# TECHNICAL DATA SHEET


## HS-PLA

The Smart Print HS-PLA 3D printing filament has been developed through advanced material engineering to meet the demands of modern high-speed 3D printing. By optimizing the polymer's melting index, glass transition temperature, and flow properties, it delivers exceptionally smooth extrusion, faster solidification, and enhanced dimensional stability during printing. Compared to standard PLA, HS-PLA offers significantly higher print speeds, superior surface quality, and improved precision, making it ideal for professional and high-performance applications that require both speed and consistency.

## Product features

**Superior Print Performance**

Developed specifically for high-speed 3D printing, Smart Print HS-PLA combines excellent thermal control with optimized flow dynamics. It prints reliably within a broad temperature range of 180–240 °C, ensuring smooth extrusion and consistent layer bonding even at elevated speeds. This refined formulation minimizes printing interruptions and allows precise reproduction of complex geometries with clean, accurate results.

**Enhanced Flow and Printability**

Engineered for rapid melting and efficient material flow, HS-PLA excels in extrusion-based applications such as fast prototyping, large-format modeling, and continuous production. Its superior printability supports consistent output at high speeds, making it a preferred choice for users seeking both performance and productivity.

**Dimensional Accuracy and Stability**

Smart Print HS-PLA maintains an ideal balance of strength, stiffness, and dimensional precision. It minimizes warping or deformation, providing reliable results for functional components, structural enclosures, and detailed parts that demand mechanical consistency and visual refinement.

**Exceptional Surface Quality**

Thanks to its advanced composition, HS-PLA produces glossy, well-defined prints with minimal stringing-even when printed quickly. Finished parts feature clean surfaces and refined aesthetics, suitable for both display and light-use applications without the need for extensive post-processing.

## Printing guidelines

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

| | | |
|---|---|---|
| Nozzle temperature<br>**180 - 240°C** | Build surface material<br>**PEI, glass** | Build surface treatment<br>**glue** |
| Build plate<br>**40 - 60°C** | Cooling fan<br>**turned on** | Printing speed:<br>**150 - 300 mm/s** |
| Raft separation distance<br>**0.2 mm** | Retraction distance<br>**7 mm** | Retraction speed<br>**20 - 40 mm/s** |

## Drying guidelines

To achieve the best printing results and surface quality, it is recommended to dry Smart Print HS-PLA filament before use - especially if the spool has been exposed to air for an extended period. Like other PLA-based materials, HS-PLA can absorb moisture, which may lead to stringing, uneven extrusion, or poor layer adhesion.

## Available colors

## Print Settings

**Recommended Printing Speeds**

The table below presents the recommended printing speeds and their corresponding nozzle temperatures for Smart Print HS-PLA. These guidelines help identify the optimal settings to achieve the best balance between print quality and performance.
Green values indicate recommended configurations — safe, stable, and suitable for everyday use.
Yellow values represent non-recommended settings — they may lead to reduced surface quality, weak layer adhesion, or unstable material flow.

| | 150 mm/s | 170 mm/s | 190 mm/s | 210 mm/s | 230 mm/s | 240 mm/s | 250 mm/s | 260 mm/s | 270 mm/s | 300 mm/s |
|---|---|---|---|---|---|---|---|---|---|---|
| 180°C | | | | | | | | | | |
| 190°C | | | | | | | | | | |
| 200°C | | | | | | | | | | |
| 210°C | | | | | | | | | | |
| 220°C | | | | | | | | | | |
| 230°C | | | | | | | | | | |
| 240°C | | | | | | | | | | |

# Disclaimer

The data and values presented in this document are intended solely for reference and comparison purposes. They should not be regarded as exact design specifications or used for quality control, as actual results may vary depending on printer settings, model design, and environmental conditions.

The performance of printed parts depends on multiple factors, including material characteristics, print parameters, and application requirements. Users are fully responsible for evaluating the safety, regulatory compliance, technical suitability, and end-of-life handling (recycling or disposal) of Smart Print HS-PLA materials in their specific applications.

Smart Print provides no warranties, explicit or implied, regarding the suitability of this product for any particular use unless otherwise stated. The company assumes no liability for any damage, loss, or injury resulting from the use of this material. For best results, always follow the printing parameters specified on the filament spool rather than relying solely on this datasheet.