Sovol SV07 Plus

Sovol SV07 Plus 3D Printer User Manual

Model: SV07 Plus | Brand: Sovol

Sovol SV07 Plus: Print Fast & Large

1. INTRODUCTION

The Sovol SV07 Plus is a high-performance FDM 3D printer designed for both enthusiasts and professionals, offering a large build volume and advanced features for efficient and precise printing. Equipped with Klipper firmware, it delivers exceptional speed and a user-friendly experience through its intuitive touch screen interface.

This manual provides essential information for setting up, operating, maintaining, and troubleshooting your Sovol SV07 Plus 3D printer. Please read it thoroughly before use to ensure safe and optimal performance.

Official Product Introduction: This video provides a general overview of the Sovol SV07 Plus 3D printer's features and capabilities.

Sovol SV07 Plus is Coming!: A brief promotional video highlighting the arrival of the SV07 Plus.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury or damage to the printer:

- Keep hands and fingers away from moving parts during operation.
- Do not touch the hotend or heated bed during or immediately after printing, as they reach high temperatures.
- Ensure the printer is placed on a stable, level surface in a well-ventilated area.
- Do not leave the printer unattended during operation, especially during long prints.
- Use only recommended filament types and power supply.
- Keep children and pets away from the printer.
- In case of emergency, immediately disconnect the power supply.

3. PACKAGE CONTENTS

Your Sovol SV07 Plus package should include:

- 3D printer*1
- Necessary tools for assembly and maintenance (located in the integrated tool drawer).
- USB drive with test files and software.
- Power cable.
- Sample filament.

4. PRINTER OVERVIEW

The Sovol SV07 Plus features a robust design with key components optimized for performance and ease of use.

Overall view of the Sovol SV07 Plus 3D Printer.

Key Components:

- **5-inch Klipper Touch Screen:** High-resolution interface for intuitive control and access to advanced Klipper functions.
- **Planetary Dual Gear Direct Drive Extruder:** Ensures precise filament extrusion and is ideal for flexible materials.
- **All Metal High Flow Hotend:** Capable of reaching 300°C for printing a wide range of materials.
- **Heated Bed:** Upgraded 420W heated bed for rapid heating and improved adhesion.
- **Dual Z-axis:** Enhances accuracy and precision of vertical movement.
- **Filament Run-out Sensor:** Automatically pauses printing when filament runs out or breaks.

- **LED Light:** Illuminates the print area for better visibility during printing and leveling.
- **Tool Drawer:** Conveniently stores essential tools.

5. Setup and Initial Calibration

5.1 Assembly

The Sovol SV07 Plus comes largely pre-assembled. Follow the quick start guide included in the package for final assembly steps, which typically involve attaching the gantry and connecting a few cables.

5.2 Bed Leveling and Z-Offset Calibration

Accurate bed leveling and Z-offset calibration are crucial for successful first layers and overall print quality. The SV07 Plus features a 25-point auto-leveling system.

Guide and Tutorial: How to Level SV07 & SV07 Plus. This video provides a detailed walkthrough of the bed leveling and Z-offset calibration process.

1. **Initial Manual Adjustment:** Before auto-leveling, ensure the bed leveling nuts are tightened counter-clockwise as much as possible, then loosen them two turns clockwise. This provides a good starting point for the auto-leveling system.
2. **Z-Calibrate:** On the touch screen, navigate to 'Machine Leveling' and select 'Z Calibrate'. The printer will auto-home.
3. **Adjust Z-Offset:** Once the nozzle moves to the center of the bed, place a piece of A4 paper between the nozzle and the hotbed. Adjust the Z-offset using the 'raise nozzle' or 'lower nozzle' buttons until you feel slight resistance when pulling the paper. The nozzle should scratch the paper slightly without completely pressing it.
4. **Save and Restart:** Click 'Accept' to apply the values, then confirm and restart the system.
5. **Bed Level (Screws Adjust):** After Z-offset, go back to 'Machine Leveling' and select 'Bed Level'. Click on 'Screws Adjust'. The printer will move the nozzle to each of the four corners. At each corner, use the physical leveling nuts under the bed to adjust the height until the paper test (slight scratch) is achieved. The screen will indicate if you need to turn clockwise (CW) or counter-clockwise (CCW) and by how much. Repeat this process several times until all corners are within acceptable tolerance (e.g., 00:10 or less).
6. **Bed Mesh:** Once the manual screw adjustment is complete, click 'Bed Mesh' on the screen. The printer will perform a detailed 25-point mesh leveling. After the detection is complete, restart the system.

