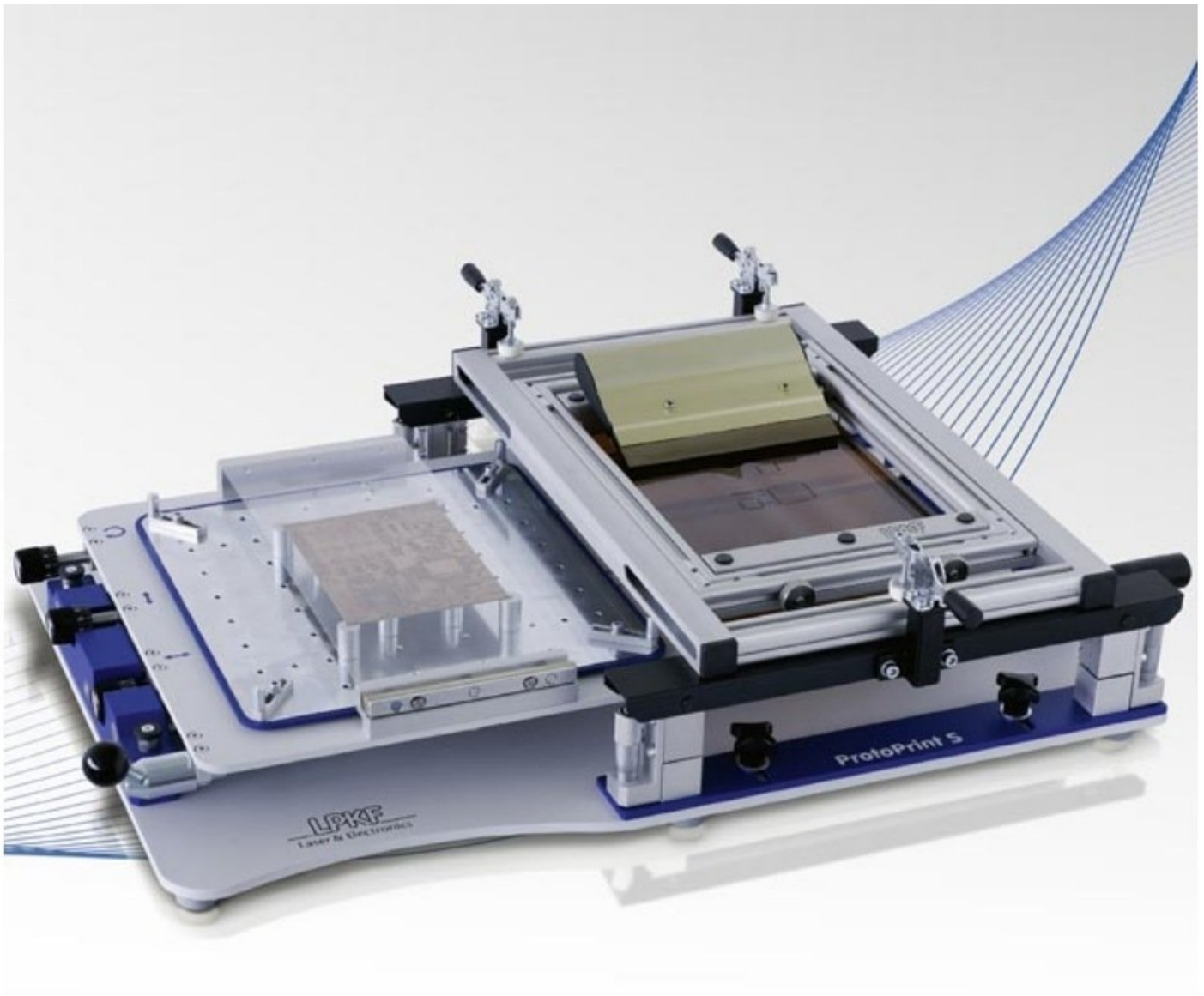




ProtoPrint S

The ProtoPrint is used to align stencils to a board in order to prep it for reflow.

