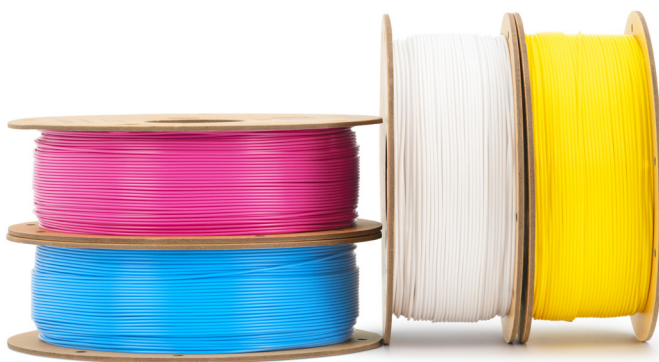


snapmaker | SnapSpeed PLA
CMYK Lithophane
Filament Bundle

Technical Data Sheet



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1 Filament Introduction

SnapSpeed PLA CMYK Lithophane Filament Bundle uses four filaments to turn photos into vibrant backlit artwork. Filament combinations, layer thicknesses, and Transmission Distance (TD) values shape the image's colors, brightness, and depth. This bundle includes four spools of SnapSpeed PLA high-speed filament, supporting print speeds of up to 300 mm/s, which helps reduce printing time and is suitable for personalized creations. It can be used for desktop decoration, lightbox art, artistic creation, and personalized gifts.

2 Specifications

Subjects	Data
Diameter	1.75 mm $\pm$ 0.03 mm
Net Filament Weight	1 kg
Length	337 m
Spool Material	Cardboard Spool
Spool Size	Diameter: 200 mm; Height: 66 mm

3 Recommended Printing Settings

Subjects	Data
Drying Settings Before Printing	55°C, 6 h
Printing and Storage Humidity	< 20% RH (Sealed, with Desiccant)
Nozzle Size	0.2 / 0.4 / 0.6 / 0.8 mm
Nozzle Temperature	Classic: 190–210 °C High-speed: 210–230°C
Bed Type	Textured PEI Plate, Smooth PEI Plate, Graphic Effect Steel Plate (Carbon Fiber Textured)
Bed Surface Preparation	Glue
Bed Temperature	25-65°C
Cooling Fan	ON

Subjects	Data
Printing Speed	< 300 mm/s
Retraction Length	1–1.5 mm
Retraction Speed	20–30 mm/s
Chamber Temperature	25–45°C
Max Overhang Angle	60°
Max Bridging Length	≤ 30 mm
Support Material	Support for PLA

Printing Tips

1. Drying & Storage

- **Pre-Drying:** The SnapSpeed PLA CMYK Lithophane filament has low moisture sensitivity and generally does not require drying. However, pre-drying is recommended for optimal print results. The recommended setting is 55°C for 6 hours.

- **Storage:** When not in use, we recommend keeping the filament away from direct sunlight in a sealed container with desiccant.

2. Printing

- **Refer to the Lithophane Printing Guide:** Models for printing with this filament bundle can be generated using the [Lithophane Makers](#) model generator. For detailed instructions on model generation, slicing, and printing, refer to [the CMYK Color Lithophane Printing Instructions](#) on Snapmaker's official wiki. If you use a different third-party model generator, follow the parameter settings specified in this guide.

- **Prepare the Frame, Light Guide Plate, and Backlight:** To assemble a complete backlit lithophane, you will need a frame, a light guide plate, and a backlight. Download the frame and light guide plate models from the wiki article [CMYK Color Lithophane Printing Instructions](#), print them, and use them for final assembly. The backlight board must be purchased separately. We recommend a 156 mm × 120 mm backlight panel powered via USB-C.

- **Choose a Suitable Image:** For clearer details and better backlit results, choose an image with strong tonal contrast, a prominent subject, and a simple background. Avoid images with low contrast, cluttered backgrounds, or an indistinct subject.

- **Use the Recommended Hotends:** 0.2 mm hotends are recommended for finer image details. 0.4 mm hotends can also be used, but the finished print may show less detail.

Please Note

1. The SnapSpeed PLA CMYK Lithophane Filament Bundle cannot guarantee an exact color match to the original image and is therefore not suitable for applications requiring high color accuracy. Final colors may vary depending on the filament colors and their transmission distance (TD) values, lithophane model generator settings, slicing settings, and other printing conditions.

2. The transmission distance (TD) values of the four filaments in this bundle are specifically optimized for lithophanes and flat layered-color models. This bundle is not recommended for 3D models created using Full Spectrum color mixing, as it will produce visible horizontal stripes.

3. The frame, light guide plate, backlight board, and power supply are not included in this filament bundle. The frame and light guide plate model files should be downloaded separately; see the "Printing Tips" section above. The backlight and power supply must be purchased separately.