6. Operating Instructions

6.1 Loading Filament

Ensure the hotend is preheated to the appropriate temperature for your filament type. Insert the filament into the extruder until it is gripped by the gears. Use the 'Extrude' function on the touch screen to feed the filament through the hotend until it comes out cleanly.

6.2 Starting a Print

Prepare your 3D model using a slicing software (e.g., Cura with SV07 Plus profile) and save it to a USB drive. Insert

the USB drive into the printer's touch screen unit. On the touch screen, navigate to 'Print', select your file from the USB drive, and confirm to start printing.

6.3 Monitoring and Fine-Tuning

During printing, you can monitor progress and fine-tune settings via the touch screen. The Klipper firmware offers various options for real-time adjustments.

The 5-inch Klipper touchscreen provides comprehensive control and monitoring.

If the print nozzle is too close to the bed, resulting in rough printing, fine-tune the Z-offset value upwards. If the print nozzle is too far from the bed, causing adhesion issues, fine-tune the Z-offset value downwards. Always make small adjustments (e.g., 0.01mm or 0.05mm) and observe the effect.

7. KEY FEATURES

7.1 High-Speed Printing with Klipper Firmware

The SV07 Plus is powered by Klipper firmware, allowing for a maximum print speed of 500mm/s. This significantly reduces print times while maintaining quality. The 5-inch touch screen provides access to Klipper's advanced features like height mapping and input shaping for optimal performance.

Full Klipper Firmware

Powered by the ARM A53 64-Bit main frequency quad-core processor, SV07 plus brings you a high speed printing experience of up to 500mm/s (250mm/s recommended).

500mm/s
14mins
250mm/s
23mins56s

Klipper firmware enables high-speed printing and advanced functionalities.

7.2 Large Build Volume & Fast Heating

With a generous build volume of 300x300x350mm, the SV07 Plus accommodates larger models and batch printing. The 600W power supply and upgraded 420W heated bed ensure rapid heating, reaching 60°C in approximately 90 seconds.

Large Printing Volume

SV07 PLUS 3D printer comes with a 300x300x350mm/11.81x11.81x13.78 inches build volume, adequate space great for larger models printing or batch printing with efficiency.

SV07
220*220*250mm

SV07 PLUS
300*300*350mm

Comparison of SV07 Plus (300x300x350mm) and SV07 (220x220x250mm) build volumes.

