



CubeX 3D printer

How to Set Z-GAP



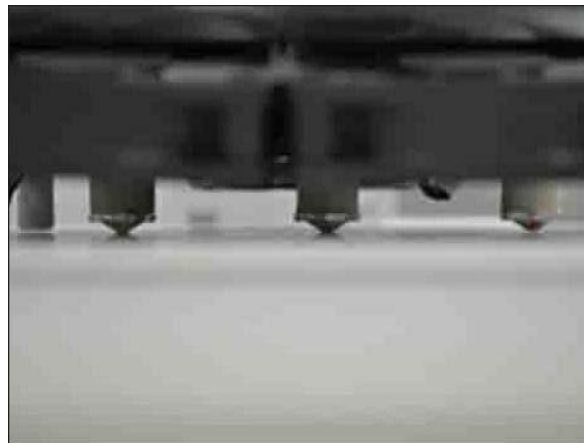
Procedure

1. Ensure the print bed is on place on the printer and nothing parts are on the Print Pad.
2. Go to the Z-Gap Icon and press to bring up the Z-Gap setting screen.



3. If the setting is 0.00, bring the print bed up until the nozzle tips are just touching the print bed. It may be helpful to see if the reflection of the tip on the bed contacts the tip. This is easier by looking straight into the printer at the print bed level.

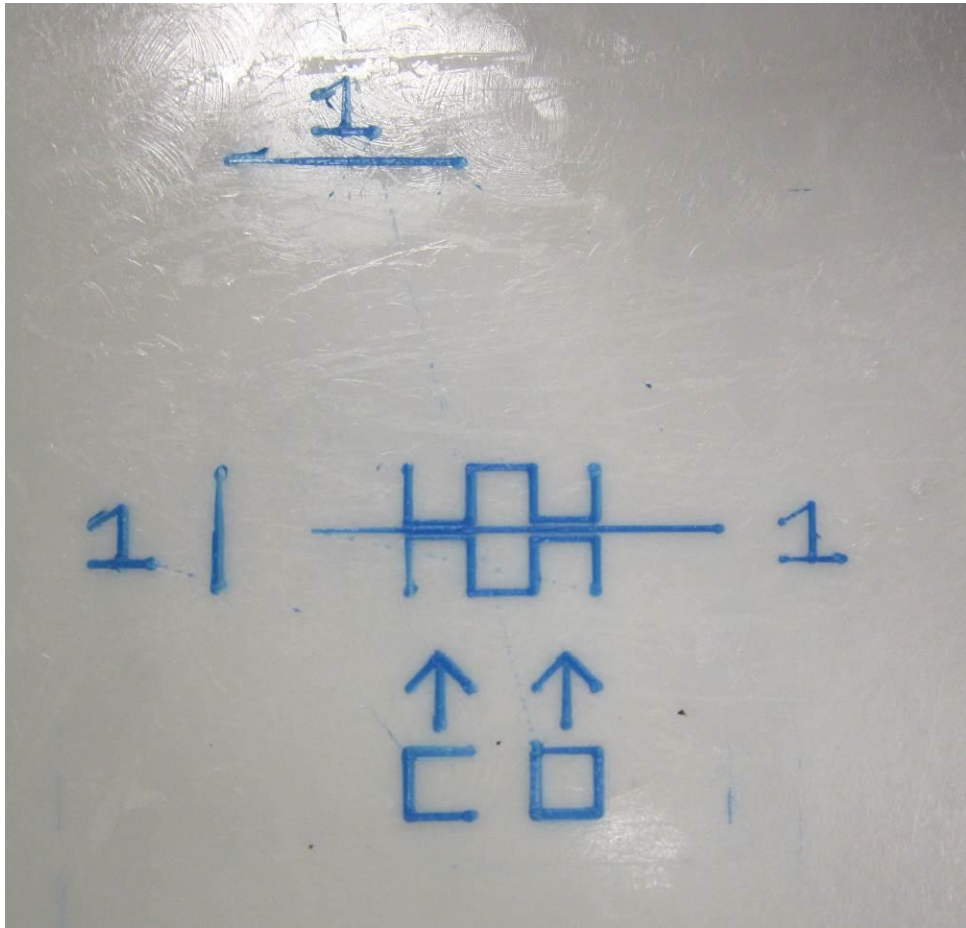
If the setting is not 0.00, record the value and lower the print bed so the nozzles are NOT touching. Then bring the print bed up until the nozzle tips are just touching the print bed.



