

## Sovol Zero

# Sovol Zero 3D Printer User Manual

Model: Zero

Brand: Sovol

## 1. SETUP GUIDE

The Sovol Zero 3D Printer is designed for ease of setup, with many components pre-assembled. Initial assembly typically takes 15-20 minutes. Follow the included quick start guide for detailed steps.

### 1.1 Auto-Leveling System

The printer features a Next-Gen 3.0 auto-leveling system that combines eddy current scanning with pressure sensing for unparalleled accuracy. This system automatically calibrates the print bed, ensuring a perfect first layer without manual intervention.

# 3 mins for An Auto Fast Start

- One-click to start fast auto leveling supported by eddy-current scanning and pressure calibration
- Only takes **40s** to heat nozzle up to **220°C**
- Only takes **59s** to heat hot bed up to **100°C**

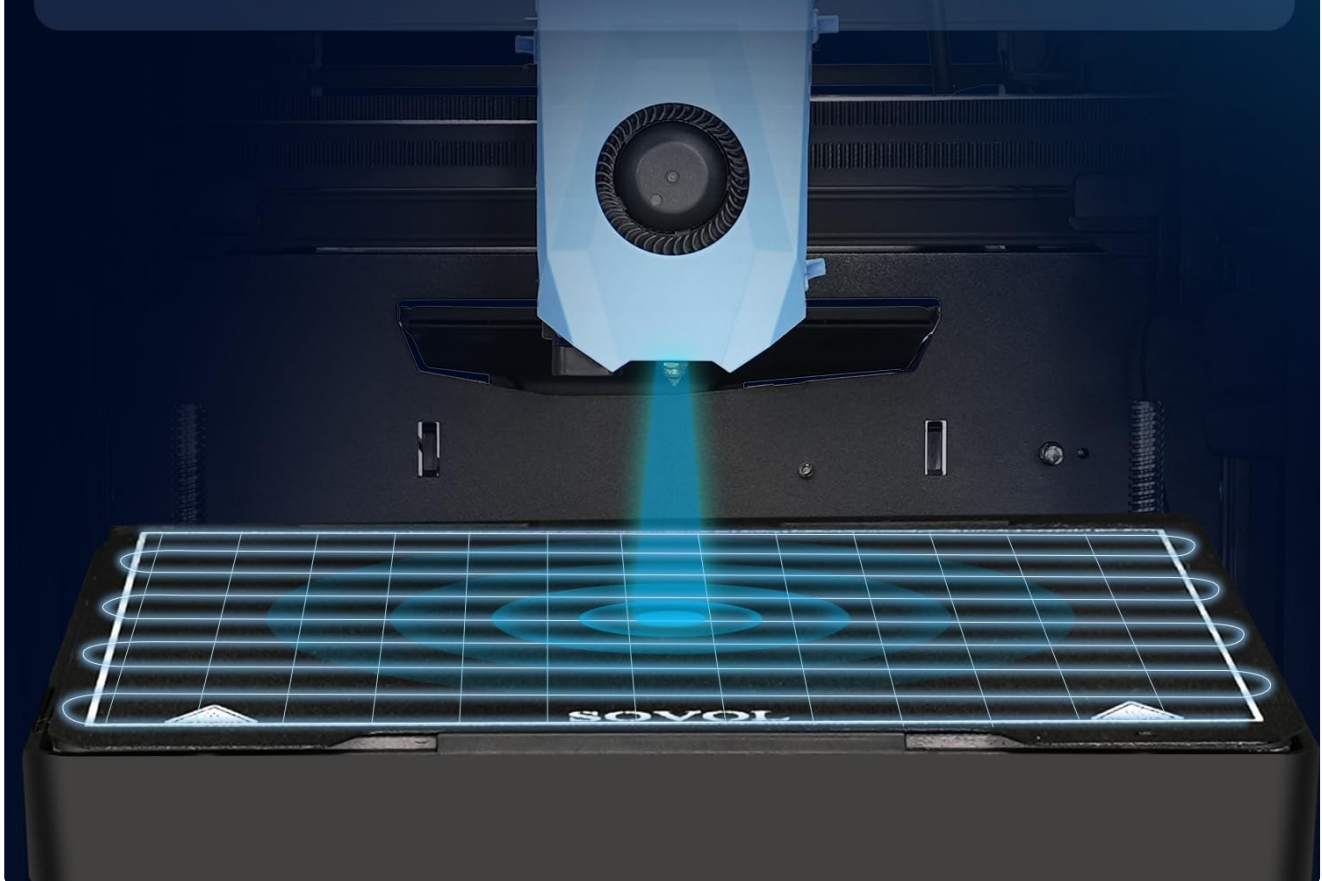
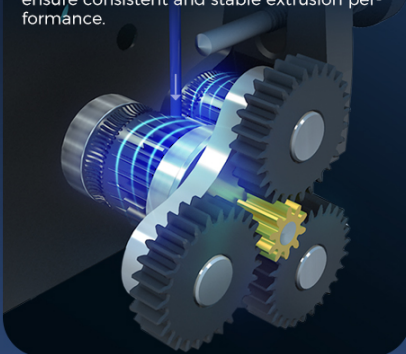


