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Usongshine Sapphire Pro 1

Usongshine TwoTrees Sapphire Pro 1 3D Printer Instruction Manual

Model: Sapphire Pro 1

1. Introduction

This manual provides essential information for the safe and efficient operation of your Usongshine TwoTrees Sapphire Pro 1 3D Printer. Please read this manual thoroughly before operating the device to ensure proper setup, usage, and maintenance. Retain this manual for future reference.

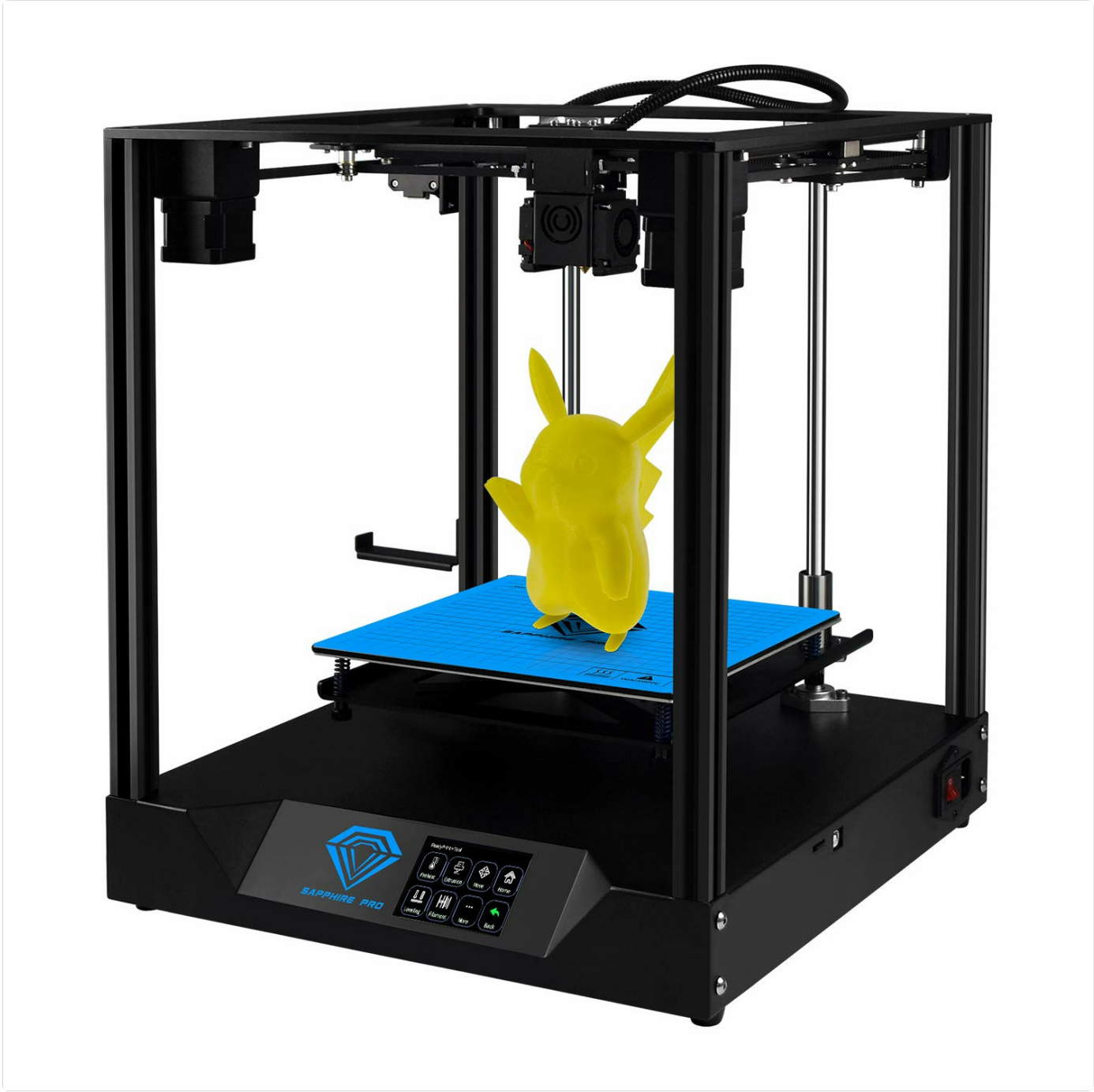


Figure 1.1: The Usongshine TwoTrees Sapphire Pro 1 3D Printer, fully assembled.

