TOOLOTS 3D Printer Machine Instructions

TOOLOTS
3D Printer Instructions and Precautions

Contents

3D Printer Machine

This manual describes the operation precautions of 3D printer. Please read it carefully and abide by the corresponding specifications.
Improper use of equipment may cause damage and even personal injury.

1. **Equipment Parameters**

   Number of nozzles: two in and one out

   Nozzle diameter: 0.6 mm

   Maximum set temperature of nozzle: 260℃

   Printing speed: 50-120mm/s

   Maximum set temperature of the platform: 60℃

   Leveling mode: Automatic leveling

   Supporting material: PLA/PEGT

   Print size: 600*600*80mm 800*800*80mm

   Layer accuracy: 0.1-0.4 mm

   Printing accuracy: ± 0.1mm
2. **Placement conditions**

The equipment should be placed in a clean, dust-free and dry environment, and away from fire sources, dangerous sources and high-power electrical equipment.

The equipment must be equipped with random supporting feet to enable the equipment to run stably.

The environmental temperature should not exceed 35℃, otherwise it will easily lead to blockage, and it is easy to warp the shell when it is used in low temperature (below 10℃).

3. **Printing Temperature and Speed**

   The maximum printing temperature of the equipment is 260℃, so the printing temperature should be adjusted according to the speed. If the temperature is too high, bubbles will be generated on the surface, and the printing quality will decline. If the temperature is too low, regular dot nodes will appear on the surface, which should be adjusted according to the actual printing situation.

   The following are common speed and temperature matching:

   Printing speed: 60mm/s Printing temperature: 210℃

   Printing speed: 80mm/s Printing temperature: 230℃

   Printing speed: 100mm/s Printing temperature: 250℃

4. **Hot Bed Temperature**

   The maximum temperature of hot bed should not exceed 60℃, otherwise the material will soften. The recommended temperature for PLA materials is 40-50℃, and the recommended temperature for PETG materials is 50-60℃

5. **Shutdown Precautions**

   When turning off the printer, the nozzle temperature should be reduced to below 100℃ to prevent the nozzle from blocking.

6. **Loading and Unloading Precautions**

   When printing materials are loaded, all materials on both sides should be loaded one by one, and the extrusion of materials should be controlled. Printing can only be carried out if both materials are extruded, otherwise there will be a risk of blockage.

   When replacing or discharging consumables, the nozzle temperature should be heated to above 180℃, and the two materials should be extruded first, and then the material return operation should be carried out after no blockage is confirmed.

7. **Precautions for 3D Touch Automatic Leveling**

   Under normal conditions, the red and blue indicators of 3D Touch are always light up. When there is a fault, the red lights up. At this time, it should be checked whether the probe is bent, resulting in error in return. When the 3D Touch is leveled or working back to zero, the blue lights up.

   Be careful not to hit the 3D Touch probe with external force.

8. **Precautions**

   The highest temperature of the nozzle can reach 260℃. It is forbidden to touch the heated nozzle directly by hand to prevent scalding.

   The maximum temperature of the hot bed can reach 60℃ and above. Avoid touching the hot bed directly by hand for a long time to prevent scalding. In addition, it is forbidden to place flammable materials, such as high-pressure gas and flammable substances, on and around the hot bed to prevent accidents.

   It is forbidden to touch the motor by hand when working, and the surface temperature can reach up to 70℃ to prevent scalding; In addition, it is forbidden to touch gears, transmission belts, etc. to prevent mechanical injury, and it is also forbidden to use other articles to touch gears, transmission belts, etc. to prevent danger.