Image: The Sovol Zero 3D Printer initiating its auto-leveling sequence, demonstrating the rapid and precise calibration process.

## Planetary Dual Gear Direct Extruder

Features a 1:5.2 gear ratio planetary system, lightweight design with powerful torque to ensure consistent and stable extrusion performance.



## All-metal Hotend

Equipped with a titanium alloy heat break and ceramic heater, delivers an extrusion flow rate up to 30mm<sup>3</sup>/s (tested with Sovol PLA at 260°C), enabling high-temperature printing up to 350°C



## Cooling Fan

The 7025 auxiliary nozzle cooling fan ensures rapid and uniform material cooling with its high-power airflow, significantly enhancing the surface quality of printed objects.



Image: A visual representation of the Next-Gen 3.0 Auto-Leveling system, highlighting the eddy current scanning and pressure sensing technologies for precise bed mapping.

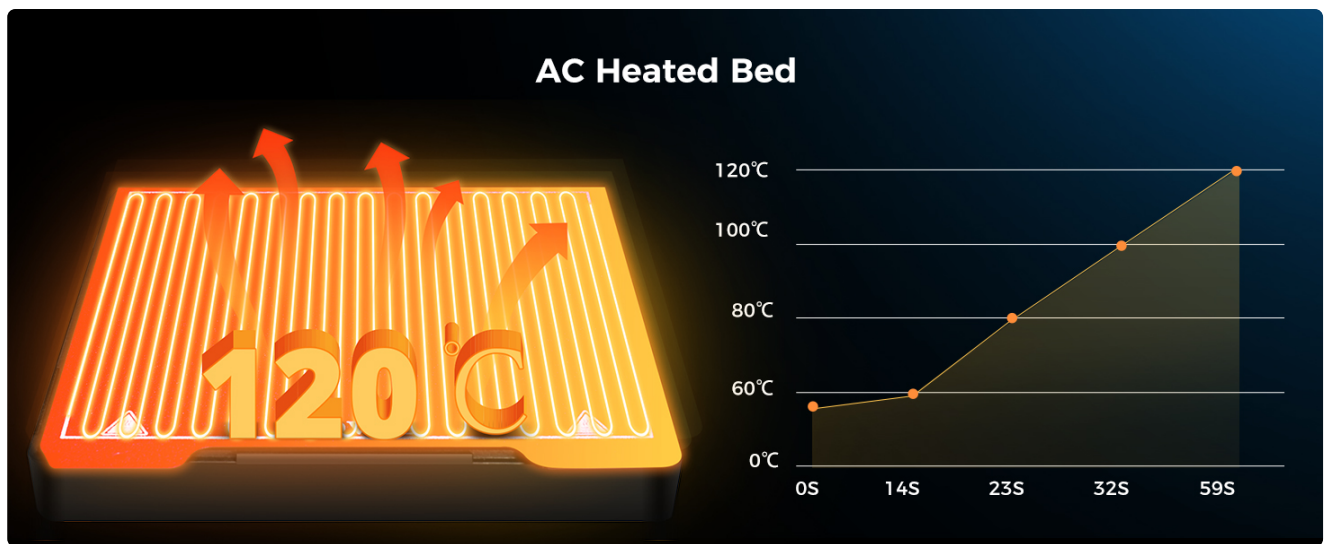


Image: An illustration demonstrating the achievement of a perfect first layer, a result of the advanced auto-leveling system.

