CUSTOMER SPOTLIGHT

POSTPROCESS
Automated. Intelligent. Comprehensive.

SPLITVISION: BUILDING ON MANUFACTURING EXPERTISE WITH AUTOMATED 3D POST-PRINTING

Splitvision, headquartered in Stockholm, Sweden, found the ideal product development formula by combining its talented design team and deep manufacturing experience to deliver competitive solutions for its customers. However, to continually to deliver on that promise requires a culture that embraces leading-edge manufacturing methods and process. That is what brought Splitvision to PostProcess, as they explored a better way to streamline and maximize its 3D printing with DLP resin removal innovation.

QUESTION: Can you give us some background on Splitvision and how you utilize additive manufacturing?

ANSWER: We have been developing products since 1989. From initially strictly offering industrial design, we have broadened our service portfolio over the years to become a full turnkey solution provider for product realization.

We have always made prototypes from Polyurethane (PU) foams or solid plastic materials to evaluate form and ergonomics, which we have traditionally done using hand tools. On more detailed prototypes or models with high cosmetic demands, we used to outsource to either print shops in Sweden, or prototype services in China. In 2019, we decided to invest in a Digital Light Processing (DLP) printer from 3D Systems called Figure 4 to speed up our processes while achieving better mechanical properties and fine feature details. In our experience, this is the only printer that can equip soft parts with Thermoplastic Elastomer (TPE)-like performance.

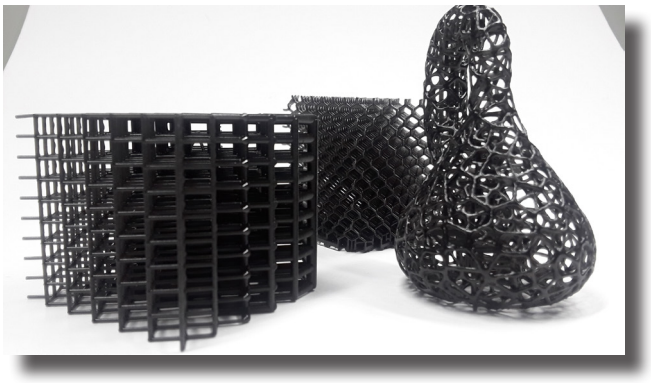
> "The benefit here you can see is improving from 30 minutes per part down to all 10 parts in ***less than 5 minutes***."

Lukass Legzdins
R&D Director
Splitvision

Since many of the products we develop and produce for the hearing aid industry are comprised of a combination of both TPE and hard plastic, this was a deciding factor. We can now evaluate fit and assembly on a detail level before actually making the injection tools, typically saving us from 1-2 iterations of tool tuning. We also design casings for electronic products, and by using the Figure 4 printer to make small series production of those, it is possible for our customers to do field testing and user studies without investing in mass production tools. Needless to say, the DLP printer has brought massive value not only to our workflow, but to our customers as well.

QUESTION: Before introducing the PostProcess solution, what sort of bottlenecks did you experience in your additive workflow?

ANSWER: The design casings that I mentioned often have lots of intricate crevices like screw towers, small slots, and many ribs. It can be a very tedious job to fully clean the resin off of these features with a traditional solution like isopropyl alcohol (IPA). That excess manual labor makes the unit cost for those parts unnecessarily high. Even if the printer used is efficient and several parts can be manufactured in one run, the unit cost still does not go down much since so much time is needed to clean each part individually.



Example DLP parts from Figure 4 printer

Apart from being time-consuming, the work environment also gets compromised by the strong smell from the IPA. Not to mention, we were always concerned about the fire risk posed by IPA. That is where the PostProcess solution was able to really streamline our post-printing process and improve workplace safety overall.

QUESTION: How did the PostProcess solution fit into your additive workflow, and how has it most significantly improved your efficiencies/work environment?

ANSWER: In January 2020, we got the opportunity to try a resin removal system from PostProcess that utilizes their proprietary Submersed Vortex Cavitation (SVC) technology. The system uses ultrasonic cleaning, agitation, and controlled temperature for the process. The detergent included with the system has a high flammability point, which means it does not ignite from a spark at the machine's working temperature. Apart from being more pleasant to work with, the detergent seems to be especially efficient at dissolving the uncured DLP resin. Usually, it removes resin completely in just a matter of minutes. In some cases, with deep narrow features, the cycle time can be a little longer, but we have never had a part require more than 10 minutes of processing time.

> "After having tried the PostProcess solution, it's hard to imagine ever going back to using IPA."

As an example, a small electronics case took about 30 minutes per part for rinsing and drying. Previously, it was difficult to see if it was fully clean before drying off the IPA with compressed air. You would have to rewash it in IPA, use a brush where it was not clean, and repeat it a few times until it looked good. Now, running this same part in the PostProcess solution, the total cycle time for consistently complete resin removal is only 4 to 5 minutes for a batch of 10 at once. The benefit here you can see is improving from 30 minutes per part down to all 10 parts in less than 5 minutes.

Thanks to how efficient the PostProcess solution is within our workflow, we can now leave the support structure intact on parts when we need to do UV post-treatment of the DLP resin. This was never previously possible with traditional IPA cleaning because it was extremely difficult to get rid of all uncured resin behind the supports. An added bonus is that we can load printed parts into the PostProcess machine without ever removing them from the build tray, eliminating the need to clean the tray separately, removing another tedious process.

We can now offer printed parts at a reasonable price, especially when printing multiple items in one run. Plus, the nasty bit of the printing process has been eliminated for our staff. After having tried the PostProcess solution, it's hard to imagine ever going back to using IPA.

About Splitvision
Starting out as a design agency, we have over the years integrated the design process with a manufacturing system that can ensure our customers original idea's integrity while maintaining control over costs and speed up the time to market. We are designers, engineers, buyers, sourcing specialists, QC specialists, logisticians, project managers and businesspeople who love to make good things. We have offices in Stockholm, Sweden and in Shenzhen, China. With more than 30 years of experience in product development, we strive to direct our talented design team to deliver competitive solutions to our customers using our expertise within; Design Strategy, Product and Transportation Design, HMI / GUI, Advanced 3D Modelling, Mechanical Engineering, and Prototypes.

But what really makes us unique is our manufacturing experience so when engaging Splitvision for product design, you also get access to significant manufacturing experience as well. We offer manufacturing services within a wide range of techniques and materials through a trusted partner network. The main focus is on injection molded plastic with high functional and cosmetic demands. Our customers range from start-up-brands outsourcing the production of their core product, to large corporations out-sourcing the design and manufacturing of their accessories. Learn more at www.splitvision.com

About PostProcess
PostProcess Technologies is the only provider of automated and intelligent post-printing solutions for 3D printed parts. Founded in 2014 and headquartered in Buffalo, NY, USA, with international operations in Sophia-Antipolis, France, PostProcess removes the bottleneck in the third step of 3D printing – post-printing – through patent-pending software, hardware, and chemistry technologies. The company's solutions automate industrial 3D printing's most common post-printing processes with a software-based approach, including support, resin, and powder removal, as well as surface finishing, resulting in "customer-ready" 3D printed parts. Additionally, as an innovator of software-based 3D post-printing, PostProcess solutions will enable the full digitization of AM through the post-print step for the Industry 4.0 factory floor. The PostProcess portfolio has been proven across all major industrial 3D printing technologies and is in use daily in every imaginable manufacturing sector.

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