600W Power Supply and Powerful 420W Heated Bed

SV07 Plus features a powerful 420W hot bed, reducing heating time about 30 seconds compared with the common printers. Its 600W power supply also provides stable and sufficient power for your long time printing.
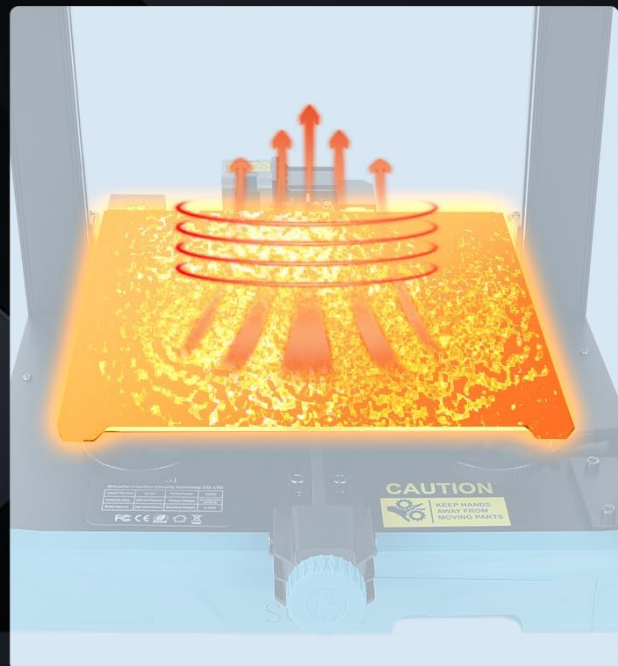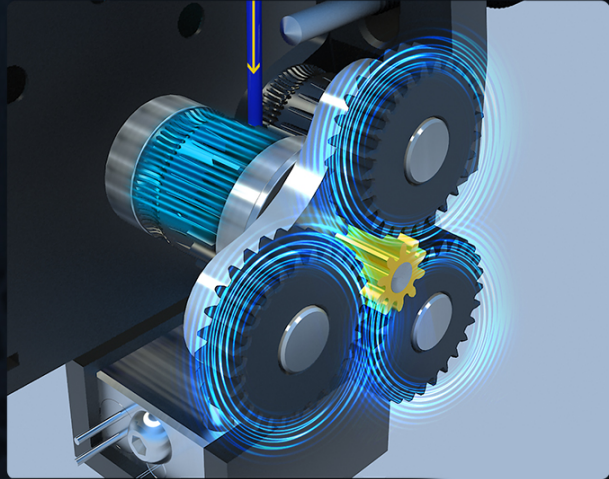
The 600W power supply and 420W heated bed ensure stable and fast heating.

7.3 Planetary Dual Gear Direct Drive Extruder

Sovol's self-developed direct drive extruder with a planetary dual gear set provides a higher drive ratio and lighter motor, resulting in precise extrusion. An external knob simplifies filament feeding.


Detailed view of the planetary dual gear direct drive extruder for accurate extrusion.

7.4 All Metal High Flow Hotend (Max 300°C)

The all-metal hotend with a larger melt zone allows for printing at high speeds and with various high-temperature materials, including ABS, PC, ASA, Nylon, Carbon Fiber, and more.

All Metal High Flow Hotend, Max Nozzle Temp 300℃

All metal hotend with larger melt zone enables SV07 Plus to print at fast speed and various materials, satisfies your demand for high temp and high speed.

