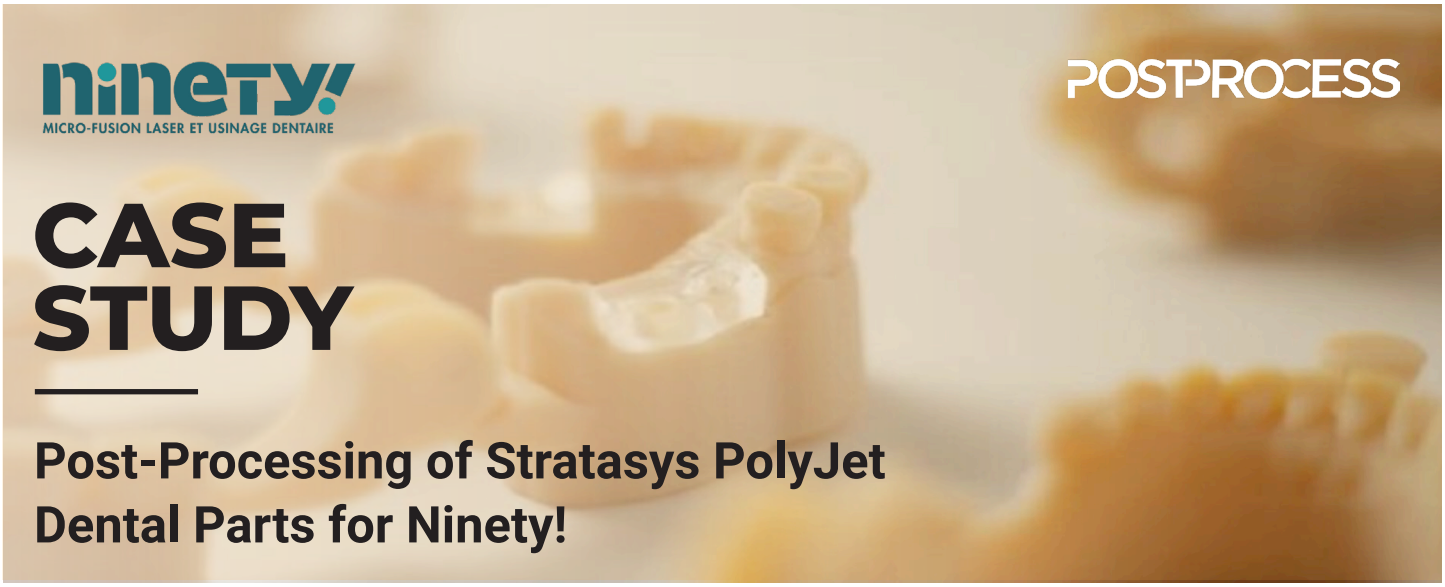

MICRO-FUSION LASER ET USINAGE DENTAIRE

POSTPROCESS

CASE STUDY

Post-Processing of Stratasys PolyJet Dental Parts for Ninety!

OVERVIEW

ACHIEVING GREATER EFFICIENCY WITH A NOVEL POSTPROCESS TECHNOLOGY

In just a few years, the profession of dental production has evolved significantly. And the development of 3D printing has largely contributed to this. This is what Olivier Mangot, Co-Director of Ident'M laboratory and its cutting-edge production centre Ninety!, testifies.

Thanks to the acquisition of three J5 DentaJet printers from Stratasys, they can now produce up to 500 models, aligner arches and gingival masks per day. With the increase in manufacturing volume, they were looking to streamline support removal.

Meeting PostProcess and their DEMI X 520 machine changed everything. Learn more.

CONTEXT

Ninety!, a cutting-edge dental production centre located in Saint-Etienne, France, has enabled Ident'M, along with other laboratories throughout France, to optimize the precision and efficiency of applications used in orthodontics or implantology.

How? Thanks to Stratasys PolyJet technology.

"We now have the ability to 3D print parts with complex geometries and/or composed of several materials (rigid or flexible) in one go," says Olivier Mangot, Co-Director of the two divisions.

"We acquired three Stratasys J5 DentaJet 3D printers, which can produce several hundred parts every day with consistent precision."

"When I went from 20 models to 50 models per day, then up to 150 models, I found myself facing a major economic and labor challenge. For example, prosthetic models are covered with a gel like support material. Removing it without damaging the final piece requires manual handling," explains Olivier Mangot.

"I was looking to streamline this part of the process to support our growing output and ensure that we deliver products to our customers within 24 to 48 hours. Our workflow must be efficient and fast, with no room for error."

WHAT IS POST-PROCESSING?

