SainSmart CR-30

Creality CR-30 3D Printer User Manual

Model: CR-30

1. Introduction

Welcome to the user manual for the Creality CR-30 3DPrintMill, an innovative 3D printer designed for continuous and large-scale printing. This printer features an infinite Z-axis with a rolling conveyor belt, allowing for the production of exceptionally long prints or a continuous batch production of smaller parts. Its robust Core-XY structure ensures stable and precise operation. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your CR-30 3D printer.



Figure 1.1: Front view of the Creality CR-30 3D Printer, showcasing its unique belt system.

2. Safety Information

Please read all safety instructions carefully before operating the Creality CR-30 3D Printer. Failure to follow these instructions may result in injury or damage to the printer.

- **Electrical Safety:** Ensure the printer is connected to a grounded power outlet with the correct voltage (115V for US). Do not operate with damaged power cords.
- **Hot Surfaces:** The nozzle and print bed can reach high temperatures. Avoid direct contact during operation and allow components to cool before handling.
- **Moving Parts:** Keep hands and loose clothing clear of moving parts during operation to prevent entanglement.
- **Ventilation:** Operate the printer in a well-ventilated area to dissipate fumes from melting plastics.
- **Filament Handling:** Use caution when loading and unloading filament, especially when the hot end is heated.
- **Supervision:** Do not leave the printer unattended during operation.

3. Product Overview

The Creality CR-30 3DPrintMill is engineered for efficiency and continuous production. Key components include:

- **Infinite Z-axis Conveyor Belt:** A durable, wear-resistant belt that serves as the print surface, allowing prints to automatically detach and enabling continuous printing.
- **Core-XY Motion Structure:** Provides stable and precise movement for accurate printing.
- **Dual-Gear Metal Extruder:** Offers improved grip and consistent filament feeding, supporting large filament spools.
- **45-Degree Slanting Nozzle:** Optimized for continuous printing on the conveyor belt.
- **32-bit Silent Motherboard:** Ensures quiet operation and enhanced performance.
- **Filament Breakage Detection:** Automatically pauses printing if filament runs out or breaks.
- **MeanWell Power Supply:** Provides stable and reliable power to the printer.



Figure 3.1: Side view of the Creality CR-30, highlighting its angled design and conveyor belt.



Figure 3.2: Close-up of the dual-gear metal extruder, designed for reliable filament feeding.

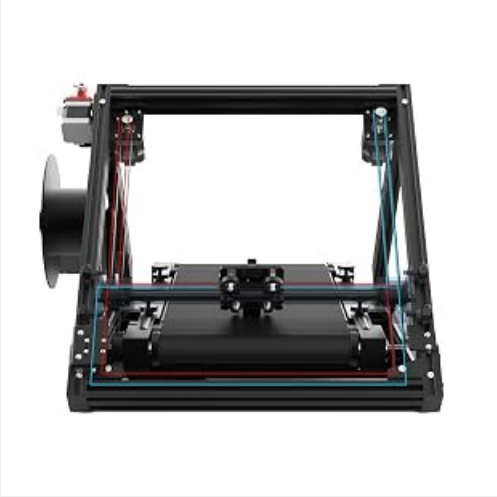


Figure 3.3: The filament breakage detection sensor, which helps prevent failed prints.



Figure 3.4: The MeanWell Power Supply, ensuring stable power delivery to the printer.

4. Setup

Follow these steps to set up your Creality CR-30 3D Printer:

1. **Unpacking:** Carefully remove all components from the packaging. Check the packing list to ensure all parts are

present and undamaged.