9. **Common Faults and Troubleshooting Methods**

Equipment Failure

	Fault	Presentation item	Check item	Reason	Exclusion operation
1	The machine cannot be started	Press the power button, the screen does not respond, and the automatic leveling probe or cooling fan responds	Whether the SD card/U disk is inserted, and whether the screen cable is firm	SD card/U disk read error, SD card/U disk file abnormality, loose cable lead to screen power supply abnormality	Pull out the SD card/U disk and restart the equipment. If it can't be solved, check whether the screen cable is abnormal
2	Automatic leveling probe abnormality	When the needle drops during printing, the red indicator flashes			Equipment restart
		After startup, the red indicator of leveling probe flashes	Whether the probe is bent and can it be ejected and recovered normally	The probe is bent due to the impact of external force and cannot be automatically ejected and recovered	Manually dial back, manually pull out and send back, and restart the equipment
		The Z-axis cannot descend	Move the Z-axis in the manual adjustment interface, whether it moves normally, whether the probe bends, whether it pops up and recovers normally	The probe is bent due to external force impact, which can not be automatically ejected and recovered, and the Z-axis limit point can not be found, and the Z-axis motor or drive is damaged	Manually dial back the leveling probe, manually pull it out and send it back, and restart the equipment. If the Z-axis of the manual adjustment interface cannot rise and fall normally, further hardware inspection is needed
		The Z-axis has been descending	Abnormal leveling probe, nozzle residue	The leveling probe is bent or tilted, and the nozzle has unmeted residue	Check whether the leveling probe is normal, check whether there is residual material in the nozzle, and clean the nozzle
3	Automatic leveling anomaly	Leveling at the same position	Whether to refresh firmware	Firmware error refresh	Refresh firmware
4	Z-axis too high or too low	When printing, it hits the hot bed, cuts the masking paper or cannot be compacted	Abnormal leveling probe, incorrect probe position	The leveling probe is bent or tilted, and the probe position is too high or too low	Check whether the leveling probe is normal and readjust the probe height

5	X-and Y-axis impact	The X or Y axis continuously moves in one direction and hits the frame	Is the X-or Y-axis limiting equipment normal	X-or Y-axis limit equipment is stuck, the limit equipment is damaged, and the limit equipment line is faulty	Manually toggle the limit switch, check whether it is stuck, check whether the wire of the limit equipment is loose and falls off, and whether it is abnormal short circuit, but it still cannot be solved. Try to replace the accessories
6	Abnormal X, Y, Z-axis movement	Axis XYZ is abnormally moving or unable to move	Whether the equipment is connected to the ground wire, whether it can move normally in the manual leveling interface, and check whether the line is loose	Loose line, high temperature or short circuit of ZXY-axis drive, damage	Turn off the equipment, turn on the equipment after 10 minutes and move the XYZ-axis in the manual adjustment interface. If it cannot be solved, try to replace the hardware
7	Unable to heat up	Indicate that the thermal power is insufficient	Select a hot bed or nozzle at the preheating interface, check which one cannot be heated, and show whether the temperature is abnormal	Loose hood wiring or damaged temperature sensor	If the hot bed cannot be heated, check whether the power supply line of the hot bed in the main control box is loose, if the nozzle cannot be heated, check whether the circuit board wires behind the hood are loose, if the hot bed cannot be heated after being plugged in stably, and if the temperature shows obvious abnormality and abnormal jumping, replace the temperature sensor
8	Constant plugging	Frequent abnormal plugging	Check whether the cooling fan of the heat dissipation module works normally	The fan plug is loose, the plug position is incorrect, the fan fixing screw is too tight, the conversion circuit board is damaged, and the fan is damaged	Open the hood to find the cooling fan plug, check whether it is loose, interchange the plug with the material cooling fan and open it in the fan manual adjustment interface to check whether it works normally. If both fans can’t work normally, check whether the circuit board is damaged and whether the fan is damaged

9	Abnormal stop durin g printing	The printing proces s stopped abnormal ly, and the screen d isplayed white font on black backgroun d with fault code	Observation err or prompt, Homi ng Failed is the anomaly of prob e leveling, Print er HALTED is th e anomaly of ho t bed heating	Abnormal temper ature rise or wrong leveling of hot bed	If the hot bed is abnor mal, it needs to be rest arted. Start preheating to observe whether the h ot bed is normal. If the temperature cannot be raised, check whether the power cord of the hot bed of the motherb oard is loose. If the lev eling is wrong, restart t o check whether the le veling probe can work normally and bend. Aft er normal adjustment, re-level
10	Incorrect return to z ero position	The zero return pos ition is at the left rear of the e quipment	Whether to inse rt USB flash drive and r efresh firmware	U disk reading er ror or abnormal data, fir mware error refresh	Pull out the USB flash drive and refresh the firmware a gain