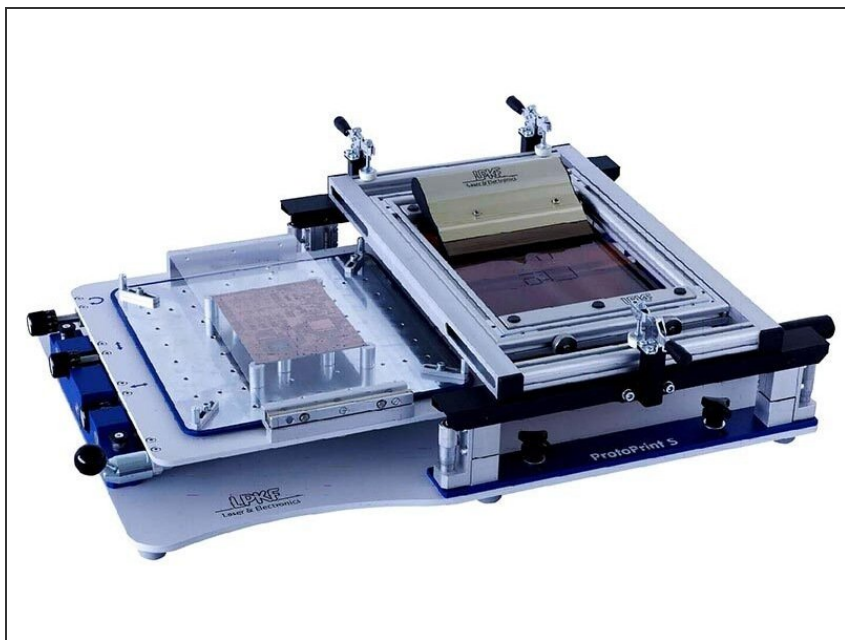
Written By: Jimmy Nolan



Introduction

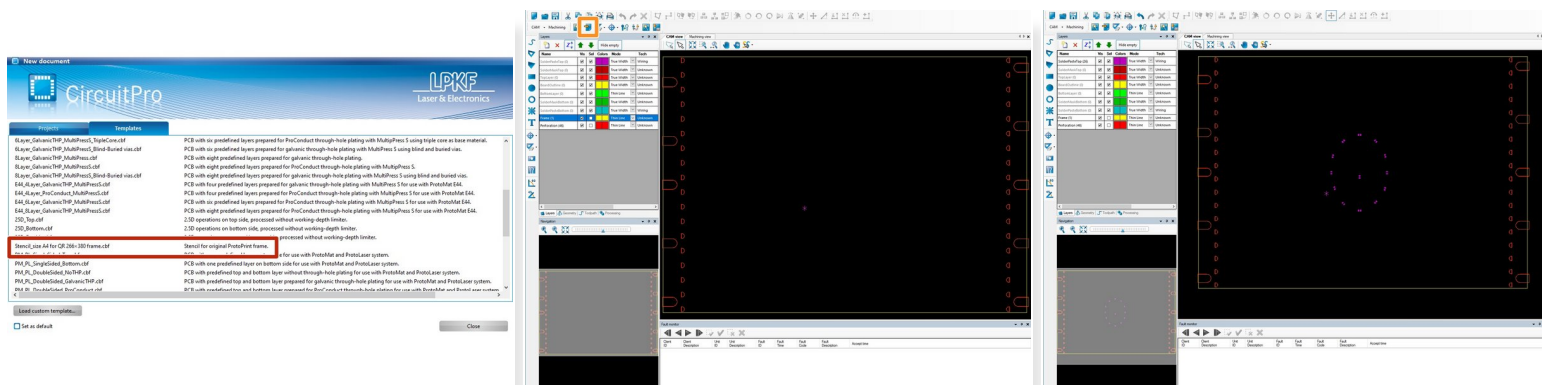
This guide will teach you how to use the ProtoPrint to accurately apply solder paste to a PCB.