2. Safety Information

Observe the following safety precautions to prevent injury or damage to the printer:

- **Hot Surfaces:** The print nozzle and heated bed reach high temperatures during operation. Avoid touching these components to prevent burns. Allow them to cool completely before handling.
- **Moving Parts:** The printer contains moving parts that can cause injury. Keep hands and loose clothing away from the print head, build plate, and other moving components during operation.
- **Ventilation:** Operate the 3D printer in a well-ventilated area. Some filaments may emit fumes during printing.
- **Power Supply:** Use only the provided power adapter. Ensure the power cable is not damaged and is properly connected. Disconnect power before performing any maintenance or assembly.
- **Filament Handling:** Store filament in a dry environment to prevent moisture absorption, which can affect print quality.

- **Children and Pets:** Keep the 3D printer out of reach of children and pets.

3. Setup and Assembly

The Usongshine TwoTrees Sapphire Pro 1 features a kit design for easy assembly. The printer can typically be assembled in 4 steps, taking approximately 10 minutes.

3.1 Core Structure

The printer utilizes a Core-XY structure, which contributes to precise, faster, and quieter printing. The hot bed is fixed on the Z-axis, minimizing movement and potential points of failure.

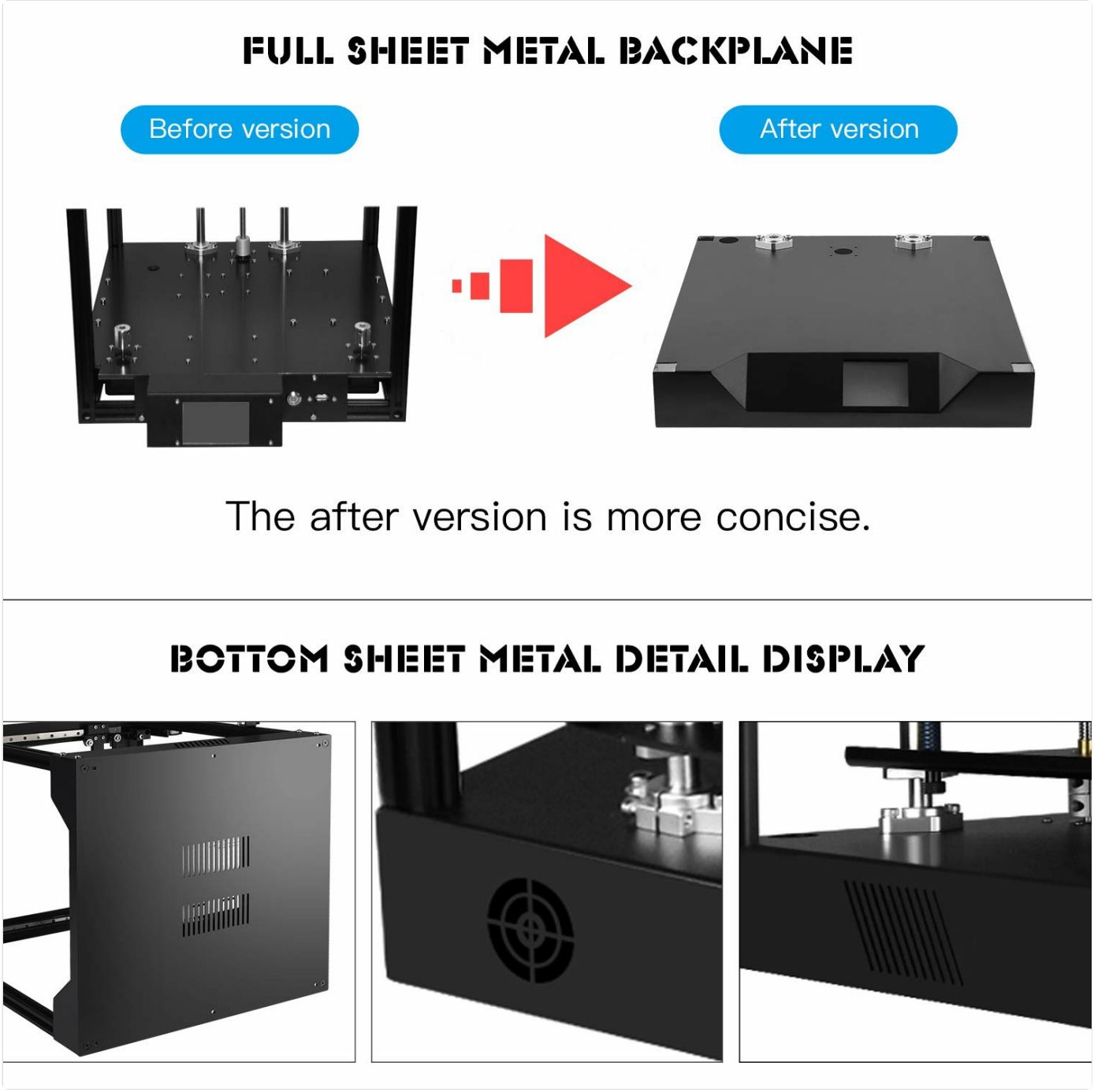


Figure 3.1: Comparison of the sheet metal backplane design, illustrating the concise 'after' version.



Figure 3.2: Illustration of the hot bed fixed on the Z-axis, reducing movement and failure points.

3.2 Linear Guides

The printer incorporates linear guides for smoother and quieter motion during printing, enhancing overall print quality and user experience.