ABS PC
ASA Nylon
Carbon Fiber Wood
TPU PLA PETG
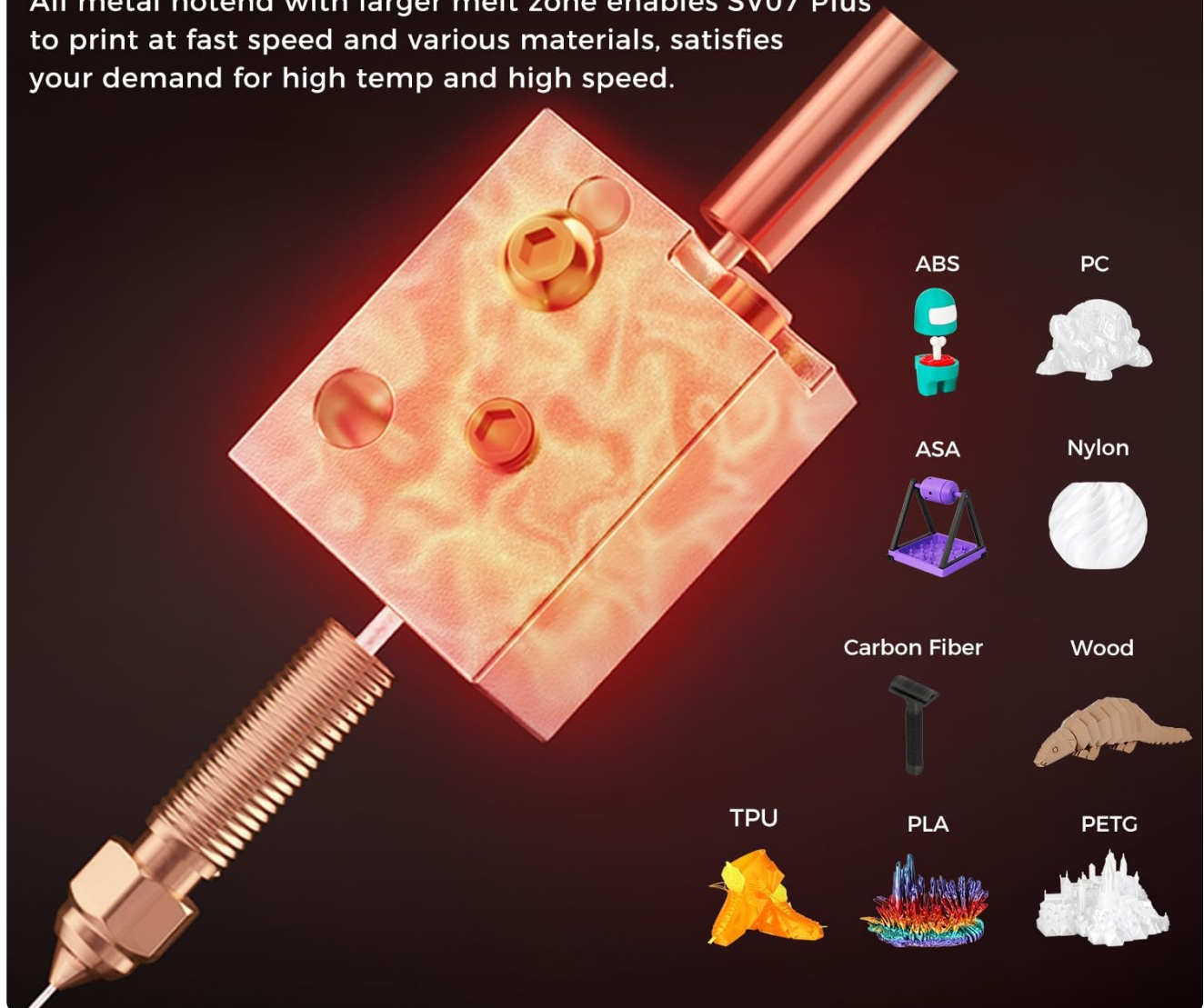
The all-metal hotend supports high-temperature printing for diverse filament types.

