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ELEGOO Neptune 4 Pro

ELEGOO Neptune 4 Pro & Printer Enclosure User Manual

Comprehensive guide for setup, operation, and maintenance.

1. INTRODUCTION

Welcome to the user manual for your ELEGOO Neptune 4 Pro 3D Printer and its accompanying Printer Enclosure. This guide provides essential information for the safe and efficient operation of your new 3D printing system. The Neptune 4 Pro is designed for high-speed, precise FDM 3D printing, while the enclosure ensures a stable printing environment and enhanced safety. Please read this manual thoroughly before operating the device.



Figure 1: ELEGOO Neptune 4 Pro 3D Printer and Enclosure.

This image displays the complete bundle, featuring the ELEGOO Neptune 4 Pro 3D printer alongside its dedicated printer enclosure, highlighting the comprehensive nature of the product package.

2. PRODUCT OVERVIEW

2.1. ELEGOO Neptune 4 Pro 3D Printer Features

- **High-Speed Printing:** Equipped with Klipper firmware and a powerful processor, enabling printing speeds up to 500mm/s.
- **Enhanced Precision:** X and Y axes feature robust all-metal guide rails with U-shaped steel wheels for reduced drag and improved accuracy.
- **Segmented Heated Zones:** The print bed has two independent heating areas, optimizing power consumption and heating speed based on model size.
- **Direct Drive Extruder:** Simplifies filament loading and handles flexible materials with ease.
- **Automatic Bed Leveling:** Streamlines the setup process and ensures consistent first layers.
- **Build Volume:** 8.85 x 8.85 x 10.43 inches (225 x 225 x 265mm).

