | <div><div></div></div> 72 MPa                                         | <div><div></div></div> 108 MPa                                        | <div><div></div></div> 90 MPa                                         | N / A                                                                |                                                                      | <div><div></div></div> 89 MPa                                                                       | <div><div></div></div> 70 MPa                                                                       | <div><div></div></div> 131 MPa                                                                        | <div><div></div></div> 125 MPa                                             | <div><div></div></div> 151 MPa                                             | <div><div></div></div> 120 MPa                                             | <div><div></div></div> 208 MPa                                                                                                                                                                   | <div><div></div></div> 142 MPa                                                                                                                                                                   |
|                          | <b>Stiffness</b><br>Bending Modulus - XY                | <div><div></div></div> 2750 MPa                                                                                                | <div><div></div></div> 2050 MPa                                                                     | <div><div></div></div> 1880 MPa                                       | <div><div></div></div> 2860 MPa                                       | <div><div></div></div> 1920 MPa                                       | <div><div></div></div> 3740 MPa                                       | <div><div></div></div> 2310 MPa                                       | <div><div></div></div> 1890 MPa                                       | N / A                                                                |                                                                      | <div><div></div></div> 3950 MPa                                                                     | <div><div></div></div> 2910 MPa                                                                     | <div><div></div></div> 5320 MPa                                                                       | <div><div></div></div> 4230 MPa                                            | <div><div></div></div> 5460 MPa                                            | <div><div></div></div> 3670 MPa                                            | <div><div></div></div> 9860 MPa                                                                                                                                                                  | <div><div></div></div> 7160 MPa                                                                                                                                                                  |
|                          | <b>Layer Adhesion</b><br>Impact Strength - Z            | <div><div></div></div> 13.8 kJ/m²                                                                                              | <div><div></div></div> 10.6 kJ/m²                                                                   | <div><div></div></div> 7.4 kJ/m²                                      | <div><div></div></div> 5.3 kJ/m²                                      | <div><div></div></div> 4.9 kJ/m²                                      | <div><div></div></div> 9.4 kJ/m²                                      | <div><div></div></div> 9.0 kJ/m²                                      | <div><div></div></div> 8.0 kJ/m²                                      | <div><div></div></div> 86.3 kJ/m²                                    | <div><div></div></div> 9.6 kJ/m²                                     | <div><div></div></div> 7.8 kJ/m²                                                                    | <div><div></div></div> 10.7 kJ/m²                                                                   | <div><div></div></div> 4.5 kJ/m²                                                                      | <div><div></div></div> 13.3 kJ/m²                                          | <div><div></div></div> 15.5 kJ/m²                                          | <div><div></div></div> 4.1 kJ/m²                                           | <div><div></div></div> 4.3 kJ/m²                                                                                                                                                                 | <div><div></div></div> 2.8 kJ/m²                                                                                                                                                                 |
|                          | <b>Heat Resistance</b><br>HDT, 0.45 MPa                 | 57 °C                                                                                                                          | 69 °C                                                                                               | 87 °C                                                                 | 99 °C                                                                 | 100 °C                                                                | 110 °C                                                                | 117 °C                                                                | 113 °C                                                                | N / A                                                                |                                                                      | 55 °C                                                                                               | 74 °C                                                                                               | 205 °C                                                                                                | 194 °C                                                                     | 186 °C                                                                     | 182 °C                                                                     | 227 °C                                                                                                                                                                                           | 264 °C                                                                                                                                                                                           |
|                          | <b>Saturated Water Absorption Rate</b><br>25 °C, 55% RH | 0.43%                                                                                                                          | 0.40%                                                                                               | 0.65%                                                                 | 0.53%                                                                 | 0.45%                                                                 | 0.33%                                                                 | 0.25%                                                                 | 0.12%                                                                 | 1.08%                                                                | 1.20%                                                                | 0.42%                                                                                               | 0.30%                                                                                               | 0.37%                                                                                                 | 0.88%                                                                      | 2.35%                                                                      | 2.56%                                                                      | 1.30%                                                                                                                                                                                            | 0.05%                                                                                                                                                                                            |
| Pre-printing Preparation | <b>Dry Out Before Use</b>                               | Optional                                                                                                                       | Required                                                                                            | Optional                                                              | Optional                                                              | Optional                                                              | Optional                                                              | Required                                                              | Required                                                              | Required                                                             | Required                                                             | Optional                                                                                            | Optional                                                                                            | Required                                                                                              | Required                                                                   | Required                                                                   | Required                                                                   | Required                                                                                                                                                                                         | Required                                                                                                                                                                                         |