4 Properties

Physical Properties

Subjects	Testing Methods	Data
Density	ISO 1183, GB/T 1033	1.23g/cm ³ at 21.5°C
Melt Index	210°C, 2.16 kg	15.4 g/10min
Melting Temperature	DSC, 10°C/min	164°C
Glass Transition Temperature	DSC, 10°C/min	59°C
Decomposition Temperature	TGA, 20°C/min	370°C
Crystallization Temperature	DSC, 10°C/min	96°C
Vicat Softening Temperature	ISO 306, GB/T 1633	61°C
Heat Deflection Temperature	ISO 75, 1.8 MPa	52°C
Heat Deflection Temperature	ISO 75, 0.45 MPa	53°C
Saturated Water Absorption Rate	23°C, 70% RH	0.40%

Mechanical Properties

Subjects	Testing Methods	Data ¹
Young's Modulus (X-Y)	ISO 527, GB/T 1040	2878.3±74.3 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2689.8±92.0 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	46.0±0.5 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	37.3±0.7 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	21.5±5.02%

¹ Based on 0.4mm nozzle and 0.2mm layer thickness. Classic printing speed = 46.7mm/s, printing temperature = 210 °C

(continued)

Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	4.2±2.0%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	2868.2±78.4 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	N/A
Bending Strength (X-Y)	ISO 178, GB/T 9341	76.5±0.9 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	N/A
Impact Strength (X-Y)	ISO 179, GB/T 1043	6.1±0.6 kJ/m ²
Impact Strength (Z)	ISO 179, GB/T 1043	N/A

Other Physical and Chemical Properties

Subjects	Data
Odor	Odorless
Composition	Poly(lactic Acid) (PLA)
Skin Hazards	No hazard
Chemical Stability	Stable under normal conditions
Solubility	Insoluble in water
Resistance to Acid	Weak Acids: Good
Resistance to Alkali	Non-Resistant
Resistance to Organic Solvent	Non-Resistant
Resistance to Oil and Grease	Fair
Flammability	Flammable
Combustion Products	Water, Carbon Oxides
Odor of Combustion Products	Odorless

5 Specimen Test

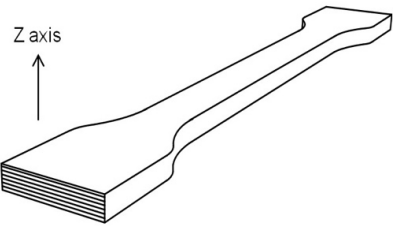
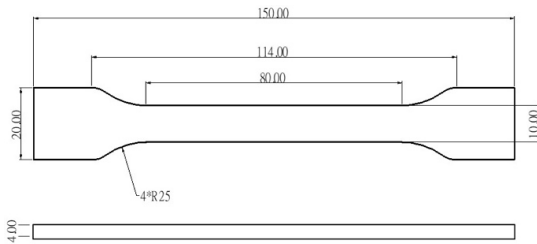
Specimen Printing Conditions

Subjects	Data
Nozzle Temperature	210°C
Bed Temperature	55°C
Printing Speed	50 mm/s
Infill Density	100%



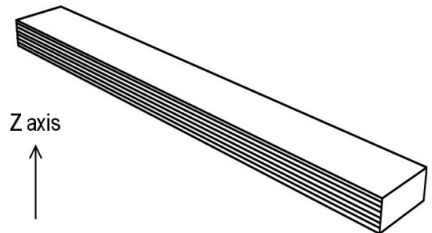
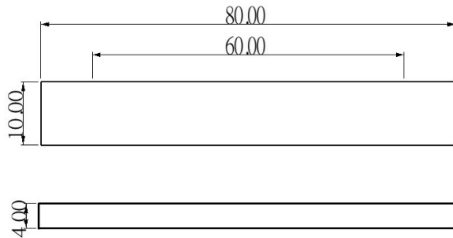
Based on 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters.

Tensile Testing Specimen



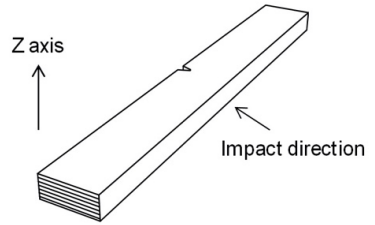
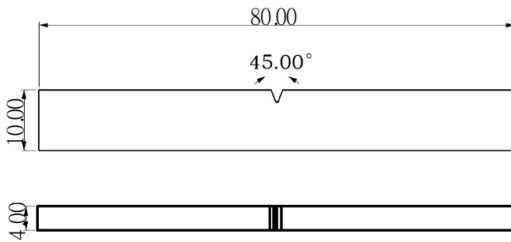
ISO 527, GB/T 1040

Flexural Testing Specimen



ISO 178, GB/T 9341

Impact Testing Specimen



ISO 179, GB/T 1043

6 Disclaimer

The performance and printing parameters of the aforementioned filaments are obtained by Snapmaker through testing filament samples with sample 3D printers. All data provided is for reference and comparison purposes only, and does not constitute design specifications or any warranty of quality. Actual 3D printing quality and final part performance are subject to various factors including, but not limited to, printer equipment, model design, environmental conditions, and printing parameters. Users shall independently evaluate the compliance and safety of printed models and finished parts, including legal compliance, application safety, and structural reliability. Snapmaker shall not be held liable for any direct or indirect losses arising from the use of the aforementioned filaments, including equipment damage, print failure, personal injury, and property damage.

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