## 1.2 Filament Loading

To load filament, ensure the hotend is preheated to the appropriate temperature for your material. Insert the filament into the extruder until resistance is met, then activate the load function from the printer's interface. It may require a few attempts to master the loading process initially.

## 2. OPERATION INSTRUCTIONS

### 2.1 High-Speed Printing

The Sovol Zero is a CoreXY 3D printer capable of speeds up to 1200mm/s, with a maximum acceleration of 40000mm/s<sup>2</sup>. This high speed is achieved through optimized kinematics and robust construction.

# Max Printing Speed up to 1200mm/s

The Fastest 3D Printer Based on Voron 0.2

Max Acceleration:  
**40000mm/s<sup>2</sup>**

Max Nozzle Flow:  
**50mm<sup>3</sup>/s**

Print Benchy:  
**within 9 mins**



Image: A graphic illustrating the maximum printing speed of the Sovol Zero, reaching up to 1200mm/s, emphasizing its rapid performance.

## 2.2 Filament Compatibility and Temperature

The printer supports a wide range of filaments, including PLA, TPU, PETG, ABS, ASA, PA, PC, PLA-CF, PETG-CF, and HP-PLA. The nozzle can reach up to 350°C, and the AC heated bed can reach 120°C, enabling successful printing with high-temperature materials.



# Higher Temperature Printing for More Filament Materials

Come with an open enclosure to build a closed chassis  
Compatible with more filaments  
(PLA/HP-PLA/PETG/ABS/PLA-CF/PETG-CF/ASA/PA)

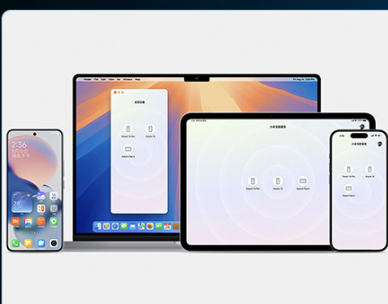


Image: A visual representation of the Sovol Zero's high-temperature capabilities, with the nozzle reaching 350°C and the heated bed reaching 120°C, suitable for various filament types.



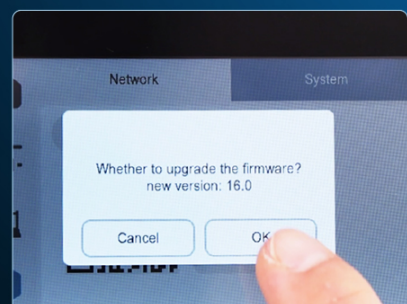
## Knob-Control Offline Operation System

The knob screen enables standalone operation with USB direct printing (No computer required)



## Universal Wireless Connectivity

Dual-mode networking: WiFi Direct + LAN/WLAN for real-time tri-device synchronization (printer/phone/PC)



## User-Driven Firmware Updates

On-device OTA updates: User-initiated upgrades ensure continuous performance evolution

Image: A circular chart displaying the multi-material compatibility of the Sovol Zero, listing various filament types it can print.

## 2.3 Built-in Camera and Connectivity

The integrated camera provides real-time monitoring of the printing process and supports time-lapse footage. The printer offers universal wireless connectivity via WiFi and LAN/WLAN, allowing for remote control and monitoring, including integration with Obico software. It also supports offline operation via a knob-controlled system and USB direct printing.



Image: A close-up view of the Sovol Zero's built-in camera, positioned to monitor the print bed and ongoing print jobs.

Image: A composite image showing the knob-control offline operation system, universal wireless connectivity options (WiFi, LAN), and the user-driven firmware update interface of the Sovol Zero.

## 2.4 Slicer Software and Open Source

The Sovol Zero is compatible with OrcaSlicer, Cura-Ultimaker, and Cura-Sovol. It is an open-source printer, providing users with the freedom to customize and modify its hardware and software, including full Klipper compatibility.

