

Final Thoughts on Leveling and Printing with Tru-Touch Probe

Good printing starts from perfect leveling.

You may run leveling once in a while or before every print. Your probe will let you run leveling as often as you wish without worrying about probe cycle lifetime limits.

I don't know if anyone has formally counted the piezo cycles, but from a power-user perspective, a piezo probe is essentially immortal unless it is physically or electrically damaged. It keeps its parameters stable over time and temperature fluctuations.

Yet there are practical limitations to how you should use your probe.

It is known that borosilicate-glass beds are durable and do not warp with temperature changes. It is also known that 3D printer nozzles ooze significantly at high temperatures.

These two factors tell us that probing can be safely done on either a cold or warm bed, but **not** with the hot-end heated to the filament's melting point — as this will leave blobs on the bed and disable proper tap detection due to filament oozing from the nozzle.

Therefore, the nozzle and the bed must be very clean and filament-free while probing. Otherwise, probing will either fail or give distorted readouts, compromising your perfect first layer.

So the best strategy for successful probing is to clean your bed and the nozzle before every scan.

Probing will go smoothly on either cold or warm bed as long as there is no debris between the nozzle and the bed.

Hence the recommended startup sequence for your print:

```
[gcode_macro START_PRINT]
gcode:
  {% set bed_temp = params.BED|default(60)|int %}
  {% set hotend_temp = params.HOTEND|default(200)|int %}
  G90                                # Use absolute positioning
  M83                                # Set extruder to relative mode
  G21                                # Set units to millimeters
  M107                               # Fan off
  M140 S{bed_temp}                   # Set bed temp (no wait)
  M190 S{bed_temp}                   # Wait for bed temp
  G28                                # Home all axes
  # Better home axes (especially Z) while hotend is cold for better probe response
  G28 X Y                            # You may clean the nozzle now
  M104 S{hotend_temp}                # Set hotend temp (no wait)
  M109 S{hotend_temp}                # Wait for hotend temp
  BED_MESH_PROFILE LOAD=default      # Load saved mesh
  G92 E0                             # Reset extruder
  G1 Z3.0 F3000                      # Lift nozzle
  G1 X0 Y0 F3000                    # Move to prime position
  ;G1 F1400 E5                       # Extrude 5mm of filament (optional)
  G92 E0                             # Reset again
  SET_GCODE_OFFSET Z_ADJUST=-0.07 MOVE=1
  # Z_ADJUST must be added to any Z position in g-code commands.
  # Negative value means lower distance between bed and nozzle.
```

The best way to keep the nozzle clean is to wipe it with a kitchen paper towel or a soft rag soaked with IPA while it is still very hot after the last print. This way the nozzle is clean and ready for the next probing cycle every time.

ATTENTION! Care must be taken not to touch the hot-end directly with your fingers to avoid burns or other injuries.

Thank you all for reading.

I hope that the True-Touch Probe will make your printing experience better, and your first layers smoother than ever before.

Happy printing :)