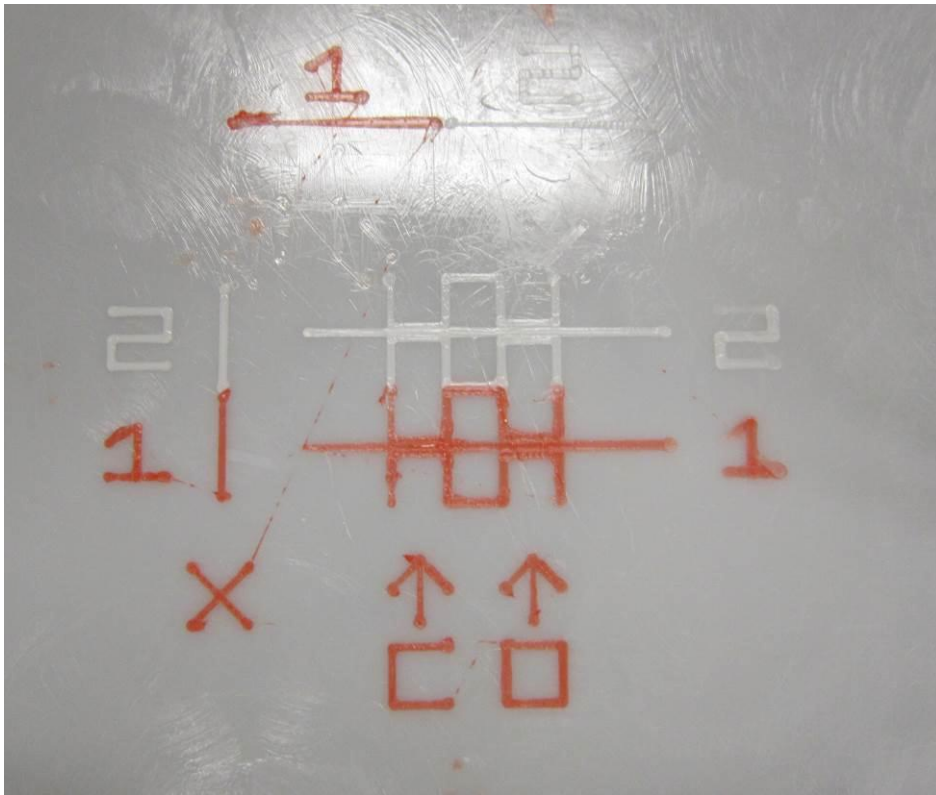
Once nozzles are just touching, lower the Print Pad by 0.1 to produce a large enough Z gap for printing.

4. Add thin film of Magic Glue to $\sim 7\text{in}^2$ (175mm²) area in center of print bed.
5. Run the appropriate Gap.CUBEX file sample to the respective printer.(i.e., GAP_Test_PLA_Single.cubex for a single print jet printer, DUO for a two print jet printer, and Trio for a three print jet printer.)

