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› [Creality](#) /

› Creality Sprite Extruder Instruction Manual for Ender-3 S1 / Ender-3 S1 Pro / CR-10 Smart Pro

Creality AMUS-LD-3D-AC-Sprite-Metal

Creality Sprite Extruder Instruction Manual

For Ender-3 S1, Ender-3 S1 Pro, and CR-10 Smart Pro 3D Printers

1. PRODUCT OVERVIEW

The Creality Sprite Extruder is an all-metal, dual-gear direct drive extruder designed to enhance the printing capabilities of compatible 3D printers. It features a compact design, high extrusion force, and supports a wide range of filament types, including flexible and high-temperature materials.

Dual Gear Feeding

More Stable Printing



Dual gear
feeding



Large torque



3.5:1
Gear ratio



Extrusion force up to 80N

Image 1.1: Front view of the Creality Sprite Extruder.

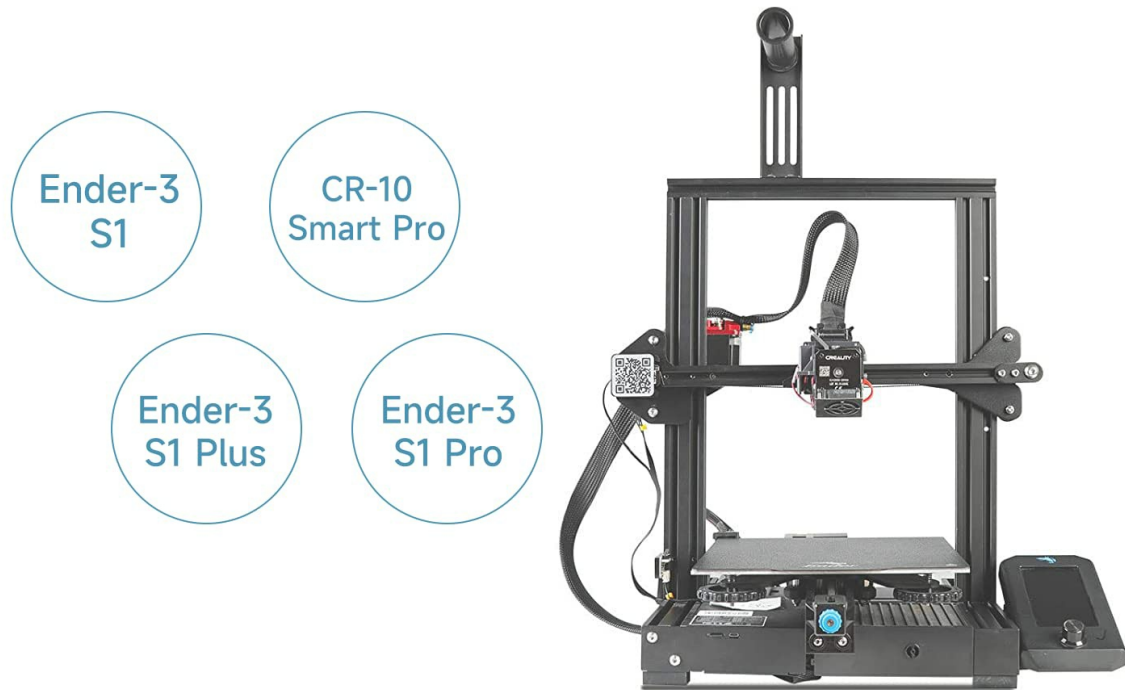
2. COMPATIBILITY

This Sprite Extruder is specifically designed for use with the following Creality 3D printer models:

- Creality Ender-3 S1
- Creality Ender-3 S1 Pro
- Creality CR-10 Smart Pro

Note: This item does not include a control board, mounting bracket, or wiring. It is intended as a direct replacement or upgrade for the specified compatible printers.

Suitable 3D Printer Model



Enable your 3D Printers a Direct Drive Extrusion
& High Temperature Printing Condition

Image 2.1: The compact Sprite Extruder and compatible 3D printer models.

3. KEY FEATURES

3.1 Dual Gear Feeding System

The extruder incorporates a double-toothed structure with a 3.5:1 gear ratio, providing an extrusion force of up to 80N. This design ensures stable and precise filament feeding without damaging the filament, leading to more consistent and reliable prints.