# Open Source

We share hardware and software of Sovol ZERO to all users in Voron community.



Image: A conceptual image representing the open-source nature of the Sovol Zero 3D Printer, indicating its customizability and community support.

## XYZ Full Linear Rails

Linear rails ensure smoother motion and superior control, enhancing print quality and reliability by minimizing artifacts. With greater rigidity and corrosion resistance, they offer extended durability for long-term performance.

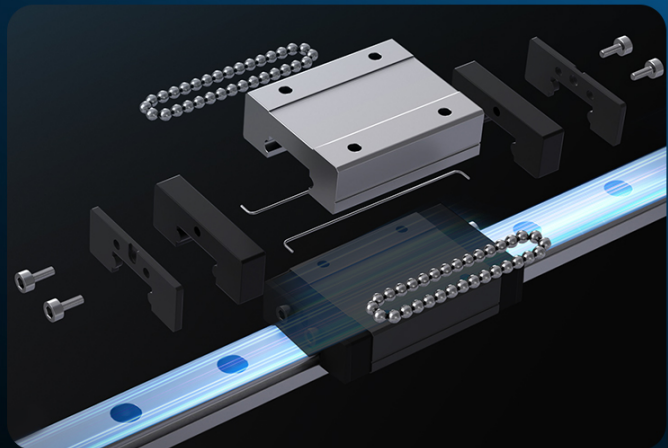


Image: A detailed view of the upgraded motherboard, highlighting its full Klipper compatibility and integrated motor drivers for stable signal transmission.



### 3. MAINTENANCE

#### 3.1 Air Filtration System

The Sovol Zero includes an air filtration system designed to effectively filter VOCs, particles, and other emissions produced during printing, ensuring a cleaner and safer indoor air environment.

## Super Stable Structure at High-speed Printing

Open enclosure and the entire aluminum frame increase the strength of the body, avoid moving when high-speed printing

**XYZ axis full industrial-grade linear slide rails**

**Flexible and high-precision CoreXY motion mechanism**

**Add weight at the bottom to stabilize the overall frame**

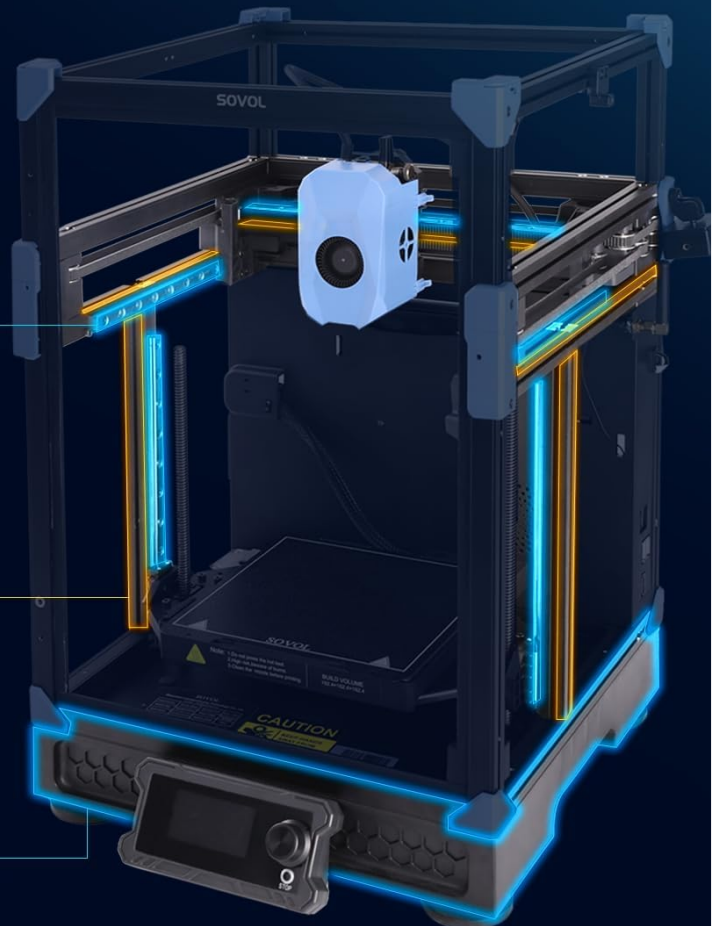


Image: A diagram illustrating the air filtration system integrated into the Sovol Zero, showing airflow and filtration components.