1. **Removing support materials**: Parts are printed fully cured encapsulated by gel-like support.
2. **Cleaning the printed parts:** Water jetting the parts to remove any excess resin.
3. **Quality control:** Parts are visually inspected to ensure proper cleaning.

TOWARDS AUTOMATED CLEANING

To address this problem, Olivier Mangot first turned to the mechanical cleaning solutions on the market that are based on water jet operation but found these solutions limited:

- Cleaning cycles are limited to 20 pieces at a time
- Excessive daily water consumption
- Possible breaking and damaging of the printed part.

"Meeting with PostProcess and the support provided to me by Alain Marion, their European Sales Manager, changed everything," says Olivier Mangot.

PostProcess suggested an efficient and automated solution: the DEMI X 520 machine. This solution provides industrial resin removal that meets Ninety's! needs.

PostProcess aligns perfectly with Stratasys PolyJet technology for dental applications allowing the entire process to be automated. In the morning, the Ninety! operator removes parts from different print plates (up to 200). Then, loads the parts into a basket located in the PostProcess machine, and launches a pre-recorded program, letting the post-processing cycle run for approximately 2 hours. Meanwhile, the operator can focus on higher value activities and when he returns, at the end of the cycle, all he has to do is dry and visually check the parts.

"With Olivier Mangot's help, we have developed an adapted version to meet Stratasys PolyJet printing technology but also to address Ninety's! expectations for high quality mass cleaning," explains Alain Marion. *"We equipped the DEMI X 520 machine with an additional motor. This enables us to obtain a powerful and homogeneous flow, allowing a very large number of parts to rotate in the vortex created by our machine, without hitting the walls of the tank or hitting each other."*

THE RESULT

"I am no longer dependent on an operator. With this solution I can clean 20 times more parts than before and get incredibly high quality results," adds Olivier Mangot. *"With a manual operation, we were only able to clean the parts up to 70 or 80%. Today, PostProcess Technology makes it possible to reveal 100% of the printing quality provided by Stratasys."*

The precision of this process is critical because Ninety! production centre 3D print geometrically complex parts: *"It's a set of mountains and valleys, bumps, hollows, that follow no logic and therefore proved to be a real headache to clean,"* continues the Co-Director of the centre.

"When I calculate my ROI at the end of the year, I have increased my productivity and saved money. And, I reduced my ecological impact while improving my employees' working conditions!"

Unlike most of the 3D printing solutions for dental, no alcohol is necessary. *"The strong benefit of Stratasys DentaJet technology is to offer a solution without the use of IPA-type solvents in post-processing,"* points out Alain Marion.

Even today, many dental models are printed in resin using technologies requiring cleaning with isopropyl alcohol, which is flammable at room temperature and requires very strict handling and storage conditions. However, the necessary precautions are rarely taken for employees.

"It's crucial in terms of health and safety at work," insists Olivier Mangot, who continues: *"In my job, you must be absolutely precise. Having players like Stratasys and PostProcess who support us to reassure us and make our processes more reliable is therefore a godsend. And the results are there. Today I have a complete solution that allows me to be more competitive than my competitors."*

POSTPROCESS: EFFICIENT, COST-EFFECTIVE AND RESOURCE-SAVING TECHNOLOGIES

The DEMI X 520 Polyjet Dental solution delivered by PostProcess to Ninety! offers several advantages. In addition to the significant reduction in labour dedicated to cleaning and a clear increase in cleaning quality, the machine also proves to be low in electricity and consumable consumption.

"The machine we provided to Ninety! is based on our exclusive patented Submersed Vortex Cavitation technology. It combines process management software, an industrial machine combined with a specific solution ensuring optimal resin and media removal," explains Alain Marion.

This technology allows the creation of a vortex rotation in the tank, fine control of temperatures in order to treat parts around 46-47 degrees Celsius, and deep cleaning using a specific detergent.

> ***"When I calculate my ROI at the end of the year, I have increased my productivity and saved money."***
>
> - Olivier Mangot, Co-Director, Ninety!

About PostProcess Technologies

American company based in Buffalo, PostProcess Technologies was born from the frustration of its founder, a former CTO in the space industry, with the lack of effective and automated post-processing solutions in additive manufacturing. Today, it is the leading provider of automated and intelligent solutions for the post-processing of 3D printed parts. They rely on technologies and chemical solutions developed in-house and offer a wide range of machines adapted to different 3D printing technologies (FDM, PolyJet, SLS, etc.). Learn more at postprocess.com. Stratasys and PostProcess solutions are available through their partner, Cylaos Dentaire.

>> Go further with the webinar on advanced solutions in the dental sector with 3D printing:
https://webikeo.fr/webinar/les-avancees-du-secteur-dentaire-avec-l-impression-3d