|                          | <b>Drying Condition</b>                                 | Blast Drying Oven: 50 °C, 8 h<br>X1 Series Heatbed: 60 - 70 °C, 12 h                                                           | Blast Drying Oven: 65 °C, 8 h<br>X1 Series Heatbed: 75 - 85 °C, 12 h                                | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 13 h | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 70 °C, 8 h<br>X1 Series Heatbed: 80 - 90 °C, 12 h | Blast Drying Oven: 70 °C, 8 h<br>X1 Series Heatbed: 80 - 90 °C, 12 h | Blast Drying Oven: 55 °C, 8 h<br>X1 Series Heatbed: 65 - 75 °C, 12 h                                | Blast Drying Oven: 65 °C, 8 h<br>X1 Series Heatbed: 75 - 85 °C, 12 h                                | Blast Drying Oven: 80 °C, 8 - 12 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h                            | Blast Drying Oven: 80 °C, 8 - 12 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 - 12 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 80 °C, 8 - 12 h<br>X1 Series Heatbed: 90 - 100 °C, 12 h | Blast Drying Oven: 100 - 140 °C, 8 - 12 h<br>(within this range, a higher temp, a better drying result)<br>X1 Series Printer Heatbed: 110 - 120 °C, 12 h<br>(not as good as a blast drying oven) | Blast Drying Oven: 100 - 140 °C, 8 - 12 h<br>(within this range, a higher temp, a better drying result)<br>X1 Series Printer Heatbed: 110 - 120 °C, 12 h<br>(not as good as a blast drying oven) |
|                          | <b>AMS Compatibility</b>                                | ✔                                                                                                                              | ✔                                                                                                   | ✔                                                                     | ✔                                                                     | ✔                                                                     | ✔                                                                     | ✔                                                                     | ✔                                                                     | ✖                                                                    | ✔                                                                    | ✔                                                                                                   | ✔                                                                                                   | ✔                                                                                                     | ✖                                                                          | ✔                                                                          | ✖                                                                          | ✔                                                                                                                                                                                                | ✖                                                                                                                                                                                                |
|                          | <b>Nozzle Size/Material</b>                             | All Size/Material                                                                                                              | All Size/Material                                                                                   | All Size/Material                                                     | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel           | All Size/Material                                                     | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel                            | All Size/Material                                                     | All Size/Material                                                     | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel / Stainless Steel         | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel / Stainless Steel         | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel                                                          | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel                                                          | 0.4 mm / 0.6 mm / 0.8 mm<br>Hardened Steel                                                            | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel                | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel                | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel                | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel                                                                                                                                      | 0.6 mm (recommended) /<br>0.4 mm / 0.8 mm<br>Hardened Steel                                                                                                                                      |
|                          | <b>Build Plate &amp; Bed Temperature</b>                | Cool Plate (35 - 55 °C)<br>Smooth PEI Plate (55 - 65 °C)<br>Textured PEI Plate (55 - 65 °C)<br>Cool Plate SuperTack (30-45 °C) | Smooth PEI Plate (60 - 80 °C)<br>Textured PEI Plate (60 - 80 °C)<br>Cool Plate SuperTack (60-70 °C) | Smooth PEI Plate (90 - 100 °C)<br>Textured PEI Plate (90 - 100 °C)    | Smooth PEI Plate (90 - 100 °C)<br>Textured PEI Plate (90 - 100 °C)    | Smooth PEI Plate (90 - 100 °C)<br>Textured PEI Plate (90 - 100 °C)    | Smooth PEI Plate (90 - 100 °C)<br>Textured PEI Plate (90 - 100 °C)    | Smooth PEI Plate (90 - 110 °C)<br>Textured PEI Plate (90 - 110 °C)    | Smooth PEI Plate (90 - 110 °C)<br>Textured PEI Plate (90 - 110 °C)    | Smooth PEI Plate (30 - 45 °C)<br>Textured PEI Plate (30 - 45 °C)     | Smooth PEI Plate (30 - 35 °C)<br>Textured PEI Plate (30 - 35 °C)     | Smooth PEI Plate (45 - 65 °C)<br>Textured PEI Plate (55 - 65 °C)<br>Cool Plate SuperTack (30-50 °C) | Smooth PEI Plate (60 - 80 °C)<br>Textured PEI Plate (60 - 80 °C)<br>Cool Plate SuperTack (60-70 °C) | Smooth PEI Plate (70 - 100 °C)<br>Textured PEI Plate (70 - 100 °C)<br>Cool Plate SuperTack (60-80 °C) | Smooth PEI Plate (100 - 120 °C)<br>Textured PEI Plate (100 - 120 °C)       | Smooth PEI Plate (100 - 120 °C)<br>Textured PEI Plate (100 - 120 °C)       | Smooth PEI Plate (100 - 120 °C)<br>Textured PEI Plate (100 - 120 °C)       | Smooth PEI Plate (100 - 120 °C)<br>Textured PEI Plate (100 - 120 °C)                                                                                                                             | Smooth PEI Plate (100 - 120 °C)<br>Textured PEI Plate (100 - 120 °C)                                                                                                                             |
|                          | <b>Adhesion Methods</b>                                 | Bambu Liquid Glue<br>Glue Stick                                                                                                | Bambu Liquid Glue<br>Glue Stick                                                                     | Bambu Liquid Glue<br>Glue Stick                                       | Bambu Liquid Glue<br>Glue Stick                                       | Bambu Liquid Glue<br>Glue Stick                                       | Bambu Liquid Glue<br>Glue Stick                                       | Glue Stick                                                            | Glue Stick                                                            | Bambu Liquid Glue<br>Glue Stick                                      | Bambu Liquid Glue<br>Glue Stick                                      | Bambu Liquid Glue<br>Glue Stick                                                                     | Bambu Liquid Glue<br>Glue Stick                                                                     | Glue Stick                                                                                            | Glue Stick                                                                 | Glue Stick                                                                 | Glue Stick                                                                 | Glue Stick                                                                                                                                                                                       | Glue Stick                                                                                                                                                                                       |