#### 3.2 Linear Rails and Damping

The XYZ axes feature full industrial-grade linear rails, which ensure smoother motion, superior control, and enhanced print quality. These rails offer greater rigidity and corrosion resistance for extended durability. The silicone damping pad effectively absorbs vibrations during high-speed operation, contributing to stability and improved print quality.



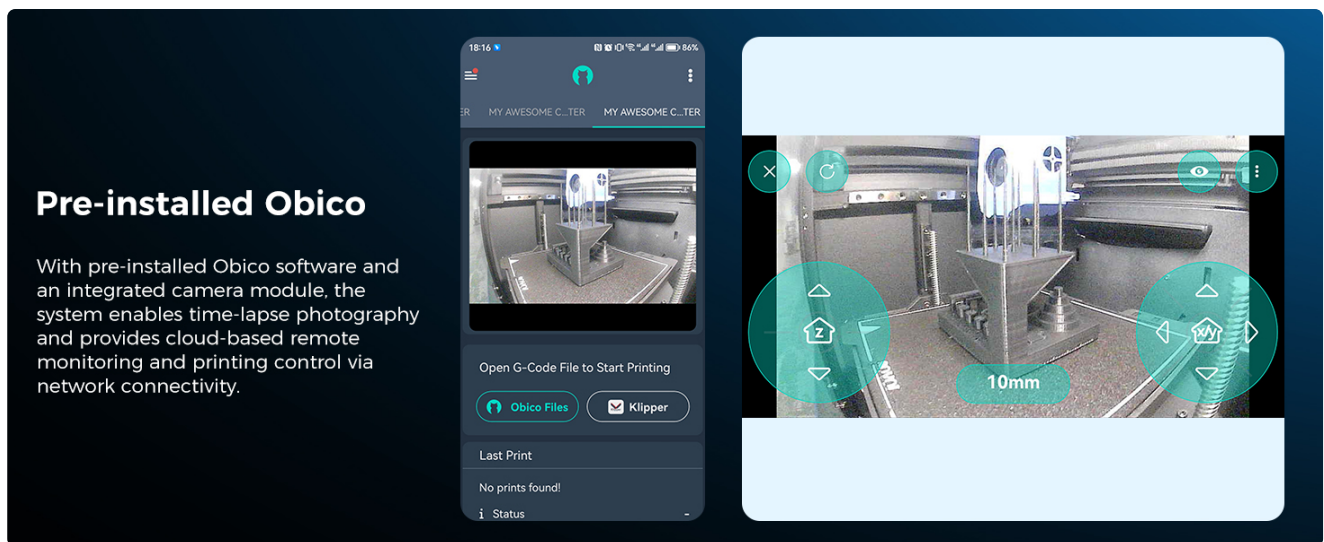


Image: An exploded view diagram of the XYZ Full Linear Rails, showcasing their components and how they contribute to smooth and precise motion.

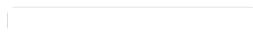


Image: A close-up of the silicone damping pad, illustrating its placement and function in absorbing vibrations for enhanced stability.

### 3.3 General Cleaning

Regularly clean the print bed with isopropyl alcohol to ensure proper adhesion. Inspect the nozzle for any clogs or wear and replace as needed. Keep the linear rails free of dust and debris to maintain smooth operation.

## 4. TROUBLESHOOTING COMMON ISSUES

### 4.1 First Layer Adhesion Problems

If your first layer is not adhering properly, ensure the print bed is clean and free of oils. Verify that the auto-leveling process completed successfully. Adjusting the Z-offset slightly can also help. The printer's adaptive area detection compensates for leveling based on the print model, which helps reduce preparation time.