Step 1 — ProtoPrint intro



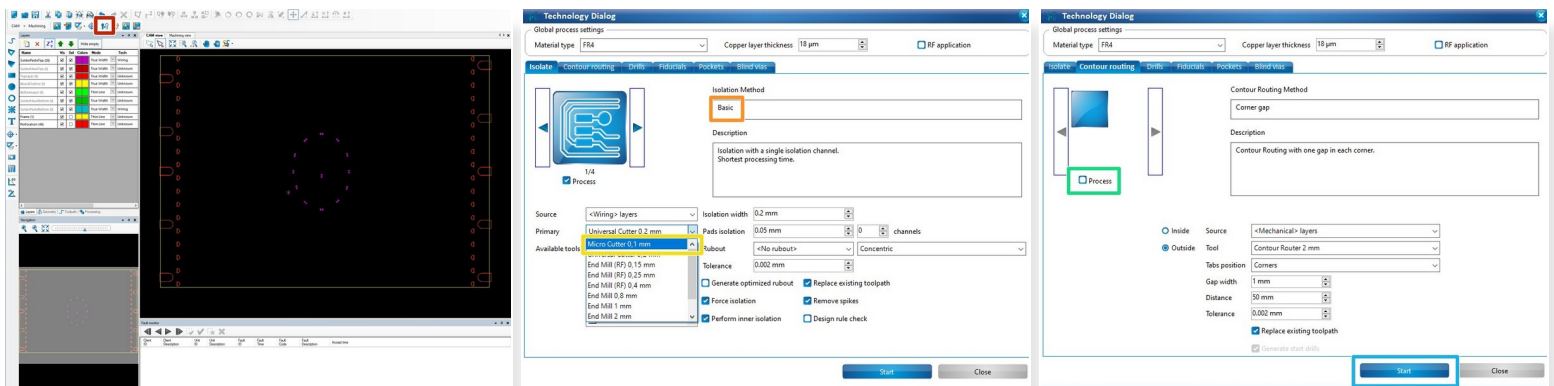
- The ProtoPrint stencil rig is used to secure a milled solder paste stencil above your PCB.
- Solder paste is spread over the stencil and deposited nicely on the pads of your PCB so that you can easily solder components.

Step 2 — Import the layers



- Create a new file with the *Stencil QR 266x38* template.
- Import your top/bottom solder paste layers and position them side by side in the center.

Step 3 — Set up the job



- Open the *technology dialogue* box.
- Select *basic insulation*.
- Set the primary tool as the 0.1mm micro cutter.
- Uncheck *Process* in the *Contour Routing* tab.
- Click *Start*.

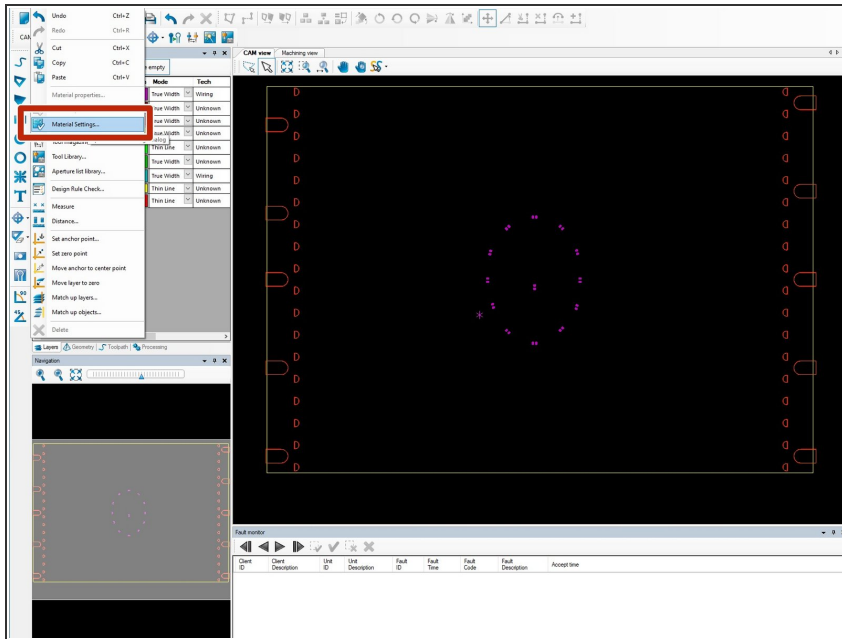
Step 4 — Insert the stencil



- Tape the polyimide foil to a piece of cardboard.
- Measure the thickness of the foil + cardboard combination.
- Secure it to the bed of the ProtoMat.

