

**Biotech Dental** accelerates productivity and reduces costs by producing implant molds with HP Multi Jet Fusion technology



With the advances of 3D printing, specifically HP Multi Jet Fusion technology, **Biotech Dental** is able to develop a new process to improve the production of their dental devices



## Introduction

**“3D printing is a philosophy at Biotech. Except for dental implants and screws, all personalized products, orthodontic treatments, and prostheses are fully or partially built thanks to 3D printing solutions.”** – Robin Maisonneuve, Managing Director, Biotech Dental

For 30 years, Biotech Dental has been a leading innovative company in the dental business and has built a reputation for quality dental implants. Philippe Veran, Founder and President of Biotech Dental, invested 10% of the company turnover to help Biotech become a leader in 3D printing.

Biotech Dental is the only company in the world that manufactures 100% of their dental prostheses using digital workflows and 3D printing coupled with other manufacturing

processes like milling. Biotech Dental has developed complete digital workflows to help dentists and labs quickly scan files to Biotech’s manufacturing centers.

Biotech Dental’s mission is to create the digital future of dentistry while providing easy-to-use solutions, high-end products, and attractive prices thanks to Veran’s strong social vision.

With a main customer base consisting of dentists and labs, Biotech relies on technological innovation and digitalization to set itself apart from its competition.

### • Industry

Healthcare

### • Sector

Dental

### • Objective

To accelerate and reduce costs involved in the manufacturing of dental mold implants by adopting HP Multi Jet Fusion technology as part of their 3D printing processes.

### • Approach

Biotech turned to HP Multi Jet Fusion technology to automate the design and production process for a two-part dental mold.

### • Technology | Solution

HP Multi Jet Fusion technology, HP Jet Fusion 3D Printing Solutions

### • Material

HP 3D High Reusability<sup>1</sup> PA 12

1. Based on using recommended packing densities and compared to selective laser sintering (SLS) technology, offers excellent reusability without sacrificing mechanical performance. Tested according to ASTM D638, ASTM D256, ASTM D790, and ASTM D648 and using a 3D scanner for dimensional accuracy. Testing monitored using statistical process controls.



## Challenge

Designing a removable prosthesis presents issues regarding the materials (e.g., resins, metals, composites) that cannot be printed in the same machine and that might compromise the final quality. Therefore, Biotech Dental developed and patented a new process to improve dental prosthetics digitalization.

**“When a lab is designing a removable prosthesis in our design software, the problem comes from the fact that this prosthesis includes different materials that cannot be printed,”** Maisonneuve says. **“Some cannot be printed at all if we want to obtain good quality.”**

In the face of the constant evolution of manufacturing machines and traditional technologies, Biotech Dental was essentially forced to make frequent changes in order to be more productive. Previously Biotech employed milling, turning, SLS, DLP, material jetting and binder jetting to produce products.

Before adopting HP MJF technology, it was challenging to produce and design partial removable prostheses, such as teeth and gingiva. It took three hours for labs and four appointments for dentists to conceive the types of parts they needed, including standard shapes for teeth.

## Solution

Biotech Dental has been using 3D printing technologies for more than 10 years, but **“we started using HP MJF because the machine was far more productive,”** says Maisonneuve, compared with traditional manufacturing methods.

They wanted to be able to automatically design and print a two-part mold to house a metal framework and

a composite printed set of teeth. The two-part mold is closed, and the resin is injected and baked. Once finished, the part extracted from the mold is polished and the prosthesis is ready. For labs, this process requires five to 10 minutes of design and two appointments for dentists.

## Result

HP MJF increased the production rate by nearly four times the original rate and reduced costs by 78%, in comparison to the SLS process/machine they used before. Previous technology produced 42 molds per day at a cost of goods sold (COGS) of 18€. Now HP MJF allows for the production of 180 molds per day with a COGS of 4€.

In 2019, Biotech Dental plans to accelerate production by printing 250 molds per day in France, where 45 labs have subscribed to training courses using the technology. With

an investment of 100€ million, Biotech Dental hopes to become the sole production partner for dentals molds in a market of 60 million molds per year.

Biotech Dental turned to HP **“because it is the biggest player in the 3D printing industry,”** says Maisonneuve. **“HP is able to provide a standard of quality to our manufacturing centers all over the world.”**

Learn more about HP Multi Jet Fusion technology at [hp.com/go/3DPrint](https://hp.com/go/3DPrint)

Connect with an HP 3D Printing expert or sign up for the latest news about HP Jet Fusion 3D Printing [hp.com/go/3Dcontactus](https://hp.com/go/3Dcontactus)

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