### 4.2 Stringing or Blobs

Stringing or blobs can occur due to incorrect retraction settings or filament moisture. Ensure your filament is dry. The printer's pressure advance feature optimizes extruder control by compensating for extrusion lag, minimizing over- or under-extrusion. Input shaping mathematically adjusts the printer's acceleration commands to compensate for mechanical resonance, reducing ringing/ghosting artifacts.

## Built-in Camera

The camera provides real-time monitoring and detection of the printing process (in conjunction with Obico). It also records the entire printing journey, offering time-lapse footage and providing convenience and insights into the printing experience.

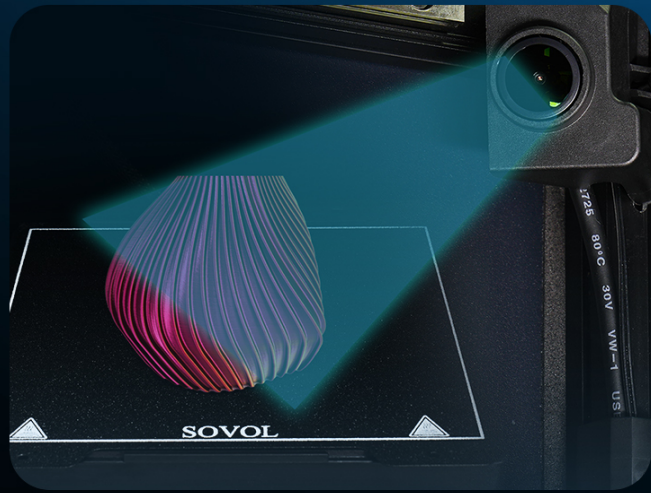


Image: A graphic detailing advanced features like Adaptive Area Detection for leveling compensation, Pressure Advance for precise extrusion, and Input Shaping for reducing print artifacts.

### 4.3 Nozzle Clogging

If the nozzle is clogged, first try a cold pull. If the clog persists, the nozzle may need to be replaced. The all-metal hotend is designed to handle high temperatures up to 350°C, reducing the likelihood of heat creep related clogs.

### 4.4 Unusual Noises

While the silicone damping pad reduces vibrations, unusual noises might indicate loose components or issues with the linear rails. Inspect all screws and ensure the printer is on a stable surface. Lubricate linear rails if necessary.

### 4.5 Persistent Issues

If you encounter issues that cannot be resolved using this guide, please contact Sovol customer support for further assistance. Provide detailed information about the problem, including any error messages or unusual behavior.

## 5. TECHNICAL SPECIFICATIONS

### Product Specification

Build Volume(W*D*H)	: 152.4*152.4*152.5mm <sup>3</sup>	Max Acceleration	: 40000mm/s <sup>2</sup>
Max Flow Rate	: ≤50mm <sup>3</sup> /s	Max Printing Speed	: 1200mm/s
Heating Method	: Ceramic Heating Plate	Nozzle Temperature	: ≤350°C(662°F)
Communication	: WiFi (2.4 G), WLAN	Filament Diameter	: 1.75mm
Auto Leveling	: Inductive sensor + force sensor	Filament Sensor	: Yes
Printer Size	: 345*420*475mm	Hot Bed Temperature	: ≤120°C(248°F)
Build Plate	: Double-Sided PEI Steel Plate	Slicer Operation System	: Windows, Mac
Supported Filament	: PLA, PETG, TPU, PETG-CF, ABS, ASA, PA, PC	Power Supply	: 150W/24V
Extruder	: Planetary gear extruder	Power Loss Recovery	: Yes
File Format Supported	: G-code	Slicer	: OrcaSlicer
System Architecture	: 64-bit	Camera	: Yes
Flash Memory	: 8GB(EMMC)	OTA	: Yes
CPU	: H616	RAM	: 1GM
Nozzle	: Brass: 0.4mm (Include), 0.2mm 0.6mm, 0.8mm, 1.0mm Hardened steel: 0.4mm (Include), 0.2mm 0.6mm, 0.8mm, 1.0mm		

Image: A detailed table outlining the product specifications of the Sovol Zero 3D Printer.