2. **Assembly:**
    - Attach the gantry to the base unit using the provided screws.
    - Mount the filament holder.
    - Connect all necessary cables, including power, motor, and sensor cables, ensuring they are securely fastened.
3. **Power Connection:** Before plugging in, verify the voltage switch on the power supply is set correctly for your region (e.g., 115V for US). Connect the power cable to the printer and then to a grounded wall outlet.
4. **Initial Leveling:** The CR-30's unique belt system requires specific leveling. Refer to the detailed leveling guide provided with your printer or online resources for precise instructions. Proper leveling is crucial for print adhesion and quality.
5. **Filament Loading:**
    - Place the filament spool on the holder.
    - Feed the filament through the filament detection sensor and into the extruder.
    - Preheat the hot end to the recommended temperature for your filament type.
    - Push the filament through the extruder until it emerges from the nozzle.

5. Operating Instructions

Operating the Creality CR-30 involves preparing your 3D model, slicing it, and initiating the print.

1. **Software Installation:** Download and install the dedicated "CrealityBelt" slicer software from the official Creality website. This software is optimized for the CR-30's unique belt design.
2. **Model Preparation:**
    - Import your 3D model (e.g., .STL, .OBJ) into the CrealityBelt slicer.
    - Adjust print settings such as layer height, infill density, print speed, and support structures as needed.
    - Pay special attention to the orientation of your model on the virtual print bed, considering the infinite Z-axis.
3. **Slicing:** Use the slicer software to convert your 3D model into G-code, which contains the instructions for the printer. Save the G-code file to an SD card.
4. **Initiating Print:**
    - Insert the SD card into the printer's card slot.
    - Navigate the printer's menu using the control knob and LCD screen.
    - Select "Print from SD" and choose your G-code file.
    - The printer will begin preheating the nozzle and bed, then start the printing process.
5. **Monitoring Print:** Observe the first few layers to ensure proper adhesion and extrusion. The conveyor belt will slowly advance as printing progresses, allowing for continuous output.
6. **Print Removal:** Finished prints will automatically detach from the conveyor belt as they reach the end, falling into a collection area (if applicable). For larger prints, they will extend off the belt.



Figure 5.1: The CR-30 printing multiple small objects in a continuous production line.



Figure 5.2: The CR-30 demonstrating its ability to print exceptionally long objects, such as a sword, due to its infinite Z-axis.

6. Maintenance

Regular maintenance ensures optimal performance and extends the lifespan of your CR-30 3D Printer.

- **Conveyor Belt Cleaning:** Periodically clean the conveyor belt to remove any residual filament or debris. Use a soft cloth and isopropyl alcohol if necessary.
- **Nozzle Cleaning:** Clean the nozzle regularly to prevent clogs. Use a brass brush or needle to remove any hardened filament.
- **Lubrication:** Apply a small amount of lubricant to the smooth rods and lead screws every few months to ensure smooth movement of the print head and belt.
- **Belt Tension:** Check the tension of the conveyor belt and timing belts. Adjust if they are too loose or too tight according to the printer's specifications.
- **Firmware Updates:** Check the official Creality website for any available firmware updates to improve printer performance and add new features.

7. Troubleshooting

This section addresses common issues you might encounter with your Creality CR-30 3D Printer.

Problem	Possible Cause	Solution
Print not sticking to belt	Improper belt leveling, dirty belt, incorrect first layer settings.	Re-level the belt. Clean the belt with isopropyl alcohol. Adjust first layer height and temperature in slicer.
Filament not extruding	Clogged nozzle, tangled filament, incorrect temperature.	Clear nozzle clog. Untangle filament. Verify hot end temperature is appropriate for filament type.

Problem	Possible Cause	Solution
Layer shifting	Loose belts, print speed too high, motor issues.	Check and tighten timing belts. Reduce print speed. Inspect motor connections.
Printer making unusual noises	Loose components, lack of lubrication, worn bearings.	Inspect and tighten all screws. Lubricate moving parts. Check for worn bearings.
"Unable to slice" error	Slicer software issue, corrupted model file.	Ensure CrealityBelt slicer is up to date. Try re-downloading or repairing the 3D model file.