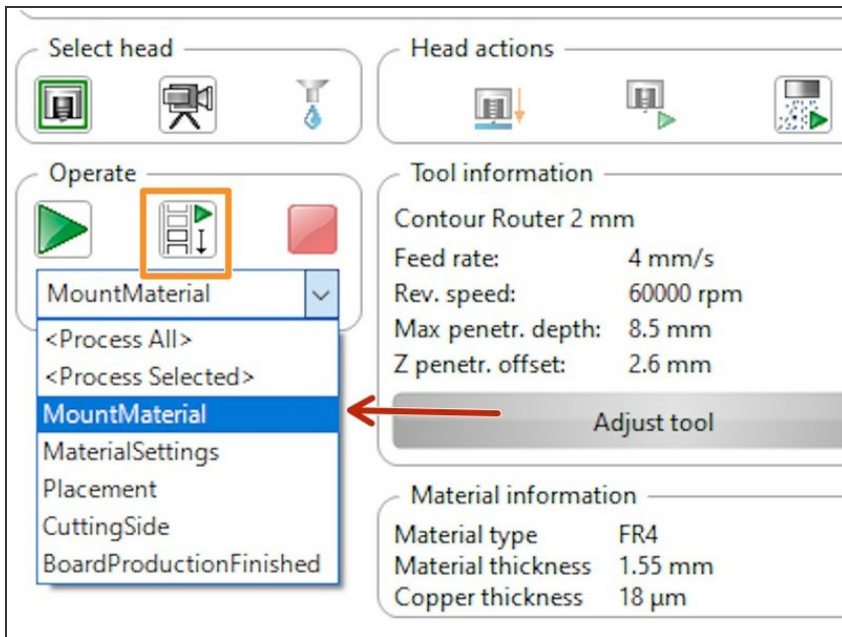
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Step 5 — Material settings



- Open *Edit>Material Settings*.
- Enter the total thickness you measured in the previous step.
- Enter 100um into the *copper thickness* field.

Step 6 — Route the stencil



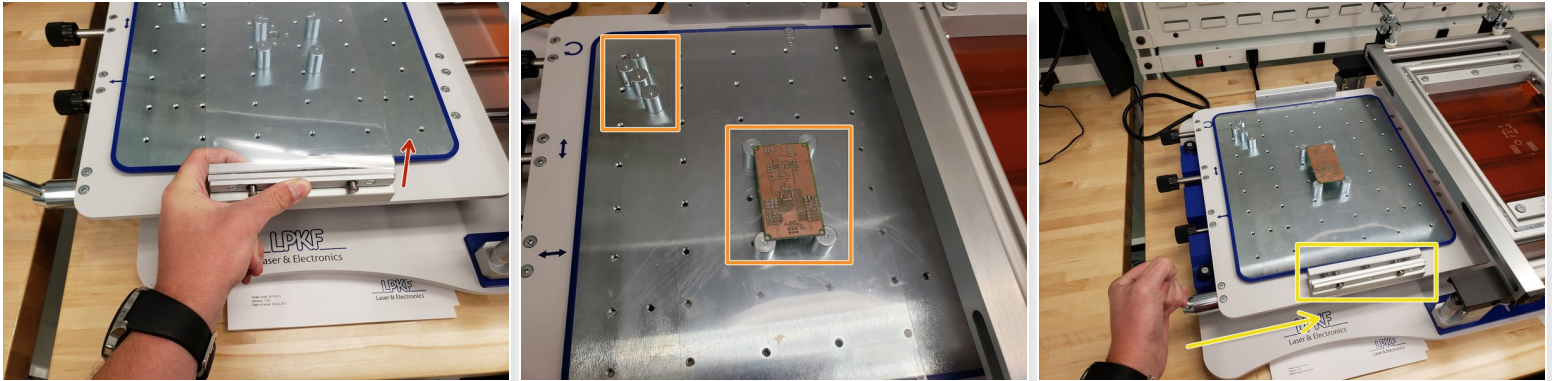
- In *Machine* view, choose the *MountMaterial* phase.
- Press the play button to start the routing process and follow the on-screen instructions.
- ❗ The process is similar to the trace milling process.