Speed Up Printing with Klipper



500mm/s
MAX Printing Speed



8G
Extra Large RAM

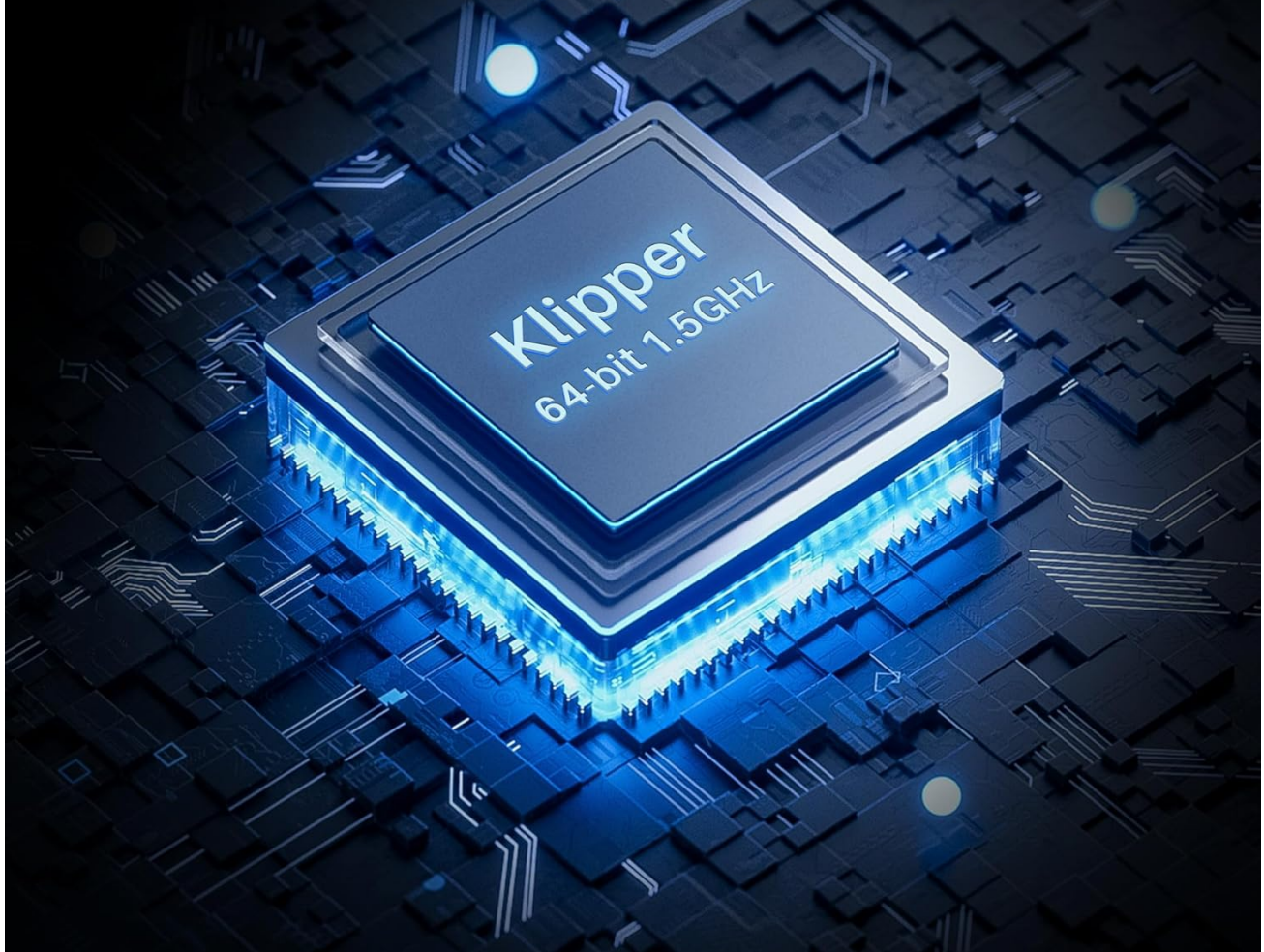


Figure 2: Klipper Firmware and High Speed Printing Capability.

This image illustrates the integration of Klipper firmware and an 8GB RAM processor, enabling the Neptune 4 Pro to achieve a maximum printing speed of 500mm/s, significantly accelerating the printing process.

Amazing Printing Speed

500mm/s

Neptune 4 Pro



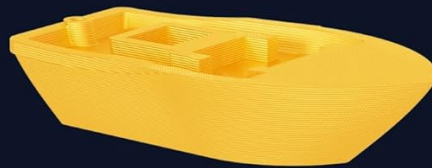
18min(500mm/s)



Others



1h 46min(50mm/s)



Data from tests by ELEGOO lab, for reference only

Figure 3: Comparison of Printing Speeds.

This graphic compares the printing time of a benchmark model (Benchy boat) at 500mm/s (Neptune 4 Pro) versus 50mm/s (other printers), demonstrating the significant time savings achieved by the Neptune 4 Pro.

Heating Quickly & Energy-Saving

- Segmented heatbed - improves heating efficiency and saves energy
- Heatbed overheat protection - ensures safe printing