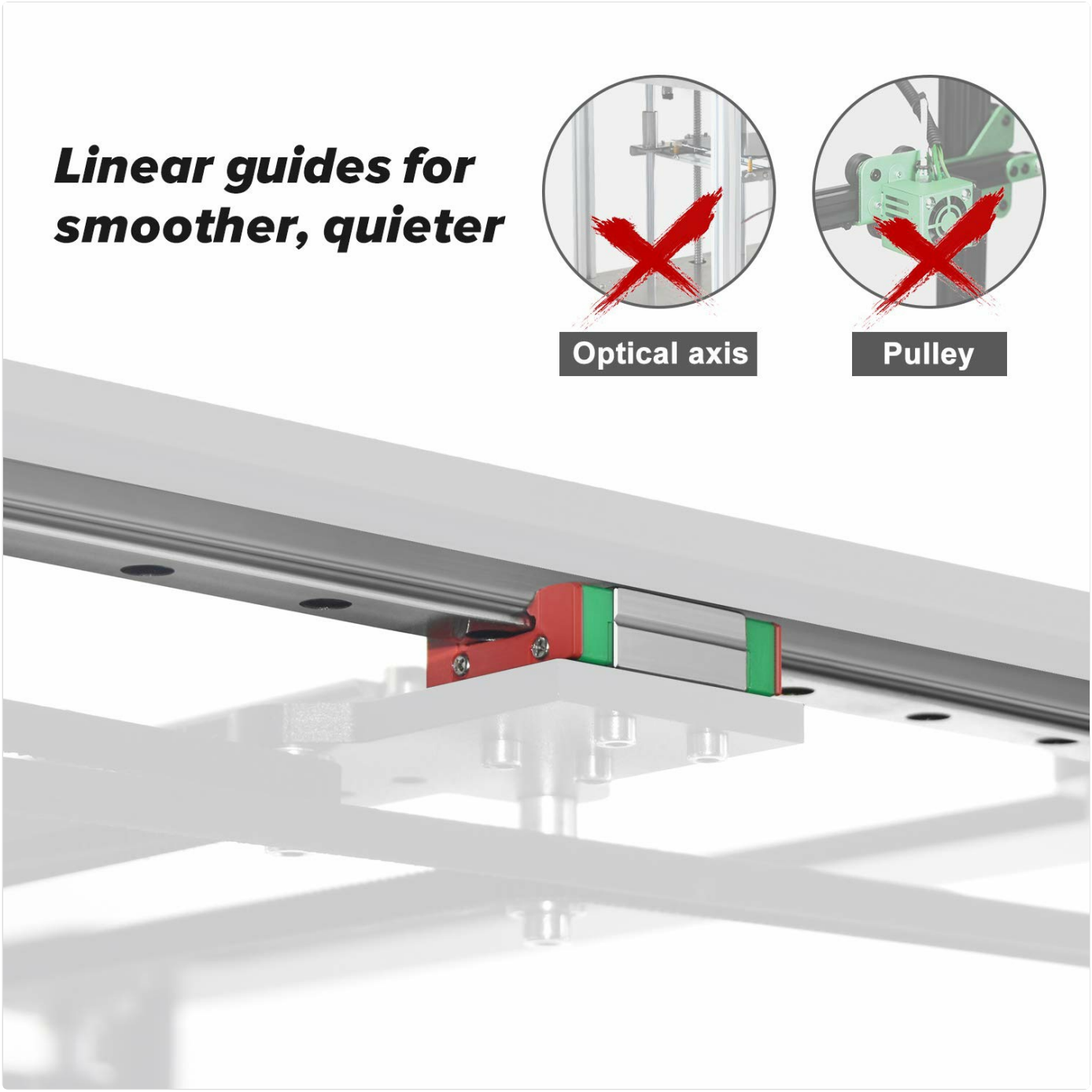


Figure 3.3: Detail of the linear guides, designed for smoother and quieter printer operation.

3.3 Key Components

The Sapphire Pro 1 is equipped with high-quality components for optimal performance:

- **TMC2208 Stepper Motor Drivers:** For X and Y axes, providing silent printing.
- **Dual Fan Ring Cooling:** Ensures rapid cooling of printed workpieces.
- **BMG Dual-Drive Extruder:** Delivers precise and consistent filament extrusion.



Figure 3.4: Overview of key internal components, including the double ring cooling fan, BMG extruder, and TMC2208/4988 quiet drivers.

4. Operating Instructions

4.1 Power On and Interface

Connect the printer to a power source and turn it on. The 3.5-inch color touch screen provides an intuitive interface for controlling the printer's functions.

4.2 Filament Loading

The Sapphire Pro 1 supports various filament types, including PLA, ABS, HIPS, Wood, PA, and PETG. Ensure the heated bed is at the appropriate temperature for your chosen filament. The heated bed can reach operating temperature in approximately 1 minute.

4.3 Printing Process

1. **Prepare Model:** Use compatible slicing software (Cura, 3DPrinterOS, Repetier-Host, etc.) to convert your 3D model

(STL, OBJ, JPG formats) into G-code.

2. **Transfer G-code:** Transfer the G-code file to the printer via TF card or online printing.
3. **Automatic Leveling:** The printer features automatic multi-point leveling for precise bed calibration.
4. **Start Print:** Initiate the print job from the touch screen interface.

4.4 Resume Printing Function

The printer is equipped with a resume printing function. In the event of an accidental power loss, the printer can resume printing from the last completed layer once power is restored. It also supports filament detection to monitor supplies.