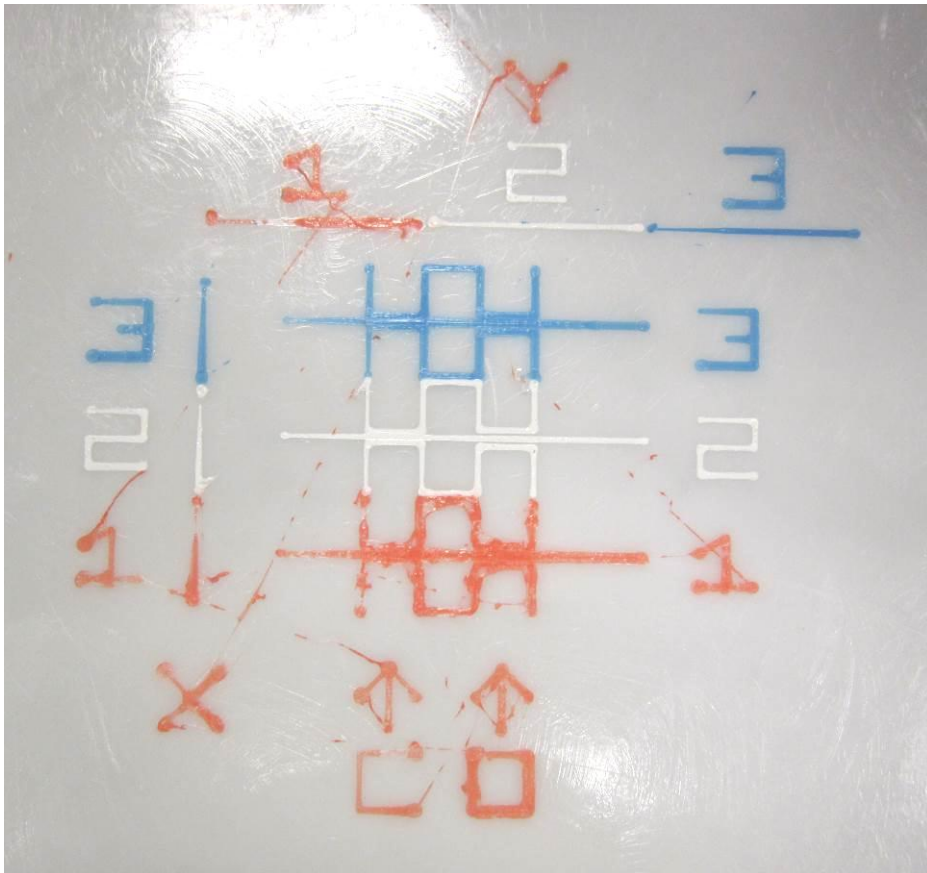
6. The samples will look like the following images.



Single Print Jet Sample- GAP_Test_PLA_Single.cubex



Two Print Jet Sample- GAP_Test_PLA_Duo.cubex



Three Print Jet Sample- GAP_Test_PLA_Trio.cubex

7. Criteria: The following 2-criteria must be met for a good Z-GAP

- a. The C Arrow in Figure 1 designates the CLOSED metric where NO space should be open above or below the test line. It should be CLOSED.
- b. The O Arrow in Figure 1 designates the OPEN metric where space MUST be open above and below the line. It should be OPEN.