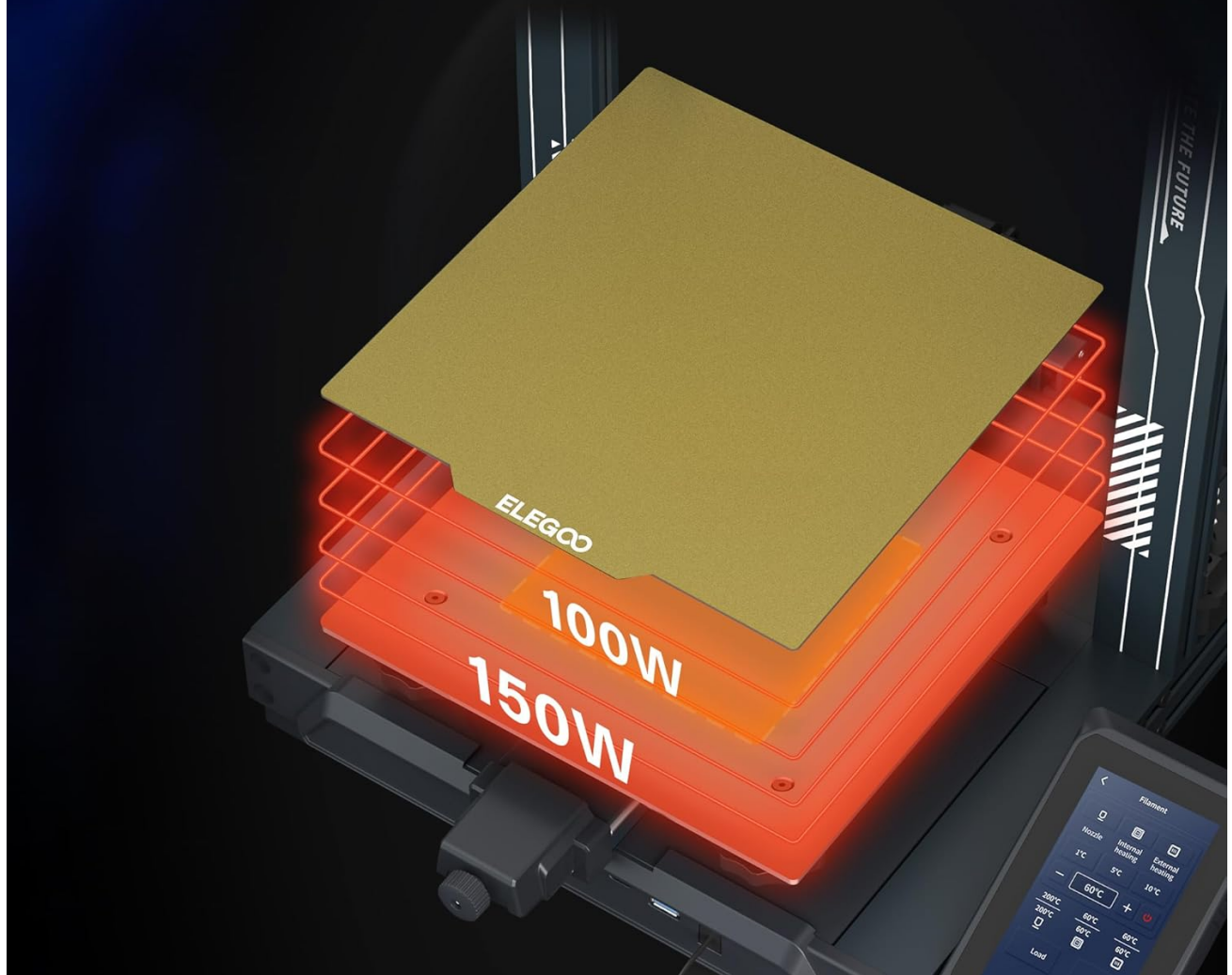


Figure 4: Segmented Heatbed for Efficient Heating.

The image highlights the segmented heatbed design, which includes 100W and 150W heating zones. This feature improves heating efficiency, saves energy, and incorporates overheat protection for safe printing.

Precise and Stable Printing

Durable all-metal dual-axis guide rails and U-shaped bearings
Accurate and smooth moving even at high speeds