Adaptable with All Filament on the Market

TPU PLA PETG ABS ASA PC WOOD Nylon Carbon Fiber

TPU ABS PLA PETG ASA Nylon
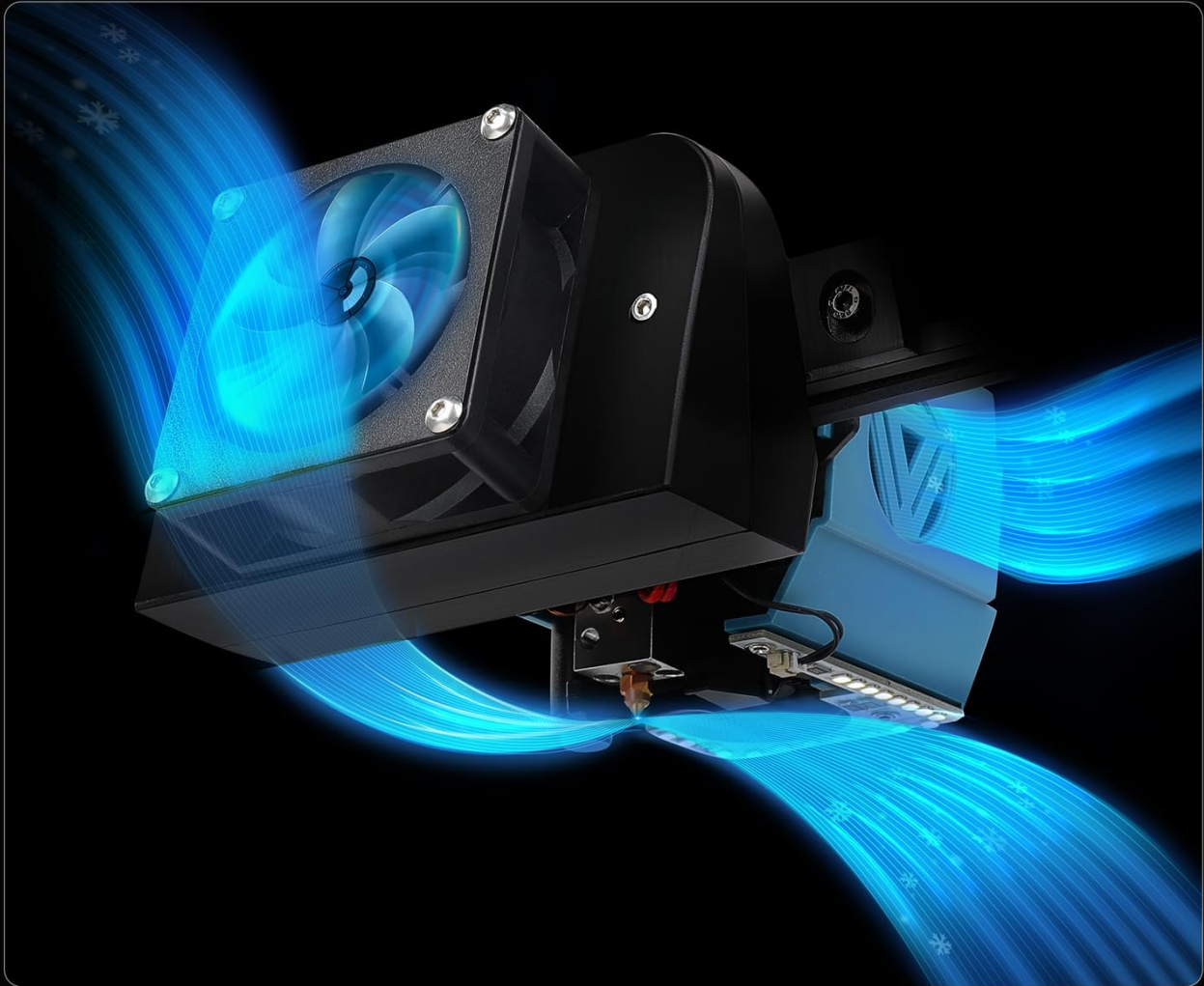PC Wood Carbon Fiber

The printer is compatible with a wide range of filaments including TPU, PLA, PETG, ABS, ASA, PC, WOOD, Nylon, and Carbon Fiber.

7.5 Improved Cooling Design

Equipped with triple cooling fans, the SV07 Plus ensures efficient cooling of prints, leading to better layering and overall print quality, especially at high speeds.

Triple cooling fans provide effective cooling for high-speed printing.

7.6 Dual Z-axis & Anti-backlash Nut

Dual Z-axis screws and stepper motors improve the accuracy and precision of nozzle vertical movement to 0.001mm. An anti-backlash nut further reduces shaking, contributing to more stable printing.

Dual Z axis

Dual Z-axis screws and stepper motors improve the accuracy and precision of nozzle vertical movement with a specified accuracy of 0.001mm.

Dual Z-axis for enhanced stability and precision.
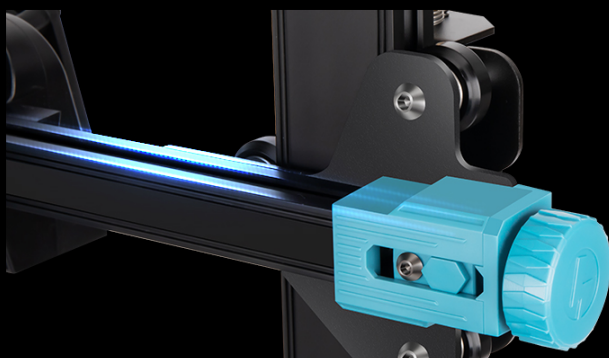
Higher Quality Belts