All Metal Hotend Kit



Strong
scalability



Adjustable
tension

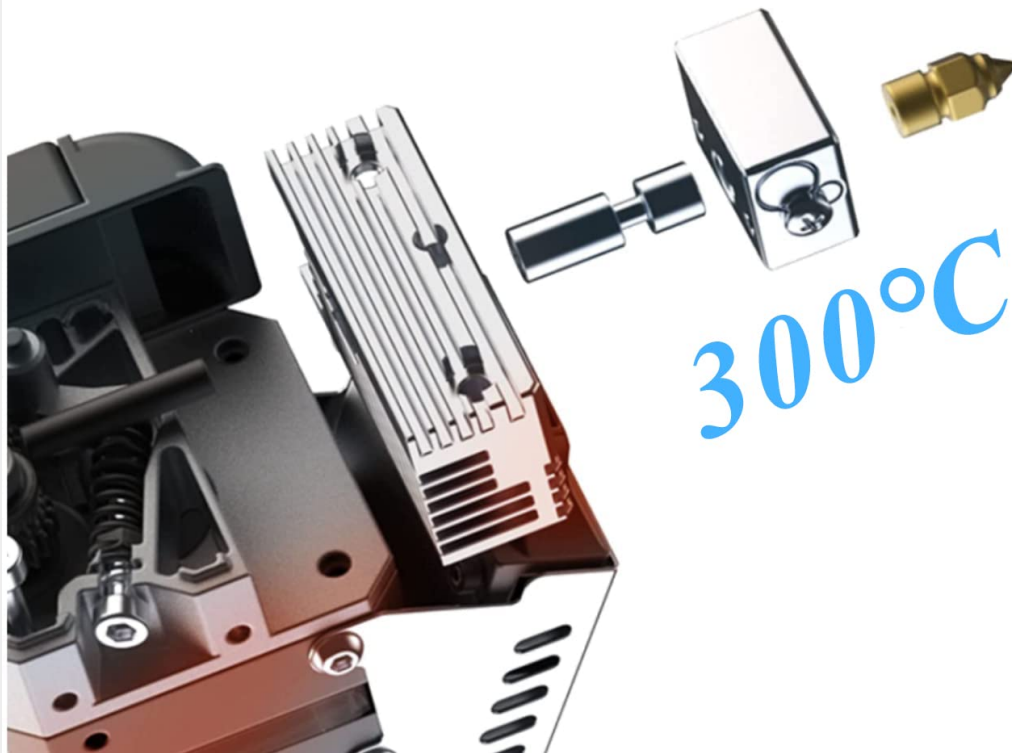


Image 3.1: Illustration of the dual gear feeding system.

3.2 All-Metal Hotend

Equipped with an all-metal hotend kit, the Sprite Extruder can reach temperatures up to 300°C. This allows for printing with a wider variety of 1.75mm filaments, including PLA, TPU, PETG, ABS, PA, and PC.

Efficient Heat Dissipation

Worry-free Printing



Efficient heat
dissipation



Multi-module
switching



Image 3.2: Components of the all-metal hotend kit.

3.3 Efficient Heat Dissipation

The extruder features an optimized heat dissipation design, crucial for maintaining stable printing temperatures and preventing heat creep, especially during long print jobs or when using high-temperature filaments.

Small Sprit Huge Power



Small sprite



Easy to operate

288g



Image 3.3: Heat dissipation features of the Sprite Extruder.

3.4 Adjustable Tensioner

An adjustable tensioner allows users to fine-tune the pressure exerted by the drive gears on the filament. This feature is essential for optimizing extrusion for different filament types and achieving higher print quality.

4. SETUP AND INSTALLATION

Installation of the Sprite Extruder requires careful attention to detail. It is recommended to consult the specific installation guide provided with your 3D printer model for detailed steps, as this manual provides general guidance.

4.1 Pre-Installation Checks

- Ensure your 3D printer is powered off and unplugged from the mains.
- Gather necessary tools, which typically include screwdrivers, Allen wrenches, and possibly wire cutters.
- Familiarize yourself with the existing extruder setup on your printer.

4.2 Physical Installation

1. Carefully remove the existing extruder assembly from your 3D printer.
2. Mount the Sprite Extruder onto the X-axis carriage of your printer. Ensure all connections are secure and properly aligned.
3. Connect the stepper motor and hotend wiring to the appropriate ports on your printer's mainboard. Pay close attention to wiring diagrams to avoid damage.