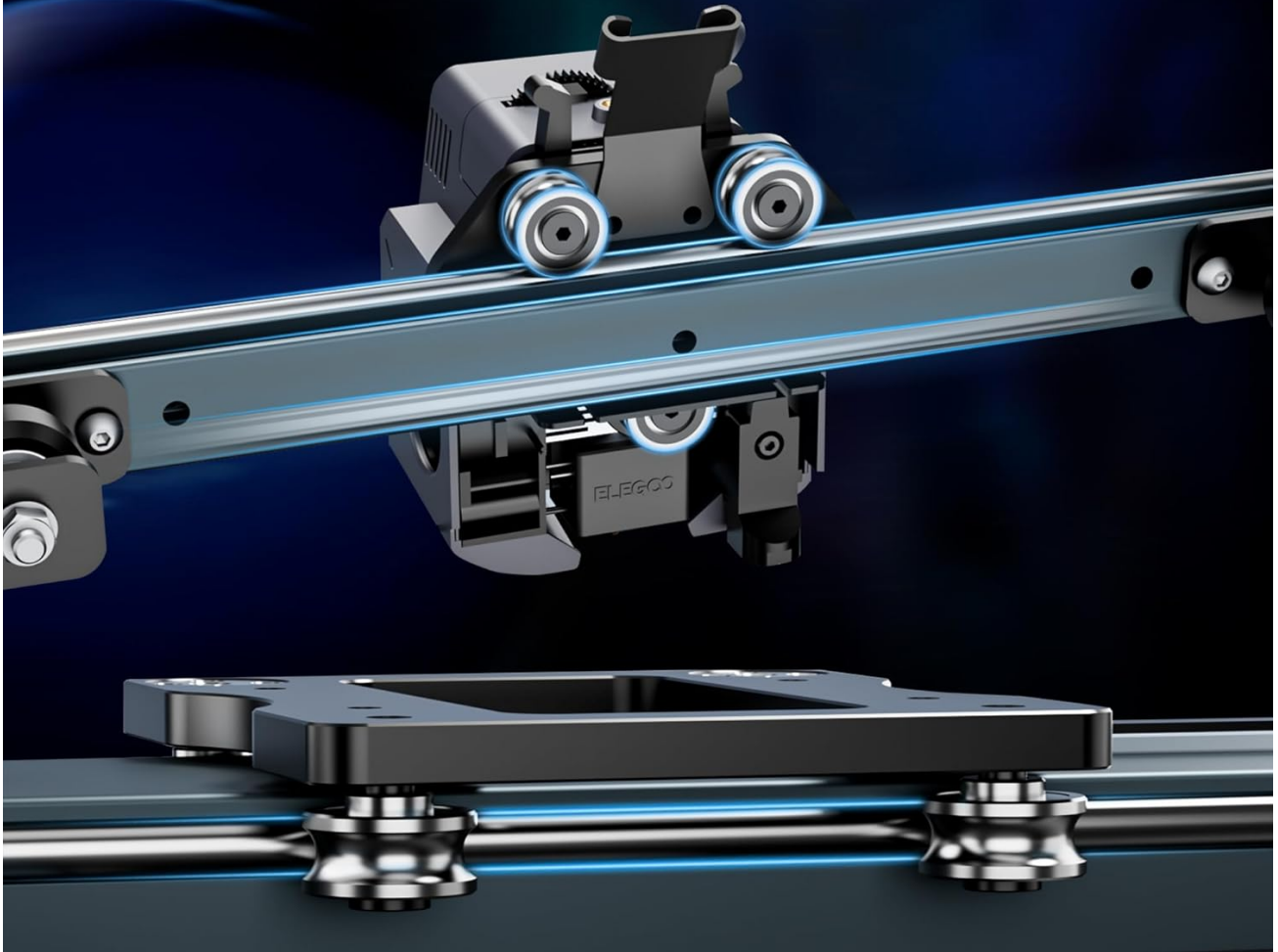


Figure 5: All-Metal Dual-Axis Guide Rails.

This image showcases the durable all-metal dual-axis guide rails and U-shaped bearings, which ensure accurate and smooth movement of the print head, even at high speeds, contributing to precise and stable printing.