Upgraded Anti-slip Version.Stable transmission, high precision, high-strength, long life span.
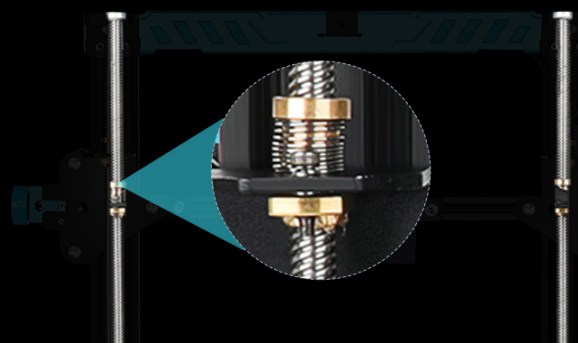
Anti-backlash Nut

Anti-backlash nut can reduce shaking when printing and make printing more stable.

Upgraded anti-slip belts and anti-backlash nut for stable and precise movement.

7.7 Filament Run-out Sensor

The integrated filament run-out sensor automatically detects when filament runs out or breaks, pausing the print to allow for filament replacement and preventing failed prints.

Filament Run-out Sensor

It will pause the printing automatically if you run out of your filament or if the filament is broken.
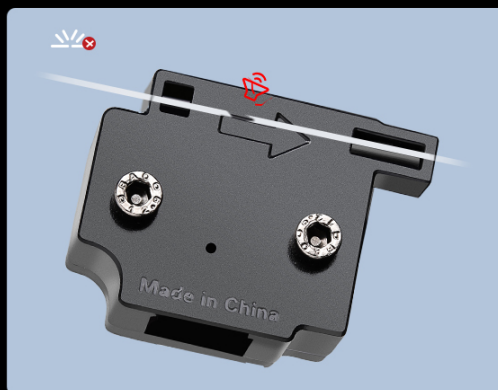
The filament run-out sensor automatically pauses printing for filament changes.

7.8 Double Sided PEI Plate & LED Light

The double-sided PEI plate offers excellent adhesion and easy print removal. If one side gets scratched, the other side can be used. An LED light under the extruder provides illumination for observing the bed leveling process and the first layer, even in low light conditions.

Double Sided PEI Plate

Even if you scratched one side, you still have another side usable and save the money and time to buy a replacement. Stronger magnetic, good adhesion, super easy to remove the prints by hand, helps you enjoy the printing from start to end.

front

back

The double-sided PEI plate offers durability and ease of use.

LED light

The LED light under the extruder helps you to observe the bed levelling process and how the first layer is going down, even in dim light. Make your prints look beautiful under the LED lights and ready to show off your prints on social meida.

The LED light illuminates the print area for better visibility.

7.9 Integrated Tool Drawer

A convenient pull-out tool drawer is integrated into the printer's base, providing quick storage and easy organization for your tools, keeping your workspace tidy.
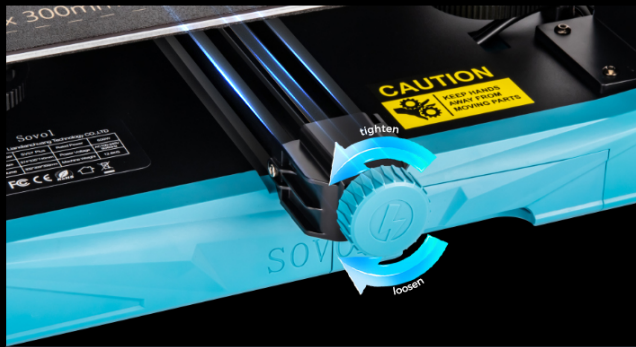
Belt Tensioner

The belt tensioner with Sovol lighting sign, very cool and convenient to adjust the belt tension to achieve smooth printing result.

Tool Drawer

It's very convenient to pull out the tool drawer for quick storage and easy organization . Keep your workspace tidy and efficient with this small upgrade.

The integrated tool drawer keeps your workspace organized.

8. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your 3D printer:

- **Clean the Print Bed:** Wipe the PEI surface with alcohol before each print to ensure optimal adhesion.
- **Clean the Nozzle:** Regularly clean any filament residue from the nozzle. For clogs, perform a cold pull or use a nozzle cleaning needle.
- **Lubricate Moving Parts:** Apply a small amount of lithium grease to the Z-axis lead screws and smooth rods periodically.
- **Check Belts:** Ensure the X and Y-axis belts are properly tensioned. Adjust using the belt tensioner if necessary.
- **Inspect Wiring:** Periodically check all electrical connections for looseness or damage.

9. TROUBLESHOOTING

Here are some common issues and their potential solutions:

Problem	Possible Cause	Solution
Poor First Layer Adhesion	Incorrect Z-offset, dirty bed, warped bed, wrong bed temperature.	Recalibrate Z-offset, clean PEI plate with alcohol, ensure bed is level, adjust bed temperature.
Filament Not Extruding	Nozzle clog, tangled filament, incorrect temperature, extruder issue.	Clean nozzle, check filament path, verify hotend temperature, inspect extruder gears.
Layer Shifting	Loose belts, motor overheating, print speed too high.	Check and tighten belts, ensure proper cooling for motors, reduce print speed.

Problem	Possible Cause	Solution
Stringing/Oozing	Incorrect retraction settings, too high temperature.	Adjust retraction distance and speed in slicer, lower hotend temperature slightly.

