

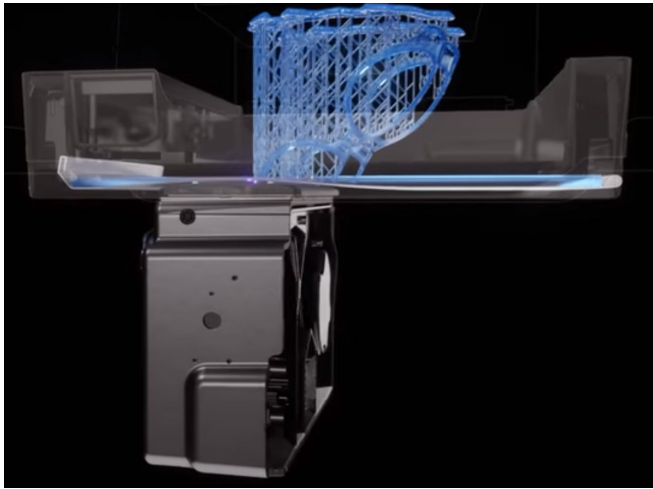
Form 3 vs. Form 2 Prints: What's New and Improved

With the release of the latest Formlabs 3D printers, the Form 3 and Form 3L, you may be wondering how our re-engineered Low Force Stereolithography (LFS) print process enhances the core output, your printed part. Here's how the new LFS print process works and how this leads to some key improvements in finished parts.

The Low Force Stereolithography (LFS) Print Process

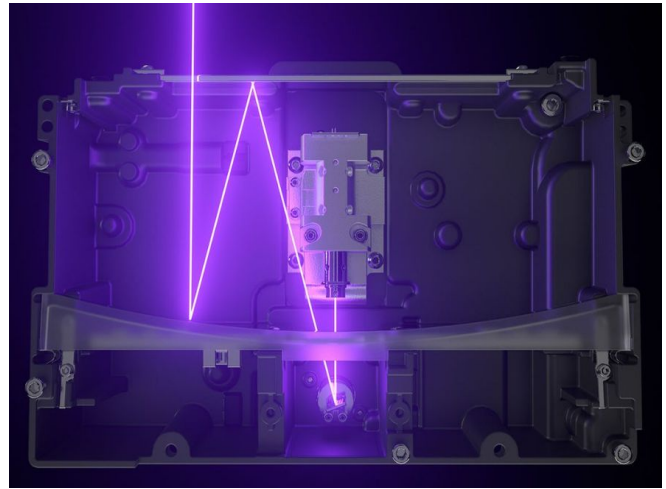
Compared to the Form 2's stereolithography print process, the LFS print process behind the Form 3 and Form 3L is driven by two key changes that ultimately improve the quality of end parts.

Low Force Peel Process



As each layer of resin is cured, a bond forms between the printed part and the tank. The peel process breaks this bond to allow the next layer to print. With the Form 3, the build platform lifts the part up and the tank's flexible film gently peels away. This significantly reduces stress on the part (internal testing shows up to a 10x reduction compared to the Form 2) allowing for improved part quality and clarity.