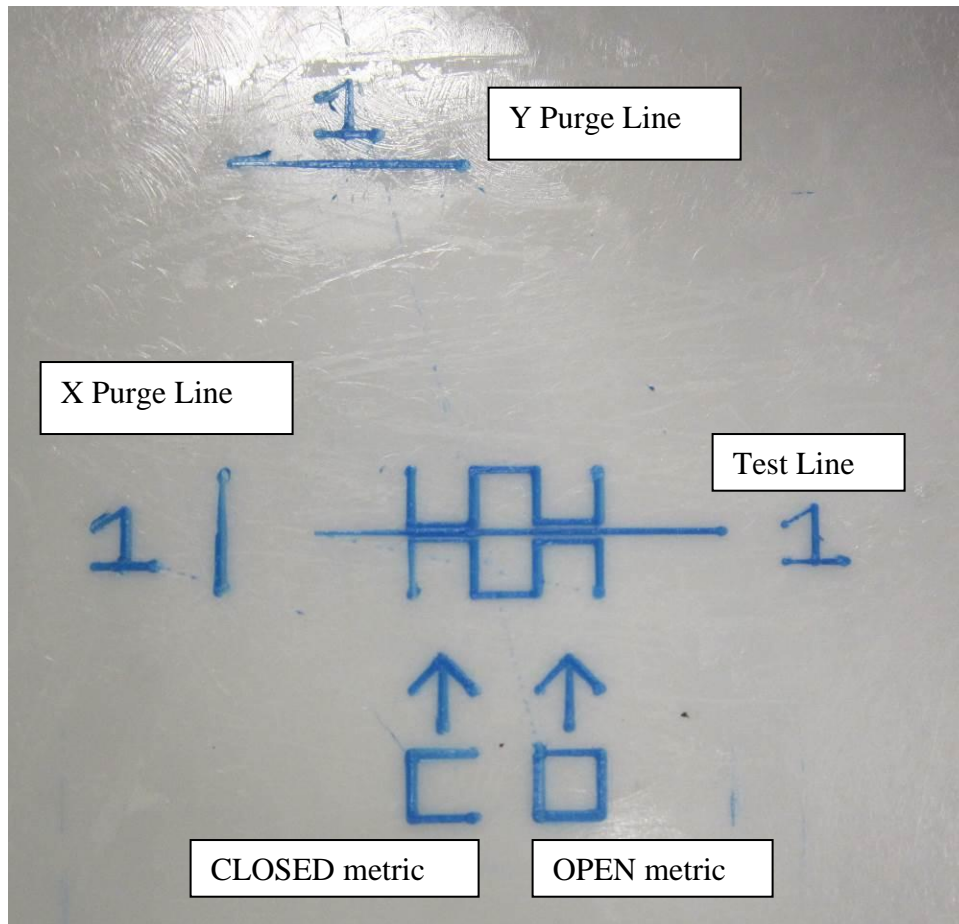


Figure 1. Printed Metric that has correct Z-GAP.

8. Adjustment

- a. If the CLOSED metric has an open space (visual)...tighten the Z-GAP 0.1 and retest for verification.

NOTE: Press ▲ arrow to tighten Z-GAP.

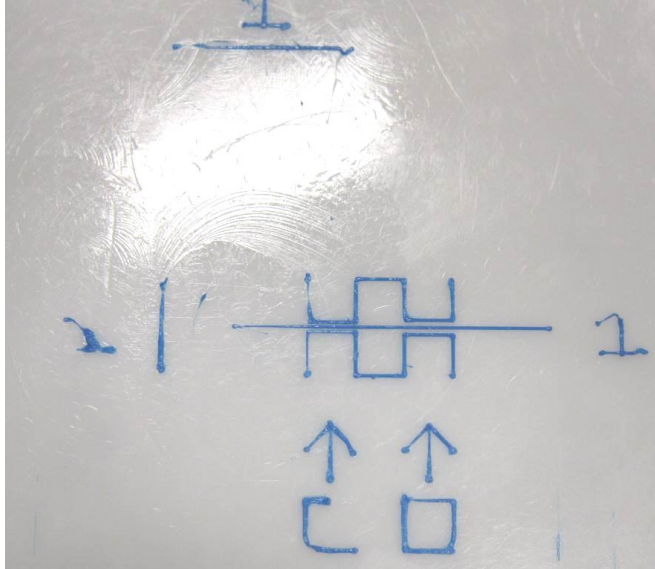
- b. If the OPEN metric is closed with no space...open the Z-GAP 0.1 and retest for verification

NOTE: Press ▼ arrow to open Z-GAP.

- c. Once an adjustment had been made. Run the GAP file again to verify success.