10. SPECIFICATIONS
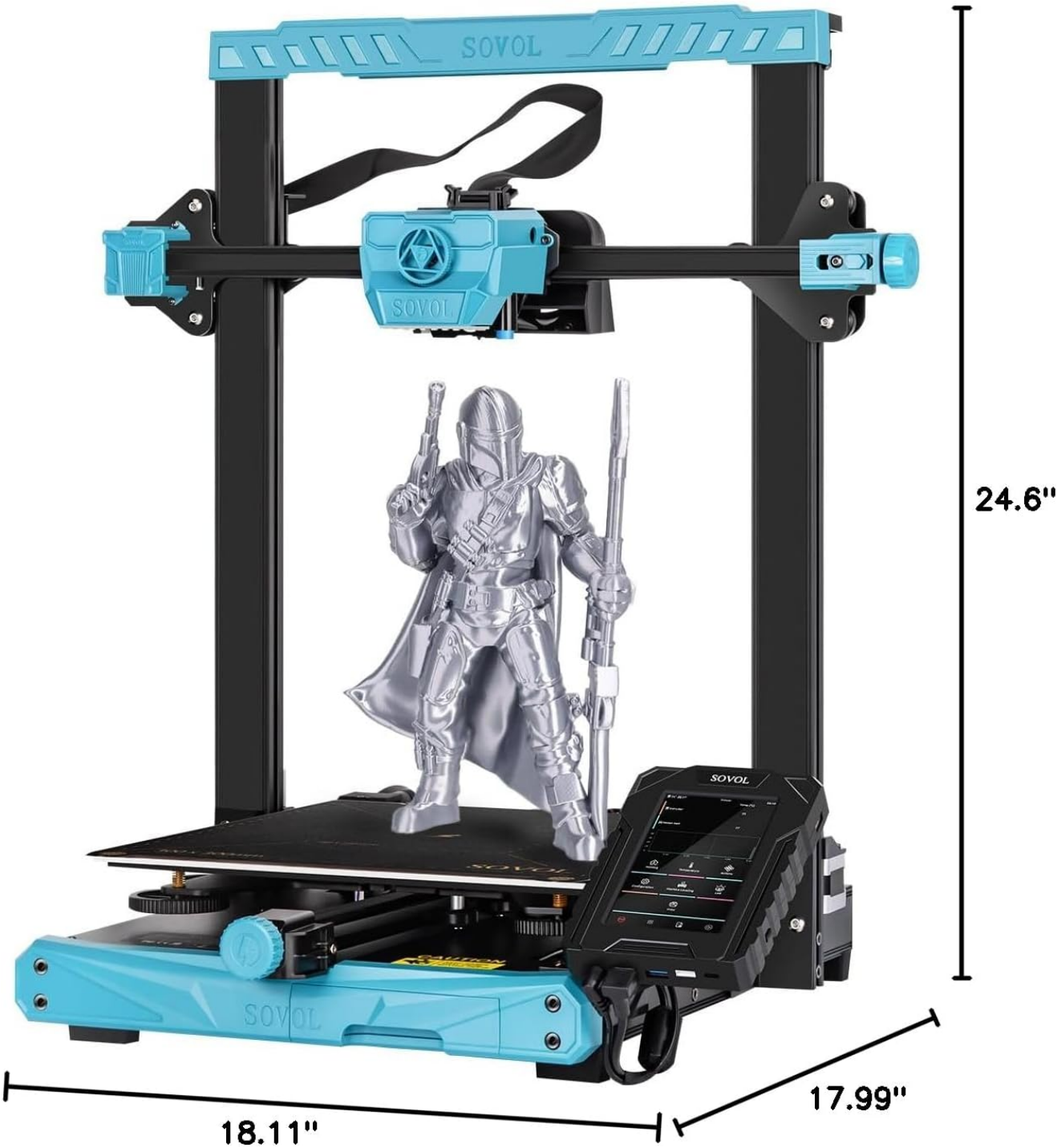
Sovol SV07 Plus with key dimensions.

Feature	Detail

Feature	Detail
Model	SV07 Plus
Print Technology	FDM (Fused Deposition Modeling)
Build Volume	300 x 300 x 350 mm (11.8 x 11.8 x 13.8 inches)
Max Print Speed	500 mm/s
Nozzle Temperature	Max 300°C
Heated Bed Temperature	Max 100°C (Heats to 60°C in 90 seconds)
Extruder Type	Planetary Dual Gear Direct Drive
Leveling Mode	25-point Auto Leveling
Firmware	Klipper
Display	5-inch High Resolution Touch Screen
Power Supply	600W
Connectivity	USB, WiFi (Klipper)
Supported Filaments	PLA, ABS, PETG, TPU, ASA, PC, Wood, Nylon, Carbon Fiber
Product Dimensions	25 x 23.43 x 10.43 inches
Item Weight	32 pounds (14.54 kg)

11. WARRANTY AND SUPPORT

Sovol provides customer support for their products. For specific warranty details, technical assistance, or replacement parts, please refer to the official Sovol website or contact their customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

Additional protection plans may be available for purchase to extend coverage beyond the standard manufacturer's warranty.

Related Documents - SV07 Plus

[Sovol SV06 Plus 3D Printer Leveling Guide and Printing Tips](#)
A comprehensive guide to leveling the Sovol SV06 Plus 3D printer, including detailed steps, Z-axis offset adjustments, auto leveling procedures, and essential printing tips for high-temperature filaments and retraction settings.

	Sovol SV06 ACE: Klipper Fernzugriff und KI-Überwachung mit Obico Erfahren Sie, wie Sie Klipper-Firmware und Obico für Fernzugriff, KI-Fehlererkennung und erweiterte Überwachung Ihres Sovol SV06 ACE 3D-Druckers einrichten und nutzen.
	Sovol SV07 Plus User Manual: Setup, Operation, and Troubleshooting Comprehensive user manual for the Sovol SV07 Plus 3D printer, covering assembly, setup, operation, maintenance, and troubleshooting for optimal printing performance.
	Sovol SV04 Extruder Leveling Knob Troubleshooting Guide A comprehensive guide to troubleshooting and resolving issues with the extruder leveling knob on the Sovol SV04 IDEX 3D printer, covering common problems like stiffness and incorrect slider plate adjustment.
	Sovol SV08 3D Printer User Manual Comprehensive user manual for the Sovol SV08 3D printer, covering setup, operation, maintenance, and troubleshooting. Learn how to get the most out of your Sovol SV08.
	Sovol SV08 3D Printer User Manual: Setup, Assembly, and Operation Guide Comprehensive user manual for the Sovol SV08 3D printer. Learn about assembly, setup, calibration, printing, WiFi connection, Obico integration, and mainboard details.