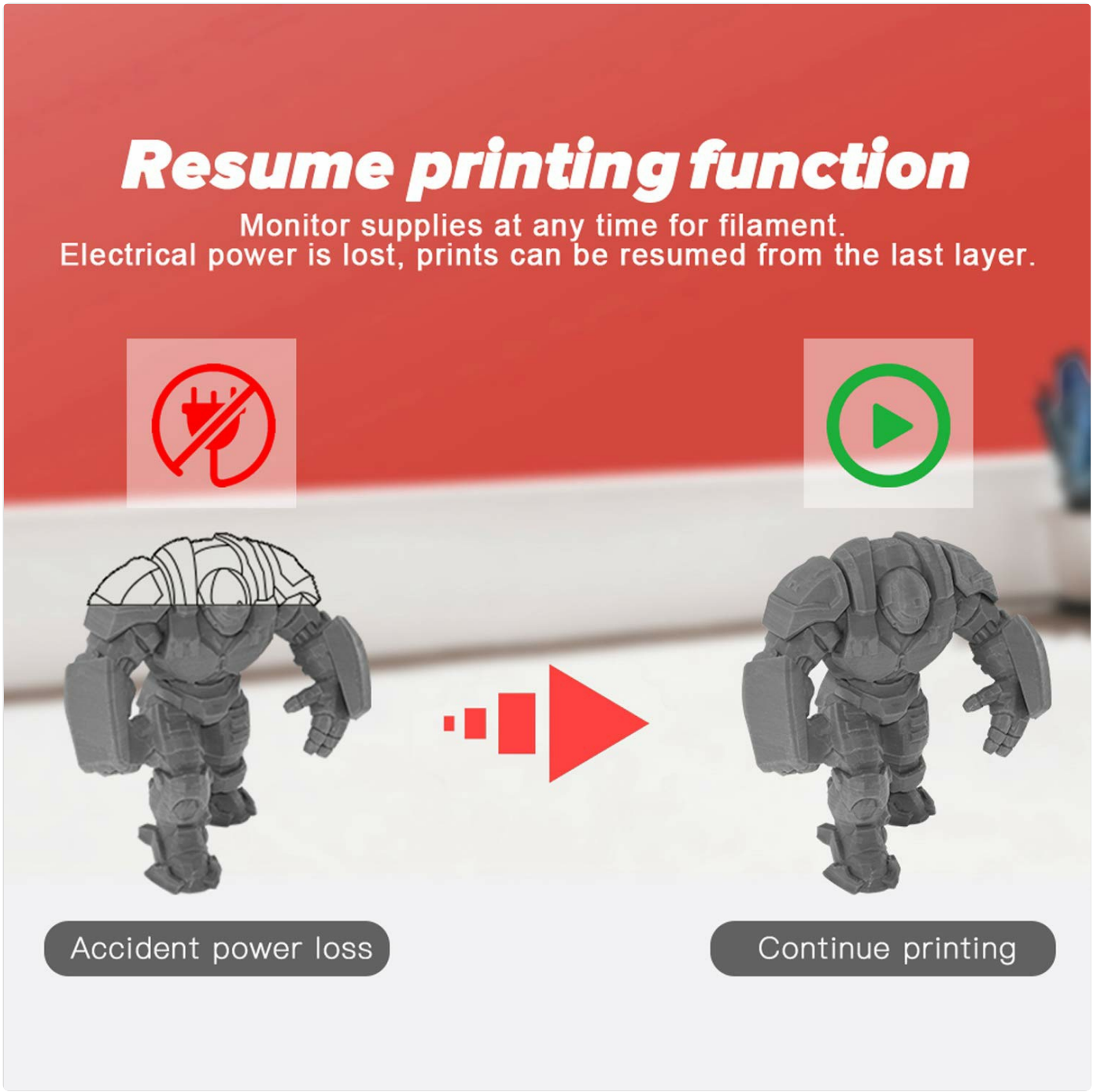


Figure 4.1: Illustration of the resume printing function, allowing prints to continue after power loss.

5. Maintenance

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

- **Cleaning:** Regularly clean the print bed, nozzle, and printer frame to remove dust, filament debris, and residue. Use a soft cloth and appropriate cleaning solutions.
- **Lubrication:** Periodically lubricate the linear guides and lead screws with suitable lubricant to ensure smooth movement.
- **Nozzle Inspection:** Check the nozzle for wear or clogs. Replace the nozzle if necessary to maintain print quality.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to improve performance and add new features.

6. Troubleshooting

If you encounter issues with your 3D printer, consider the following general troubleshooting steps:

- **Print Quality Issues:** Check filament quality, nozzle temperature, bed leveling, and slicing settings. Ensure the print bed is clean and properly adhered.
- **Filament Not Extruding:** Verify that the filament is loaded correctly, the nozzle is not clogged, and the extruder motor is functioning.
- **Printer Not Responding:** Check all power connections and ensure the printer is turned on. Restart the printer if necessary.
- **Layer Shifting:** Inspect belts for proper tension and ensure all mechanical components are secure.

For more detailed troubleshooting, refer to online resources or contact customer support.

7. Specifications

The following table details the technical specifications of the Usongshine TwoTrees Sapphire Pro 1 3D Printer:

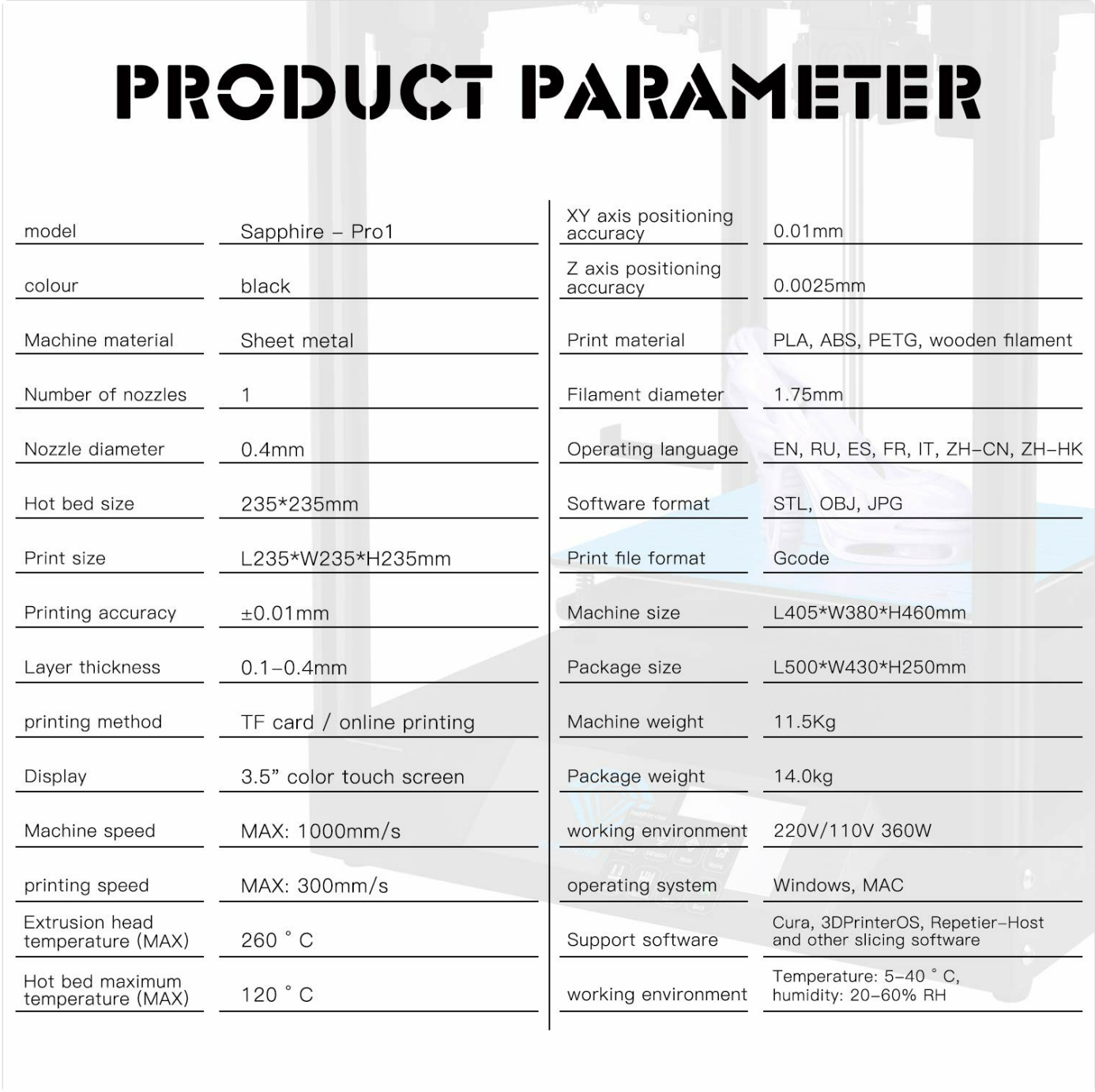


Figure 7.1: Detailed product parameters and specifications for the Sapphire Pro 1.

Parameter	Value
Model	Sapphire - Pro1
Color	Black
Machine Material	Sheet metal
Number of Nozzles	1
Nozzle Diameter	0.4mm
Hot Bed Size	235mm x 235mm
Print Size (L*W*H)	235mm x 235mm x 235mm

Parameter	Value
Printing Accuracy	±0.01mm
Layer Thickness	0.1-0.4mm
Printing Method	TF card / Online printing
Display	3.5" color touch screen
Machine Speed (MAX)	300mm/s
Extrusion Head Temperature (MAX)	260 °C
Hot Bed Maximum Temperature (MAX)	120 °C
XY Axis Positioning Accuracy	0.01mm
Z Axis Positioning Accuracy	0.0025mm
Print Material	PLA, ABS, PETG, Wooden filament
Filament Diameter	1.75mm
Operating Language	EN, RU, ES, FR, IT, ZH-CN, ZH-HK
Software Format	STL, OBJ, JPG
Print File Format	Gcode
Machine Size (L*W*H)	405mm x 380mm x 460mm
Package Size (L*W*H)	500mm x 430mm x 250mm
Machine Weight	11.5 Kg
Package Weight	14.0 Kg
Working Environment	220V/110V 360W
Operating System	Windows 7 and higher, Mac OS X
Support Software	Cura, 3DPrinterOS, Repetier-Host and other slicing software
Working Environment (Temp/Humidity)	5-40 °C, 20-60% RH