2.2. ELEGOO Printer Enclosure Features

- **Stable Print Temperature:** Provides a consistent internal temperature, reducing warping and improving print adhesion.
- **Wide Compatibility:** Sized at 25.5"x21.6"x29.5" (650x550x750mm), compatible with various FDM 3D printers including Neptune 3 Pro/4/4 Pro, Ender 3 series, and Kobra 2.
- **Reliable Safety:** Passes flame retardant tests, enhancing safety during the printing process.
- **Enhanced Protection:** Features waterproof, dustproof, non-stick pet hair, and noise reduction properties.

Stable Print Temperature

Make your prints with less risk of warping and poor bonding, improving print quality



Figure 6: Printer Enclosure for Stable Print Temperature.

This image demonstrates how the 3D printing enclosure helps maintain a stable internal temperature, which is crucial for reducing the risk of warping and improving print quality. A thermometer is shown indicating the internal temperature.

Wide Compatibility

Compatible with most of FDM 3D printer

Fits for :

- Neptune 2S
- Neptune 3 Pro
- Neptune 4
- Neptune 4 Pro
- Ender 3
- Ender 3 V2
- Ender 3 S1
- Ender 3 Pro

.....



Figure 7: Wide Compatibility of the Printer Enclosure.

The image highlights the broad compatibility of the enclosure, listing various 3D printer models it can accommodate, including Neptune 2S, Neptune 3 Pro, Neptune 4, Neptune 4 Pro, Ender 3, Ender 3 V2, Ender 3 S1, and Ender 3 Pro, along with its dimensions.

Reliable Safety

The Enclosure passes the flame retardant test to ensure the safety of the printing proces.



ELEGOO



Pass Test



Other

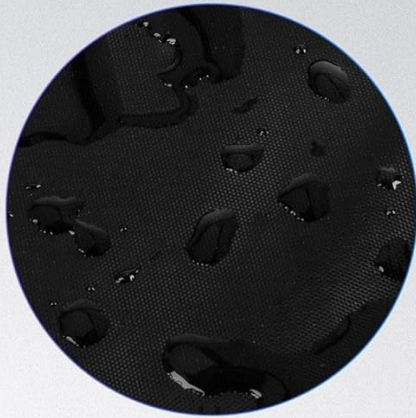


No Pass

Figure 8: Reliable Safety of the Printer Enclosure.

This graphic compares the ELEGOO enclosure's flame retardant properties (Pass Test) against a generic enclosure (No Pass), emphasizing its superior safety for the printing process.

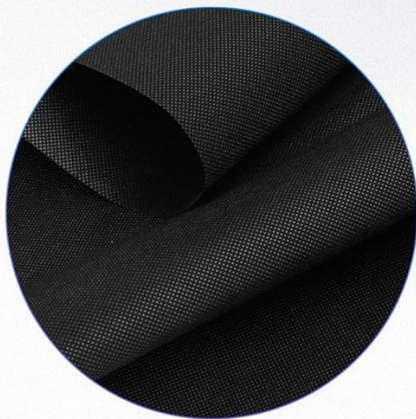
Better Protection



Waterproof



Non-Stick Pet Hair



Dustproof



Less noise

Figure 9: Enhanced Protection Features of the Enclosure.

This image highlights four key protective features of the enclosure: it is waterproof, non-stick for pet hair, dustproof, and contributes to less noise during operation.

3. SETUP

3.1. Printer Assembly

The ELEGOO Neptune 4 Pro is designed for easy assembly. Follow the detailed instructions provided in the separate quick start guide or assembly manual included with your printer. Ensure all components are securely fastened before proceeding.

3.2. Automatic Bed Leveling

The Neptune 4 Pro features an automatic bed leveling system. Power on the printer and navigate to the leveling function on the touchscreen interface. The printer will automatically probe the print bed at multiple points to create a mesh, ensuring optimal first layer adhesion. Manual adjustments may be required for fine-tuning after the automatic process.

3.3. Filament Loading

Due to its direct drive extruder, loading filament into the Neptune 4 Pro is straightforward. Insert the filament into the designated entry point on the extruder. The direct drive mechanism will grip the filament and feed it towards the hotend. Ensure the hotend is preheated to the appropriate temperature for your filament type before loading.