4.3 Firmware Configuration (E-steps Calibration)

After physical installation, it is crucial to calibrate the extruder's E-steps (extrusion steps per millimeter) in your printer's firmware. The default E-steps value for the Sprite Extruder is typically around **424.9 steps/mm**, compared to a Bowden setup's default of approximately 93 steps/mm.

1. Access your printer's firmware settings. This may involve connecting your printer to a computer and using a terminal program, or loading a G-code file via an SD card.
2. Modify the E-steps/mm value to the recommended setting for the Sprite Extruder (e.g., M92 E424.9).
3. Save the new settings to the printer's EEPROM (M500 command). Note that some firmware versions may require flashing a custom firmware or using specific utilities to permanently save these settings.
4. Perform an extrusion calibration test to verify the accuracy of the E-steps.

For detailed instructions on firmware updates and E-steps calibration, refer to the official Creality support resources or community guides for your specific printer model. A general guide can be found at:

<http://qr21.cn/DgbPVQ>

5. OPERATING INSTRUCTIONS

5.1 Filament Loading

1. Preheat the hotend to the appropriate temperature for your filament type.
2. Gently squeeze the extruder lever to open the filament path.
3. Insert the filament into the extruder opening until it engages with the gears.
4. Continue pushing the filament until it exits the nozzle. Release the lever.
5. Initiate a small extrusion command from your printer's control panel to ensure smooth flow.

5.2 Filament Unloading

1. Preheat the hotend to the filament's printing temperature.
2. Once heated, gently squeeze the extruder lever.
3. Pull the filament upwards and out of the extruder.

5.3 Adjusting Extrusion Tension

The Sprite Extruder features an adjustable screw to control the tension on the filament. This is important for optimal extrusion with different filament types and diameters.

- **Too little tension:** Filament may slip, leading to under-extrusion. Tighten the adjustment screw slightly.
- **Too much tension:** Filament may be deformed or crushed, leading to inconsistent extrusion or clogs. Loosen the adjustment screw slightly.

Adjust tension incrementally and perform test prints to find the ideal setting for your specific filament.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Sprite Extruder.

6.1 Regular Cleaning

- Periodically clean the extruder gears to remove any accumulated filament dust or debris. Use a small brush or compressed air.
- Ensure the hotend cooling fan is free from obstructions to maintain efficient heat dissipation.

6.2 Hotend Inspection

- Inspect the nozzle for wear or damage. Replace if necessary.
- Check for any filament leaks around the hotend assembly. Tighten components if leaks are observed, ensuring the hotend is at printing temperature during tightening to prevent cold-tightening issues.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with the Sprite Extruder.

Issue	Possible Cause	Solution
Under-extrusion / Skipping	Filament tension too low, clogged nozzle, incorrect E-steps, heat creep.	Increase filament tension, clean/replace nozzle, verify E-steps calibration, ensure proper hotend cooling.
Over-extrusion	Filament tension too high, incorrect E-steps.	Decrease filament tension, verify E-steps calibration.
Filament grinding	Nozzle clog, excessive tension, heat creep, printing too fast.	Clear clog, reduce tension, check cooling, reduce print speed.
Poor layer adhesion	Under-extrusion, incorrect print temperature.	Address under-extrusion, adjust print temperature.

8. TECHNICAL SPECIFICATIONS

Model Number: AMUS-LD-3D-AC-Sprite-Metal

Brand: Creality

Extrusion Type: Direct Drive, Dual Gear

Filament Diameter: 1.75 mm

Max Hotend Temperature: 300°C

Extrusion Force: Up to 80N

Gear Ratio: 3.5:1

Material: All-metal construction (Acrylonitrile Butadiene Styrene, Polycarbonate, Polylactic Acid for other components)

Item Weight: 13.7 ounces (approx. 388 grams)

Package Dimensions: 4.17 x 3.31 x 3.23 inches

9. WARRANTY AND SUPPORT

9.1 Warranty Information

The Creality Sprite Extruder comes with a 1-year limited warranty. This warranty covers manufacturing defects and ensures the product meets its specified performance standards under normal use.

9.2 Customer Support

For technical assistance, troubleshooting, or warranty claims, please contact Creality customer service. A team of engineers is available to provide 24/7 customer service and lifetime technical assistance.

You can typically reach support through the 'Ask a Question' feature on the product's purchase platform or via the official Creality website's support channels.