| Printer Settings         | <b>Print with Enclosure</b>                             | Optional                                                                                                                       | Optional                                                                                            | Required                                                              | Required                                                              | Required                                                              | Required                                                              | Required                                                              | Required                                                              | Optional                                                             | Optional                                                             | Optional                                                                                            | Optional                                                                                            | Optional                                                                                              | Required                                                                   | Required                                                                   | Required                                                                   | Required                                                                                                                                                                                         | Required                                                                                                                                                                                         |
|                          | <b>Seal with Desiccant</b>                              | Optional                                                                                                                       | Optional                                                                                            | Optional                                                              | Optional                                                              | Optional                                                              | Optional                                                              | Required                                                              | Required                                                              | Required                                                             | Required                                                             | Required                                                                                            | Required                                                                                            | Required                                                                                              | Required                                                                   | Required                                                                   | Required                                                                   | Required                                                                                                                                                                                         | Required                                                                                                                                                                                         |
|                          | <b>Print Speed</b>                                      | < 300 mm/s                                                                                                                     | < 300 mm/s                                                                                          | < 300 mm/s                                                            | < 180 mm/s                                                            | < 300 mm/s                                                            | < 250 mm/s                                                            | < 300 mm/s                                                            | < 300 mm/s                                                            | < 200 mm/s                                                           | < 250 mm/s                                                           | < 250 mm/s                                                                                          | < 200 mm/s                                                                                          | < 100 mm/s                                                                                            | < 100 mm/s                                                                 | < 100 mm/s                                                                 | < 130 mm/s                                                                 | < 100 mm/s                                                                                                                                                                                       | < 100 mm/s                                                                                                                                                                                       |
|                          | <b>Nozzle Temperature</b>                               | 190 - 230 °C                                                                                                                   | 230 - 260 °C                                                                                        | 240 - 280 °C                                                          | 240 - 280 °C                                                          | 240 - 280 °C                                                          | 250 - 290 °C                                                          | 260 - 280 °C                                                          | 260 - 280 °C                                                          | 220 - 240 °C                                                         | 220 - 240 °C                                                         | 210 - 240 °C                                                                                        | 240 - 270 °C                                                                                        | 260 - 300 °C                                                                                          | 260 - 300 °C                                                               | 260 - 300 °C                                                               | 260 - 290 °C                                                               | 280 - 310 °C                                                                                                                                                                                     | 310 - 340 °C                                                                                                                                                                                     |
|                          | <b>Part Cooling Fan</b>                                 | 50 - 100%                                                                                                                      | 0 - 80%                                                                                             | 0 - 80%                                                               | 0 - 80%                                                               | 0 - 80%                                                               | 0 - 80%                                                               | 0 - 60%                                                               | 0 - 60%                                                               | 50 - 100%                                                            | 20% - 50%                                                            | 50 - 100%                                                                                           | 0 - 40%                                                                                             | 0 - 40%                                                                                               | 0 - 40%                                                                    | 0 - 40%                                                                    | 0 - 40%                                                                    | 0 - 40%                                                                                                                                                                                          | 0 - 40%                                                                                                                                                                                          |
| Post-printing Processes  | <b>Annealing</b>                                        | 50 - 60 °C,<br>6 - 12 hours                                                                                                    | N / A                                                                                               | 80 - 90 °C,<br>6 - 12 hours                                           | 80 - 90 °C,<br>6 - 12 hours                                           | 80 - 90 °C,<br>6 - 12 hours                                           | 80 - 90 °C,<br>6 - 12 hours                                           | 85 - 100 °C,<br>6 - 12 hours                                          | 85 - 100 °C,<br>6 - 12 hours                                          | N / A                                                                |                                                                      | 55 - 60 °C,<br>6 - 12 hours                                                                         | 65 - 70 °C,<br>6 - 12 hours                                                                         | 90 - 130 °C<br>6 - 12 hours                                                                           | 90 - 130 °C<br>6 - 12 hours                                                | 90 - 130 °C<br>6 - 12 hours                                                | 90 - 130 °C<br>6 - 12 hours                                                | 120 - 140 °C<br>6 - 12 hours                                                                                                                                                                     | 180 - 220 °C<br>6 - 12 hours                                                                                                                                                                     |