Sovol Zero 3D Printer Specifications

Feature	Detail
Product Dimensions	16.5 x 13.6 x 18.7 inches (41.9 x 34.5 x 47.5 cm)
Item Weight	46.5 pounds (21.1 kg)
Build Volume (W*D*H)	152.4 x 152.4 x 152.5 mm³ (6x6x6 inches)
Max Printing Speed	1200mm/s
Max Acceleration	40000mm/s²
Nozzle Temperature	Up to 350°C (662°F)
Heated Bed Temperature	Up to 120°C (248°F)
Supported Filaments	PLA, TPU, PETG, ABS, ASA, PA, PC, PLA-CF, PETG-CF, HP-PLA
Auto Leveling	Inductive sensor + force sensor (Next-Gen 3.0)
Extruder	Planetary gear direct extruder
Connectivity	WiFi (2.4G), WLAN, USB
Operating System Compatibility	Win7/8/10/11/Linux Ubuntu 20.04+/Mac OS 10.10+
Supported File Format	STL, OBJ, STP, STEP, 3MF, AMF, GCODE
Slicer Software	OrcaSlicer, Cura-Ultimaker, Cura-Sovol
Manufacturer	Sovol

5.1 What's in the Box

- Sovol Zero 3D Printer (1 unit)
- Filament Holder
- Tool Box
- Antenna
- Filament Sensor

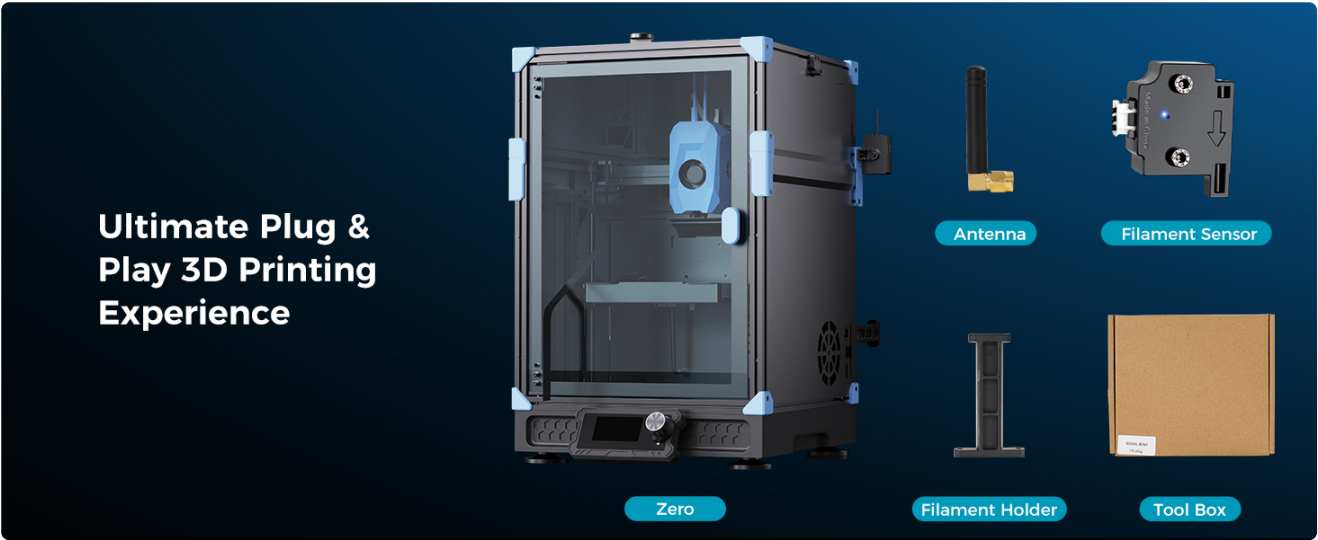


Image: The Sovol Zero 3D Printer alongside its essential accessories, including the filament holder, tool box, antenna, and filament



sensor.

## 6. WARRANTY AND SUPPORT

The Sovol Zero 3D Printer is manufactured by Sovol. For specific warranty information and support inquiries, please refer to the documentation provided with your purchase or visit the official Sovol website. The seller for this product is Sovol, and it is fulfilled by Amazon.

For technical assistance or troubleshooting beyond this manual, please contact Sovol customer service directly. Ensure you have your product model and purchase details ready for faster service.