8. Specifications

Detailed technical specifications for the Creality CR-30 3D Printer:

- **Model:** CR-30
- **Print Technology:** FDM (Fused Deposition Modeling)
- **Print Dimensions:** 200 x 170 x ∞ mm (Infinite Z-axis)
- **Machine Dimensions:** 21.06"D x 25.83"W x 11.89"H (535 x 656 x 302 mm)
- **Item Weight:** 36.4 Pounds (approx. 16.5 kg)
- **Nozzle Diameter:** Standard 0.4mm (can be replaced)
- **Layer Thickness:** 0.1mm - 0.4mm
- **Printing Speed:** Up to 80-100mm/s (typical)
- **Supported Filaments:** PLA, TPU, PETG, etc.
- **Input Voltage:** 115V/230V AC (switchable)
- **Connectivity:** SD Card
- **Motherboard:** 32-bit Silent Board
- **Extruder:** Dual-Gear Metal Extruder
- **Build Surface:** Nylon Conveyor Belt



Figure 8.1: Diagram illustrating the print dimensions, including the infinite Z-axis.

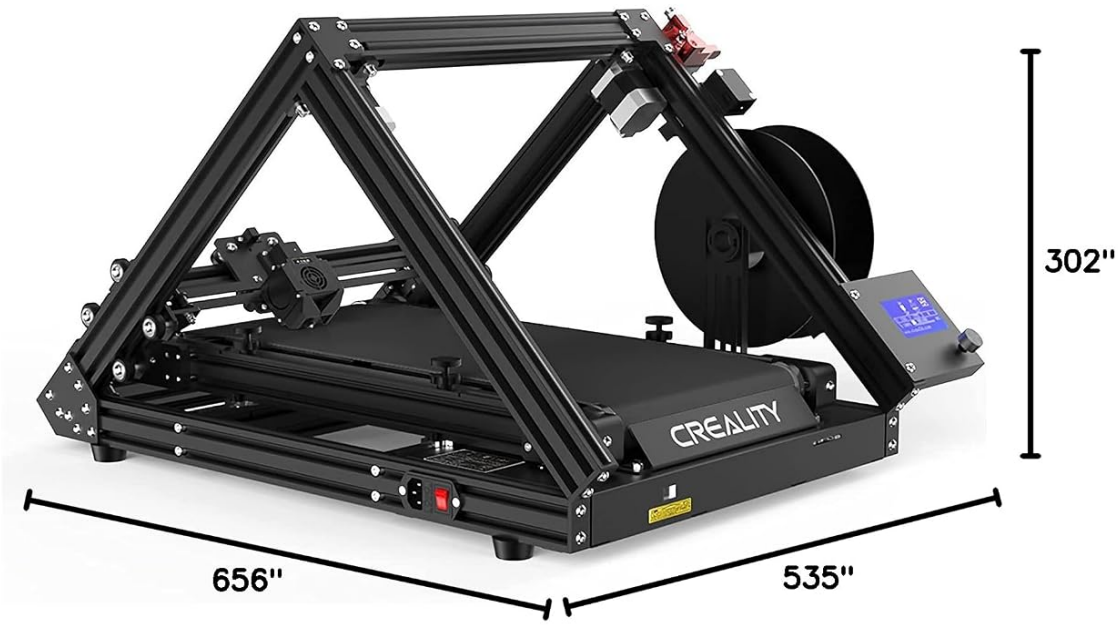


Figure 8.2: Overall dimensions of the Creality CR-30 3D Printer.

9. Warranty and Support

SainSmart provides warranty and technical support for the Creality CR-30 3D Printer.

- **Warranty Information:** For detailed warranty terms and conditions, please refer to the warranty card included with your product or visit the official SainSmart website.
- **Technical Support:** If you encounter any issues not covered in this manual or require further assistance, please

contact SainSmart customer support.

- Visit the SainSmart Store on Amazon for product information and support resources.
- Consult the official User Manual (PDF) for additional details.

- **Community Resources:** Consider joining online communities or forums dedicated to Creality CR-30 users for peer support and shared knowledge.

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