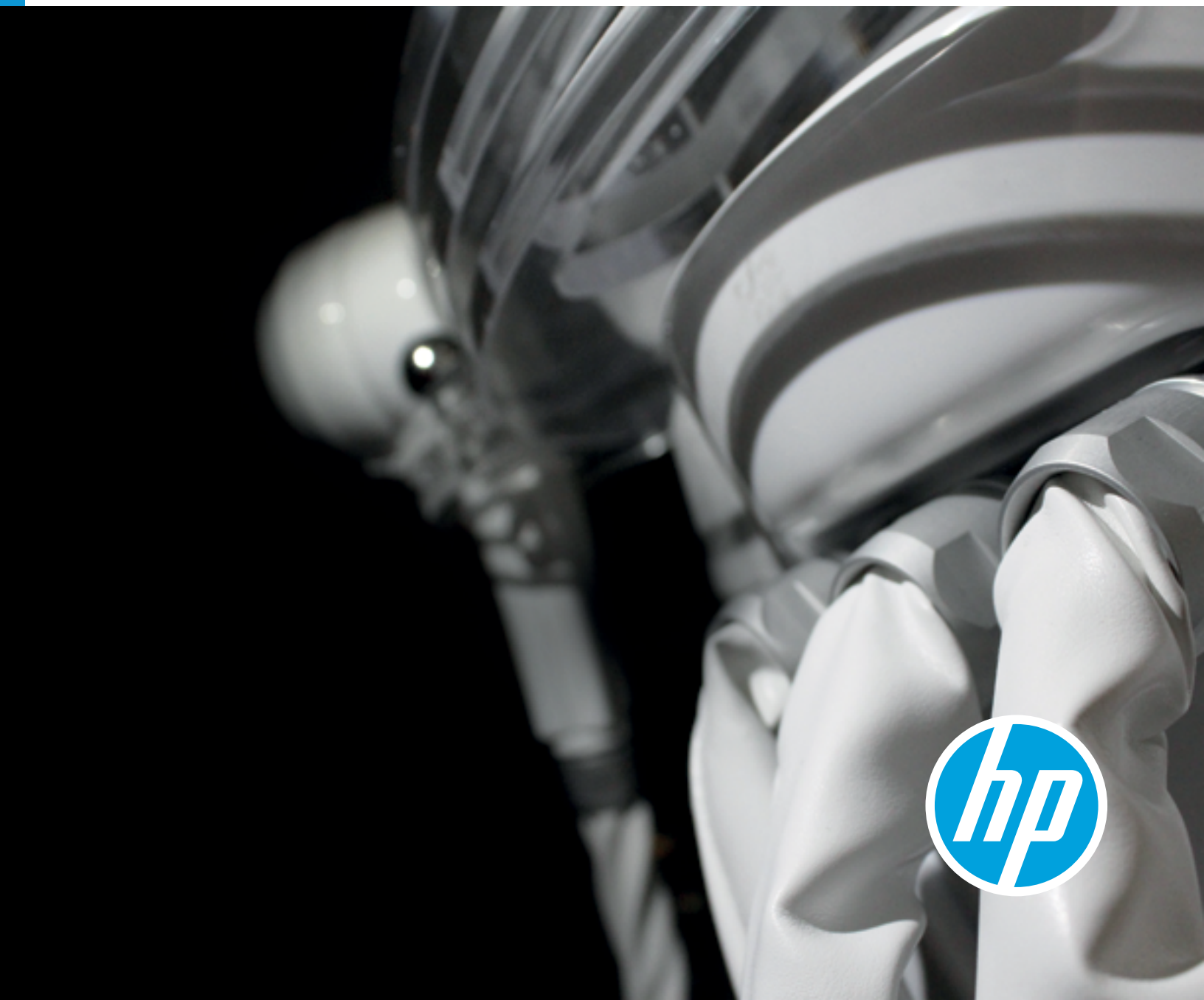
CASE STUDY | BIOTEC

HP's 3D Printing technology helps Biotec make products better, faster, and more affordably



With help from HP's Multi Jet Fusion 3D printing technology, Biotec produces improved parts for its medical devices in less time and at a lower cost.

Introduction

"We've made innovation and quality our mission," says Matteo Pretto, who is responsible for quality assurance, logistics, and 3D printing at Biotec. "Development of a new product involves a team of dedicated professional designers and engineers who manage every step, from concept and design all the way through to prototyping and final-parts production. Throughout the process, we ensure we are compliant with the highest quality and safety standards required for medical and aesthetic tools."

Biotec Italia s.r.l. is a **leading developer** and manufacturer of lasers and electronic-, mechanical-, and pneumatic-based technologies for the medical and aesthetics industries. The firm is headquartered in **Dueville**, **Italy**, and has focused on enhancing patients' skin since its founding in 1993.

Biotec offers a line of **medical technologies** that provide safe and non-invasive options for body and facial procedures. The organization's aesthetic devices treat wrinkles, acne, and other facial blemishes, among other benefits. Biotec sells its products to distributors, clinics, and beauty salons in more than 50 countries.

The team at Biotec uses a collaborative approach toward **innovation**, working with leading micro-mechanic, optoelectronic, electronic, robotic, and medical experts to anticipate customer needs and develop innovative solutions that provide customers with a distinct **competitive advantage**. Biotec's commitment to quality has earned it the prestigious "100% Made in Italy" certification.

• Industry

Healthcare

• Sector

Medical equipment

• Objective

Use 3D printing to enhance the development of Biotec's products, from design through prototyping to the production of final-use parts.