Step 7 — Insert stencil



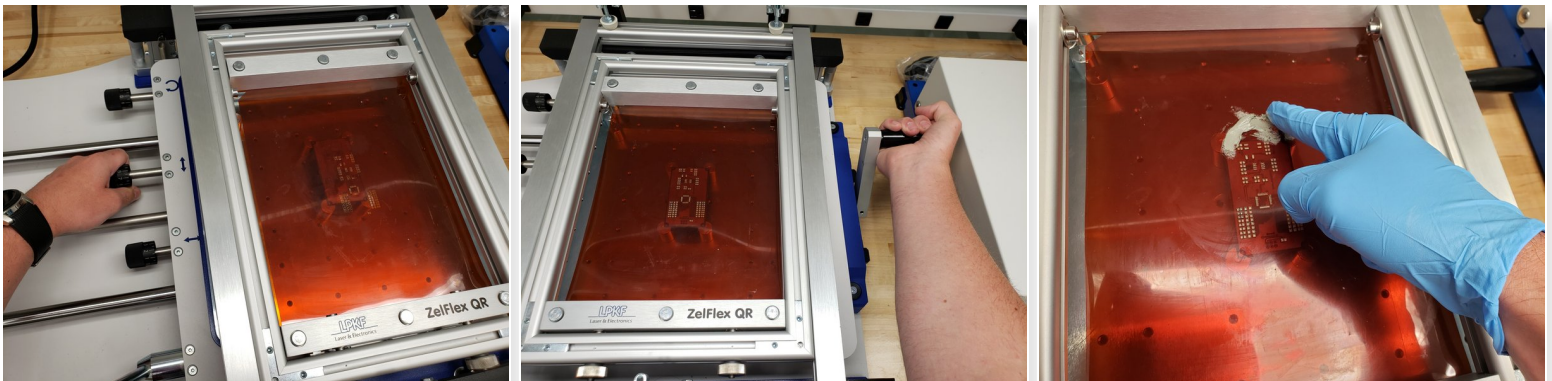
- Once finished, remove the stencil from the ProtoMat and place it in the ProtoPrint.
- To release the plates, push the pins on the opposite side against a table and slide the plate to the side.
- ⓘ Due to the alignment of the holes, there is only one way the stencil can be placed into the frame.
- Place the frame in the ProtoPrint and secure it with the three levers.

Step 8 — Insert board



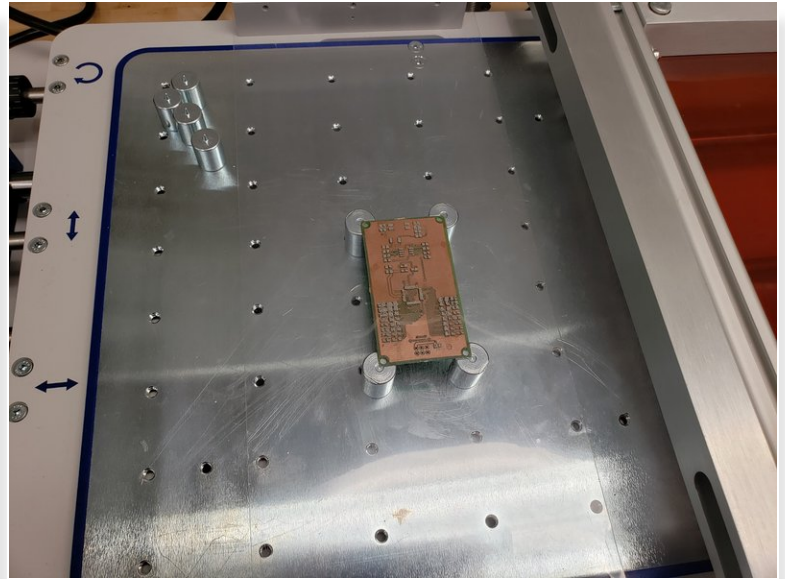
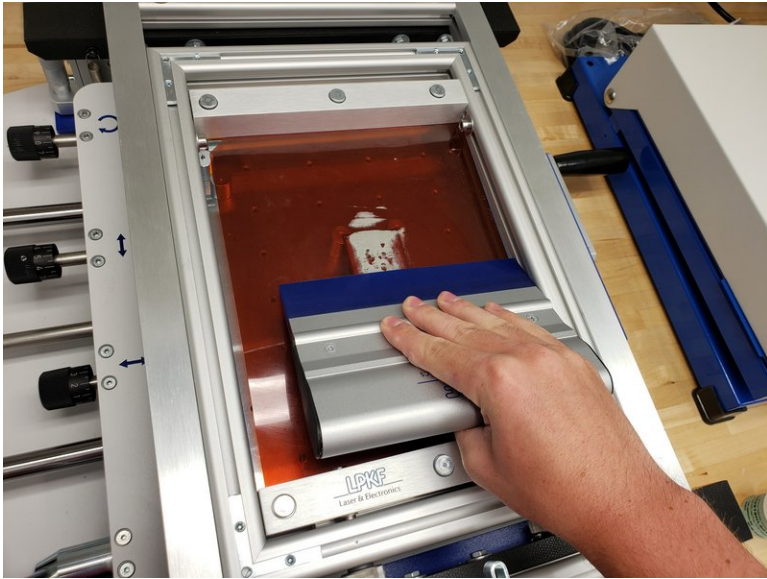
- Remove the clear plastic protective shield by squeezing and pulling up.
- Align the magnetic holders to the four corners of the board.
- ❗ Alternatively, there are spikes you can use on through holes.
- Replace the clear plastic shield and use the handle to push the gantry containing the board underneath the stencil.

