3D PLATFORM

TRAINING INSTRUCTION

PRINTING THE TWO-COLOR THIN-WALL BOX

3DPTI-0003

VERSION: NOVEMBER 2017

APPROVALS			
Name	**Title**	**Signature**	**Date (YYYY-MM-DD)**
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APPLICABLE MODELS	
Legacy	**Work Series**
☒ X1000	☒ 100
☒ X1000 CE	☒ 200
☒ WorkBench	☒ 300
`	☒ 400

CONTROL STATUS
☐ Confidential
☐ Internal use only
☒ Uncontrolled

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Introduction & Purpose

The two-material dual thin wall box is designed to test the tool offsets of the machine. Proper tool offsets are necessary for successful completion of dual extrusion parts, including multi material and soluble support type builds. The dual extrusion calibration box is another method of setting tool offsets.

This training instruction will instruct and prepare the user to successfully set proper tool offsets and to identify and correct common issues.

Tools & Materials

- Knife or razor scraper to remove completed prints.
- Calipers or micrometer.
- Print material (PLA material is recommended for calibration prints).
- Solid box gcode file
- SD card or network connection to the web interface (WorkSeries and later) to load print files.

Process

Printing the part

Prepare the printer

1. Prepare print bed. Clean the print area and apply adhesion agent if used.
2. Load material. Load print material and ensure extruder is extruding material properly.

Prepare the part

1. Prepare gcode file. Use supplied gcode if available. If using alternate nozzle sizes, slice the file using just a single perimeter and bottom layer, no infill.
2. Load file using SD card or web interface.

Start print

Print the gcode file and observe during the print. Ask these questions during the print.

- Is the extrusion consistent? If not, check material settings.
- Are the two materials aligned properly?

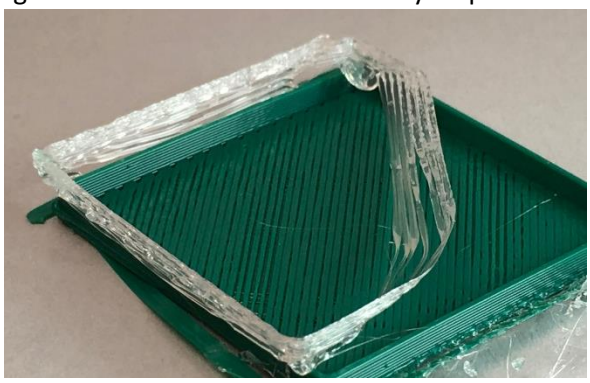
When the part completes, wait for print bed to cool down, mark the front of the part, and then remove it, being careful not to damage the part or split the two halves.

Inspecting the part

Visual inspection:

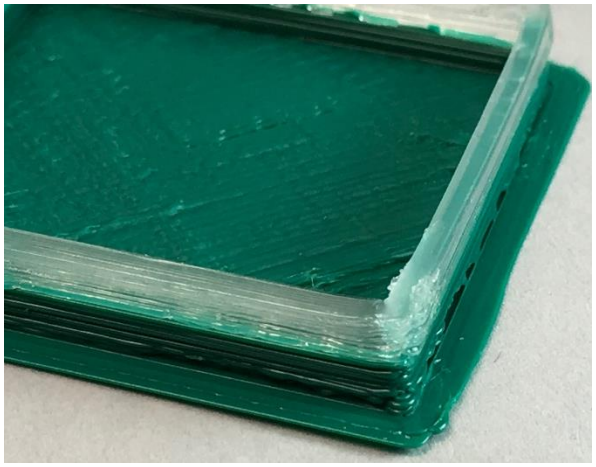
1. Are the two layers visually aligned in both X and Y? Feel for any step between the two materials.

X



2. Is the extrusion consistent? Over extrusion or under extrusion o the material may occur. Slow feed rates or incorrect nozzle settings may cause globs and messy prints.

X



Tool inspection:

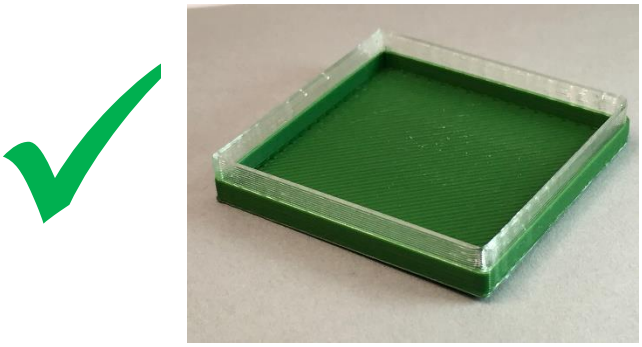
1. Use a set of calipers or to measure the step between the top and bottom of the box, record any misalignment in both X and Y axes.

Correcting the part

Corrections will depend on what is found during inspection.

1. **X axis:**
    a. If the top box is offset toward the home position (X0), **Decrease** the X offset by the measured step.
    b. If the top box is offset toward the end of stroke (X 1000), **Increase** the X offset by the measured step.
2. **Y axis:**
    a. If the top box is offset toward the home position (Y0), **Decrease** the Y offset by the measured step.
    b. If the top box is offset toward the end of stroke (Y 1000+), **Increase** the Y offset by the measured step.

After correction, re-run the stacked thin-wall box print to confirm new settings.



Wrapping up

Dual thin-wall print process is complete when there is no visual or measurable offset between the two materials of the box.

Conclusion

The stacked thin-wall box is used to set tool offsets, which allows printing of successful, accurate dual extruder prints.