Light Processing Unit

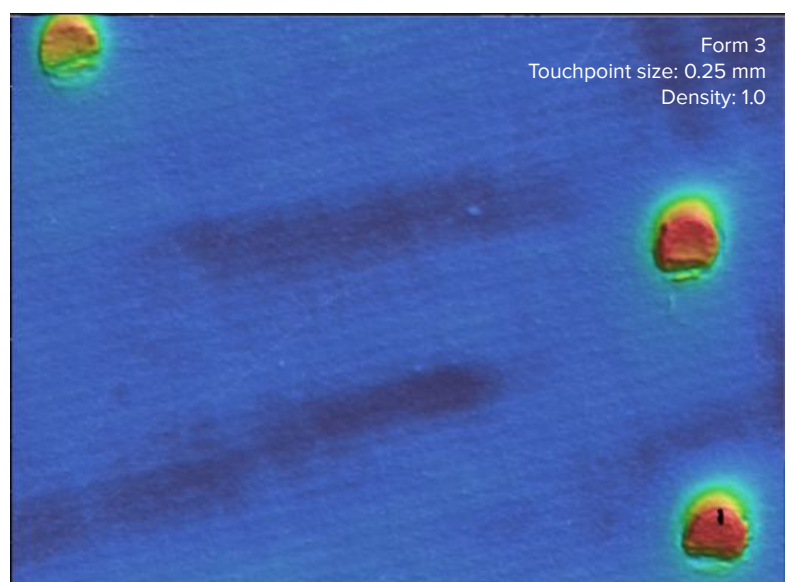
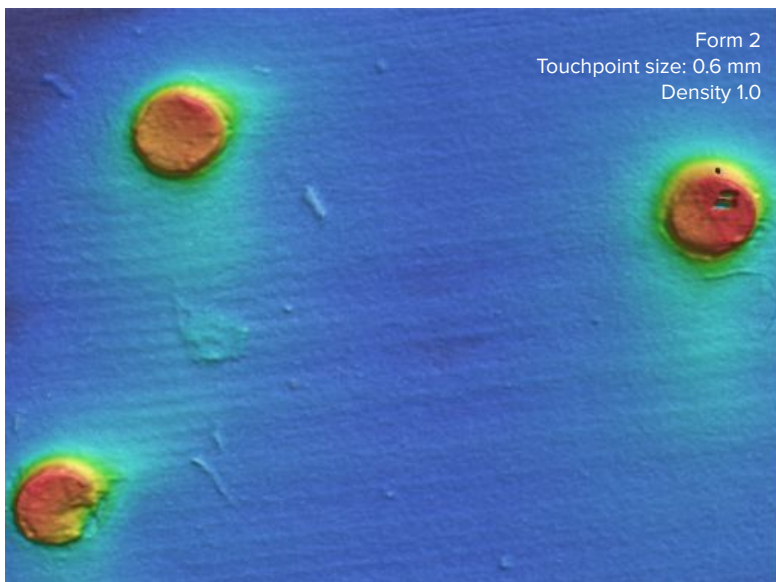
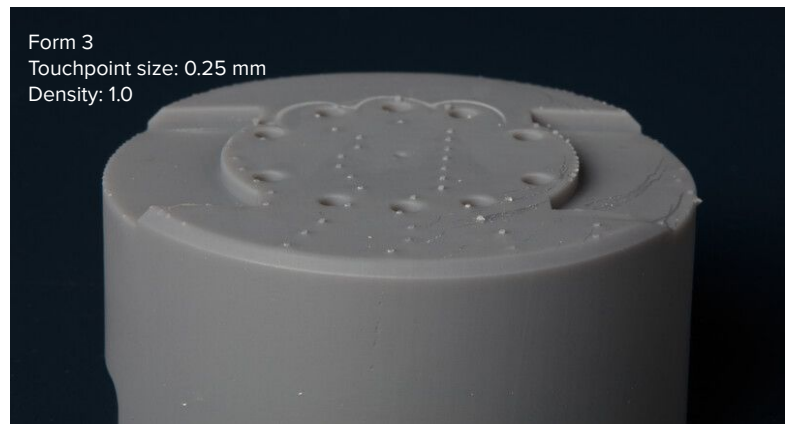
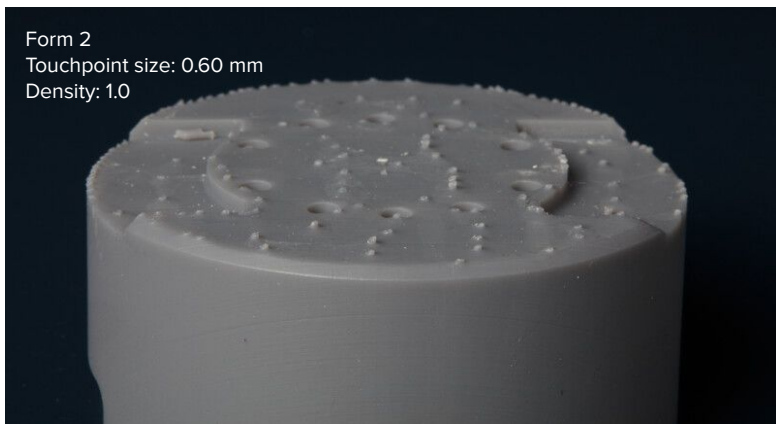


The Form 3 optics are housed in a Light Processing Unit (LPU). This LPU contains an array of mirrors, including a parabolic mirror, which directs the light perpendicularly toward the build platform. This linear illumination ensures a uniform laser spot across the entire build platform, ultimately improving fine features and part accuracy.