Print Failure

	Fault	Presentation item	Check item	Reason	Exclusion operation
1	Curved edge	It is easy to warp ed ges when printing w ord shells	Check whether th e first layer printin g is normal, wheth er the printing spe ed is too fast, suc h as whether ther e is enough glue o n the glass	The Z-axis is too hi gh, which leads to t he first layer not be ing compacted, the printing speed is to o fast, the glue on t he glass platform i s missing, and the attached skirt is ad ded to the parts wit h too high or long s traight lines	Adjust the position of t he leveling probe, redu ce the printing speed, c heck the glue, it is easy to warp the edge i f it is too high or long st raight line, so it is nece ssary to print the auxili ary skirt around the wo rd shell
2	Impact shell	Impact printed parts when printing or ch anging colors	Whether there is e nough color change area, check whether the leveling probe dro ps needles and w hether the softwar e printer settings are correct	Insufficient color ch ange area, needle drop of leveling pro be, wrong printer p arameter equipment	Leave enough color ch ange area, check the l eveling probe and check the printer para meters

3	Corner pile collapse	The appearance at the corner of the shell is very poor	Whether the size of the printed piece is too small, whether the printing speed is too fast, and whether the inclination angle is too large	The material is too late to cool or the inclination angle is too large to hang the material	Reduce printing speed and adjust tilt angle
4	The joint is obvious	There are obvious joints and affect the use of word shell	Is the pullback supplementary value too large	Excessive supplementary materials for withdrawal	Reduce the supplementary value of withdrawal
5	The joint is easy to break	The joint is not firm, easy to break and leak light	Is the pullback supplementary value too small	Too little supplementary materials for withdrawal	Increase the supplementary value of withdrawal
6	Stacking at joint	Excessive materials at the starting point affect the appearance and use	Whether the withdrawal parameters and additional withdrawal supplementary values are abnormal	Insufficient withdrawal or excessive additional withdrawal	Increase the withdrawal distance and reduce the extra supplement of withdrawal
7	Leakage	One or more layers have obvious material shortage, light leakage now, and are easy to crack	Whether the material at the rack is wound and knotted, whether the nozzle is blocked, whether the extruder is tightened or not	Material knotting leads to insufficient feeding, nozzle blockage and insufficient extrusion of extruder	Wire management of consumables, cleaning nozzle, checking torque screw of extruder
8	Wire drawing	When printing multiple parts, filaments appear between the parts and are connected into sheets, which affects the use of	Whether the printing speed is too fast, whether the printing temperature is too high, whether the withdrawal parameters are correct, whether the Z-axis lifting is turned on when moving	If the printing speed is too fast and the temperature is too high, the wire drawing situation will be extremely serious, the drawing distance will be insufficient or the Z-axis lifting height will be insufficient	Reduce the printing speed, reduce the printing temperature to the reasonable range of materials, check the withdrawal distance and whether the Z-axis lift is turned on
9	Print offset	Print to a certain layer with horizontal or vertical offset, not in the original position	X or Y axis in the printing process by external force displacement, such as printing on a glass platform, whether the glass displacement	The X or Y axis is displaced by external force, and the glass is driven by the machine head or displaced by external force	Reprint

10	Missing print part	When printing the whole word shell, a certain part cannot print normally	Is the preview of slice file missing	File import exception, slice data exception, export data exception	Re-export the file, re-slice and check the preview

Documents / Resources

	TOOLOTS 3D Printer Machine [pdf] Instructions 3D Printer Machine, 3D, Printer Machine, Machine, Printer