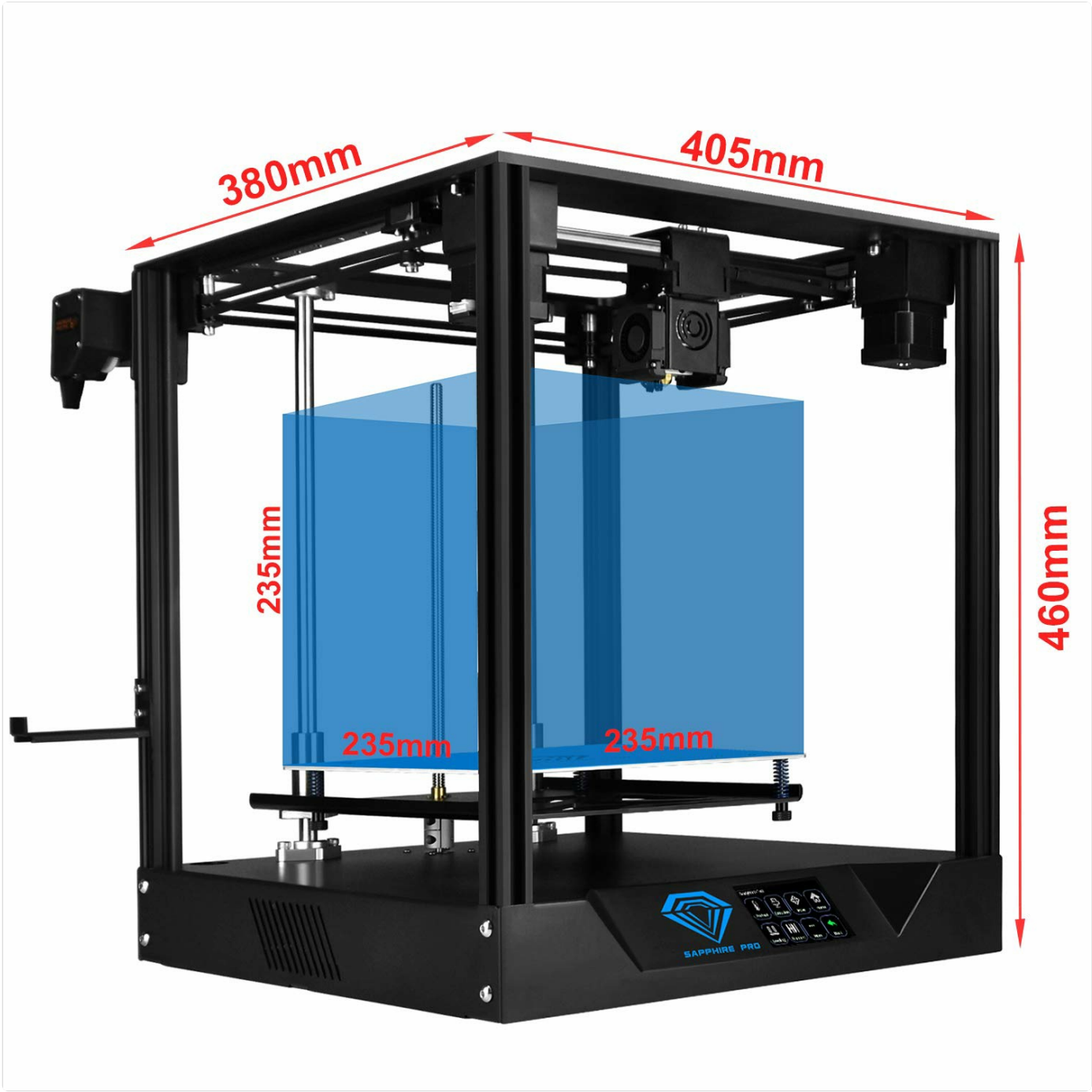


Figure 7.2: Overall dimensions and build volume of the Sapphire Pro 1 3D Printer.

8. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact the seller/manufacturer directly. Ensure you have your product model and purchase details available when seeking support.

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