

Maintenance Guide for Concrete 3D Printers

1. Core Printing System (Blockage Prevention Priority)

- Nozzle/Extruder:
 - Clean nozzle residues with a stiff brush immediately after each print.
 - For clogs (on supported models): Heat the nozzle to 30-50°C + use manual retraction to clear.
 - Regularly disassemble the screw assembly: Scrape off hardened concrete and wipe clean with alcohol.
- Hopper/Feeding Tube:
 - Empty the hopper after printing.
 - Purge the feeding tube with high-pressure air or rinse with water (dry thoroughly afterward).
 - Check for wear/cracks—replace if damaged to avoid leaks.

2. Motion Transmission System

- Weekly: Wipe rails and ball screws with alcohol to remove dust; apply lithium-based grease to rails and high-temperature grease to Z-axis screws.
- Monthly: Check for smooth movement—adjust belt tension or replace worn bearings if stuck/noisy.
- Print Bed:
 - Monthly: Recheck levelness with a spirit level (error $\leq 0.1\text{mm}$); adjust support screws if needed.
 - Before each print: Run "Auto Home"; calibrate nozzle-bed gap (1-2mm) with A4 paper for first-layer adhesion.

3. Electrical & Control System (Moisture/Dust Protection)

- Circuitry/Main Unit:
 - Always power off first: Wipe the case and touchscreen with a dry cloth; blow dust off the mainboard with cold air (never use wet cloths).
 - Inspect power/data cables regularly; use a grounded 3-pin socket to avoid electric leakage.
- Software/Communication:
 - Update firmware and slicing software periodically.
 - Monthly: Test USB/Ethernet connection stability—reinstall drivers or check cables if communication fails.

4. Long-Term Shutdown & Environmental Care

- Long-Term Storage:
 - Thoroughly clean all concrete residues.
 - Reset axes to origin; apply extra grease for rust protection; cover with a dust cover.
- Environment Requirements:
 - Place in a well-ventilated, low-dust area.
 - Keep away from vibration, high temperature, and humidity to prevent damage.