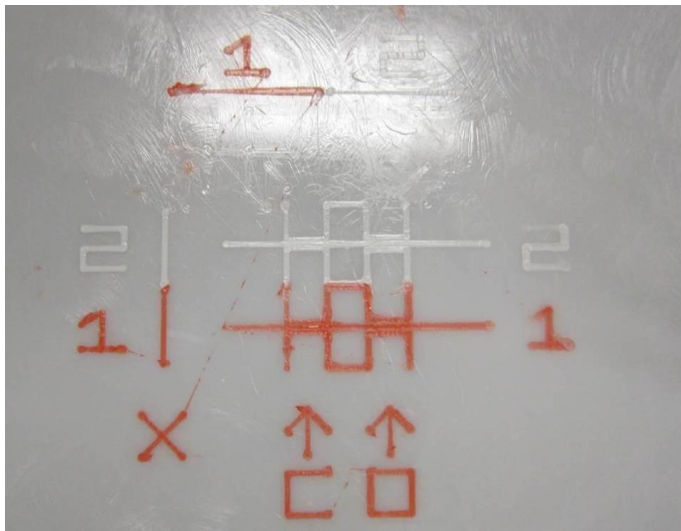
9. Examples

- a. In example below the CLOSED metric is open with space above and below the test line at C.
 - i. Adjust this Z-GAP to tighten 0.1
 - ii. Reprint GAP_Test.cubex for verification and adjust again if necessary.



Example of Z-GAP that is to open and will cause parts to warp off of print bed.

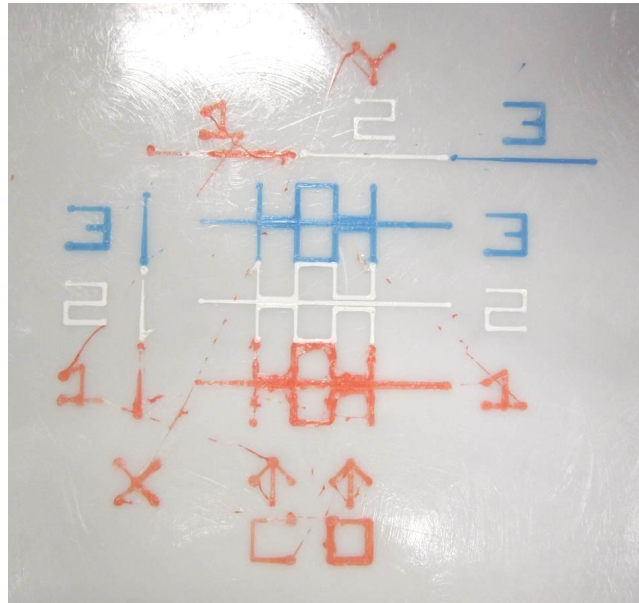
- b. In the example below the OPEN metric is closed no space above and below the test line at O
 - i. Adjust this Z-GAP to open 0.1mm.
 - ii. Reprint GAP_Test.cubex for verification and adjust again if necessary.



Example of Z-GAP that is to open and will cause parts to have rough edges on bottom of part and will be hard to remove from print bed.

10. In the example below the metric is much tighter for print jet one than it is for print jets two and three.

- i. Because the Z-Gap is okay for print jets two and three, the print jet one will need to be raised up to be level with the other two.
- ii. Clean print bed of all filament and place back into printer.
- iii. Power off printer and loosen the print jet NOZZLE 1 with the screw below the PCBA on back of the extruder.
- iv. Power on printer and go to Z-Gap.
- v. Raise the Z-Gap until all nozzles are even. Remove power from printer by unplugging the printer while the Z-Gap window is still open. This will keep the print bed in place holding the loose nozzle in place to be tightened.
- vi. Tighten the nozzle and power back on the printer.
- vii. Reprint GAP_Test.cubex for verification and adjust again if necessary.





3D Systems, Inc.
333 Three D Systems Circle | Rock Hill, SC | 29730
Cubify.com

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