3.4. Enclosure Setup

Assemble the printer enclosure according to its specific instructions. Once assembled, carefully place your 3D printer inside the enclosure. Ensure proper ventilation and cable management. The enclosure is designed to fit various printer models, providing a stable environment for printing.

4. OPERATING INSTRUCTIONS

4.1. Preparing for Print

1. **Slice Your Model:** Use your preferred slicing software (e.g., Cura, PrusaSlicer) to prepare your 3D model. Configure print settings, including layer height, infill, print speed (up to 500mm/s for optimal performance), and support structures.
2. **Transfer G-code:** Save the sliced G-code file to a USB drive or transfer it via network if your printer supports it.
3. **Preheat Printer:** On the printer's touchscreen, preheat the nozzle and print bed to the temperatures recommended for your chosen filament. Utilize the segmented heated zones for efficient heating.
4. **Load Filament:** Ensure filament is properly loaded into the direct drive extruder.

4.2. Starting a Print

1. Insert the USB drive into the printer.
2. Navigate to the print menu on the touchscreen.
3. Select your G-code file and confirm to start the print.
4. Monitor the first layer to ensure proper adhesion. Adjust Z-offset if necessary.

4.3. Using the Touchscreen Interface

The intuitive touchscreen interface allows for easy navigation and control of the printer's functions. You can monitor print progress, adjust temperatures, control movement, and access various settings directly from the screen.

5. MAINTENANCE

5.1. Regular Cleaning

- **Print Bed:** Clean the print bed regularly with isopropyl alcohol to ensure good adhesion for future prints.
- **Nozzle:** Periodically check the nozzle for clogs or wear. Perform a cold pull or use a cleaning needle if necessary.
- **Guide Rails:** Keep the all-metal guide rails clean and free of debris to maintain smooth and precise movement.

5.2. Enclosure Care

The enclosure is designed to be dustproof and waterproof. Wipe down the exterior with a damp cloth as needed. Its non-stick pet hair surface makes it easy to keep clean. Regularly check the enclosure for any damage that might compromise its temperature stability or safety features.

6. TROUBLESHOOTING

6.1. Common Printing Issues

- **Poor First Layer Adhesion:**
 - Ensure the print bed is clean.
 - Re-run automatic bed leveling.
 - Adjust Z-offset slightly closer to the bed during the first layer.
 - Increase bed temperature if necessary.
- **Filament Clogging:**
 - Check hotend temperature for your filament type.
 - Clean the nozzle using a cleaning needle or cold pull method.
 - Ensure filament is not tangled on the spool.
- **Warping:**
 - Ensure the printer is inside the enclosure to maintain a stable ambient temperature.
 - Increase bed temperature.
 - Use a brim or raft in your slicing software.
- **Layer Shifting:**
 - Check belt tension on X and Y axes.
 - Ensure the printer is on a stable surface.
 - Reduce print speed if occurring at very high speeds.

6.2. Enclosure Related Issues

- **Temperature Fluctuations Inside Enclosure:**
 - Ensure all zippers and openings are fully closed during printing.
 - Avoid placing the enclosure in drafty areas.

7. SPECIFICATIONS

Feature	Specification
Brand	ELEGOO
Model	Neptune 4 Pro
Material	Metal
Operating System	Linux (for Klipper firmware)
Compatible Devices	Laptop, Smartphone (for control/monitoring)
Max Print Speed	500mm/s
Build Volume (Printer)	225x225x265mm (8.85x8.85x10.43 inches)
Enclosure Dimensions	650x550x750mm (25.5x21.6x29.5 inches)

8. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation included with your product or visit the official ELEGOO website. If you encounter any issues or require technical assistance, please contact ELEGOO customer support through their official channels.

ELEGOO Official US Seller: A2WWHQ25ENKVJ1