The End Result

Parts printed on the Form 3 and Form 3L offer improved post-processing, accuracy, fine detail, clarity, and surface finish.

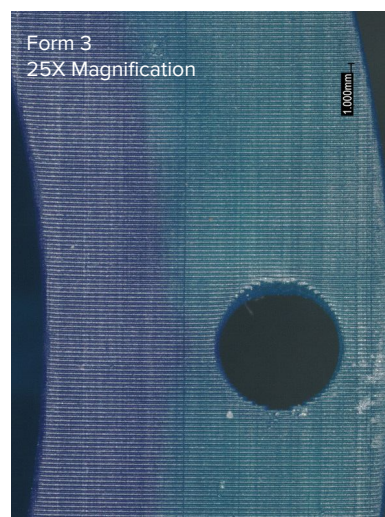
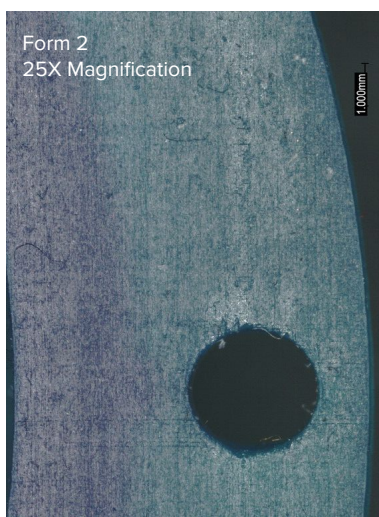
Post-Processing and Accuracy



LFS 3D printing significantly reduces forces exerted on the part during the peel process, allowing you to print with fewer and smaller supports than the Form 2. These fine-touch supports help reduce work and time spent finishing parts.

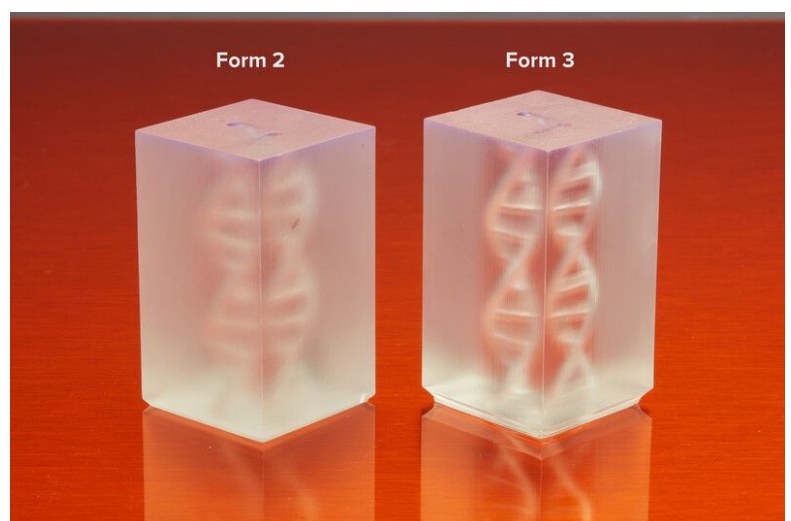
An internal profilometer study comparing a three-support section of the above parts shows the remaining nubs on the Form 3 part have four times less material than the Form 2 part nubs. This directly correlates to an improvement in post-processing work and finishing times. Furthermore, when compared to the Form 2 part, the remaining nubs on the Form 3 part are more localized (less widespread green shading), indicating improved part accuracy.

Fine Detail



The linear path of the laser ensures that fine details such as holes, embossed text, and small features will print more accurately with crisp edges.

Part Clarity and Surface Finish



One of the benefits of LFS 3D printing is that the flexible tank significantly reduces surface roughness. This results in clearer parts with improved surface finish.