Step 9 — Apply solder paste



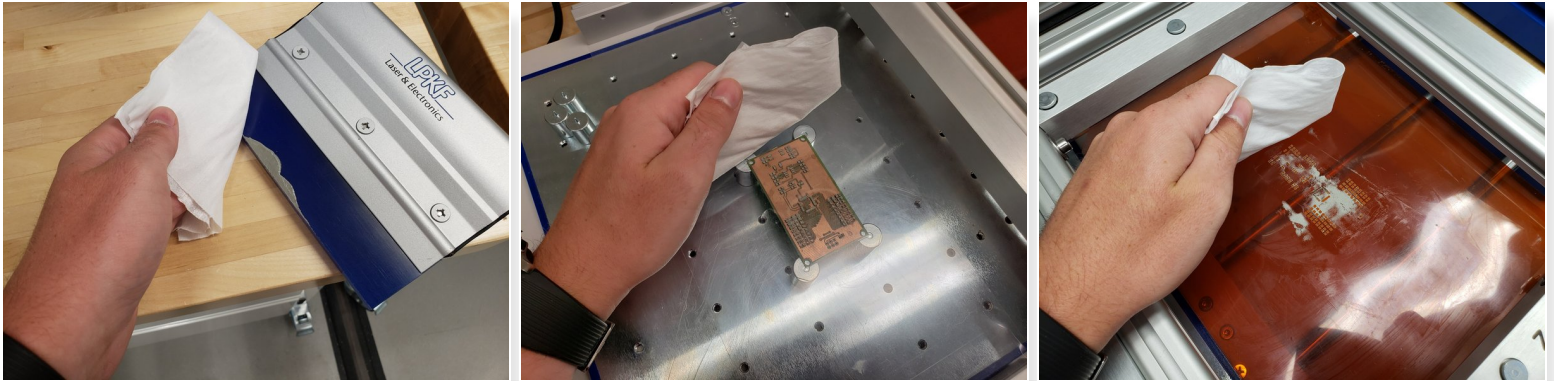
- Use the knobs on the left side to precisely align the PCB to the stencil.
- When ready, pull the lever on the right to raise the PCB.
- Use a glove to place a small glob of solder paste on the stencil.

Step 10 — Spread the solder paste



- Test the alignment by doing a test run with the clear plastic shield intact.
- Spread the solder paste over the stencil.
- Lower the gantry and pull it to the left. Inspect where the solder was laid.
- If it looks good, remove the clear plastic shield and push the gantry back under the stencil for another run.

Step 11 — Clean up



- Remove the PCB from the ProtoPrint S
- Clean the spreader, plastic shield, and stencil using an IPA wipe.
- Now that you have a PCB with nicely laid solder paste, the next step is to [place components using the ProtoPlace S](#).