• Approach

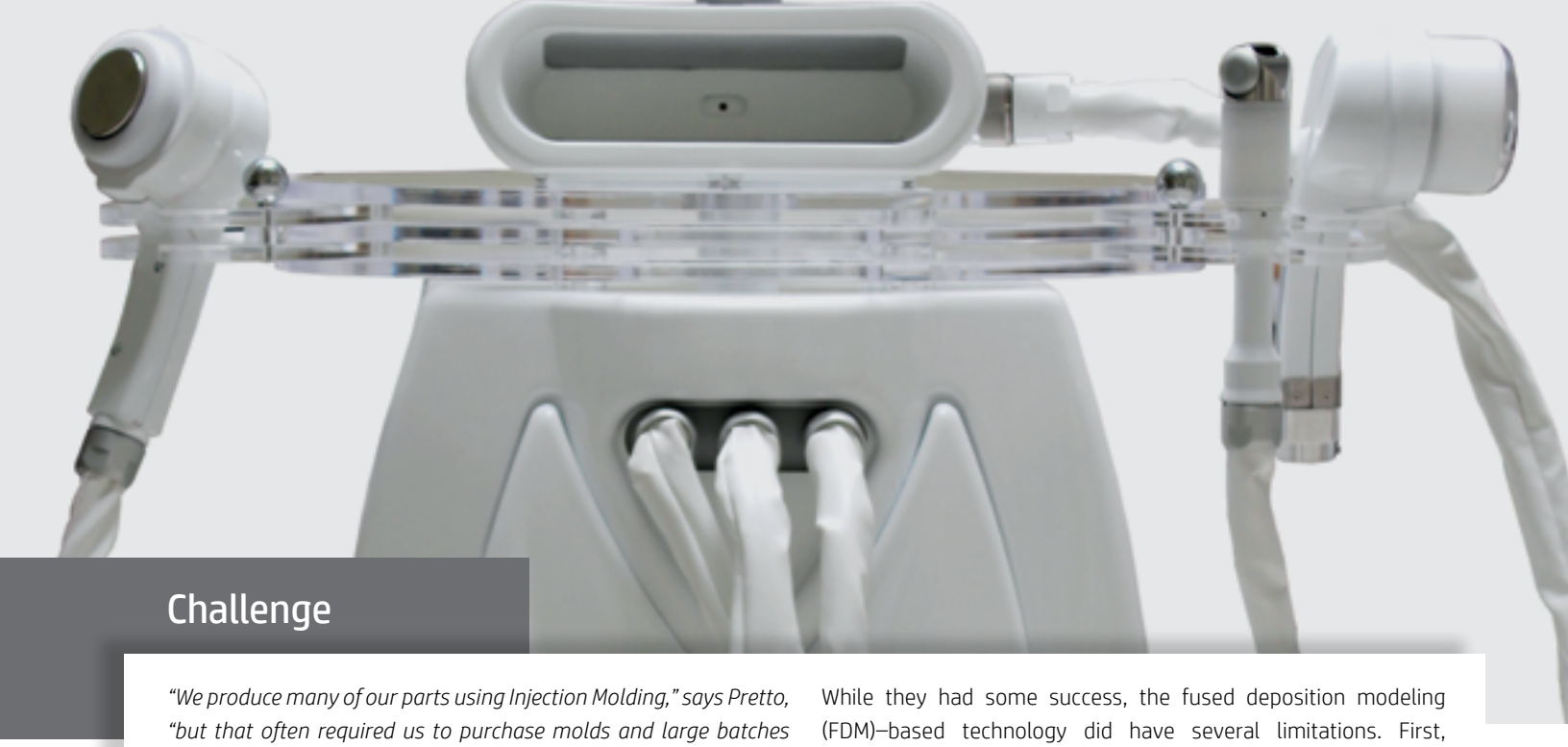
Compare HP Multi Jet Fusion 3D printing's capabilities with Injection Molding and other 3D printing methods to determine if it will **improve the quality of manufactured parts and the speed** at which they're produced, all while at a **lower cost**. If successful, begin producing prototypes and end-use parts using HP's technology.

• Technology | Solution

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

• Material

HP 3D High Reusability PA 12



Challenge

"We produce many of our parts using Injection Molding," says Pretto, "but that often required us to purchase molds and large batches from external suppliers. 3D printing offered an alternative, but the cost and time it took to manufacture was often prohibitive. It would frequently take us over a week to produce parts with other technologies."

From its inception, Biotec has used traditional methods like **CNC Machining and Injection Molding to manufacture its products**. Approximately five years ago, the company bought its first 3D printer with the intention of **using it for prototypes and final parts**.

While they had some success, the fused deposition modeling (FDM)–based technology did have several limitations. First, the quality wasn't as high as their Injection Molded parts, the engineering characteristics weren't exact, and the surface finish wasn't smooth. Second, the time it took to create parts was unacceptable. In some cases, it would take nearly 12 hours to produce a single part. Finally, the production cost was considerable high, and in a highly competitive market, Biotec needed a more cost-effective solution.

Solution

"This particular sector is very competitive and constantly evolving," says Pretto. "It is vital that we keep up with the demands of customers. Our business model requires the most advanced and effective technology to anticipate and deliver solutions that meet their needs."

Biotec was first introduced to HP Multi Jet Fusion in 2017. HP reseller 3DZ, also located in Italy, met with the team at Biotec to provide an overview of the new 3D printing technology and discuss how it might benefit a company in their market. Working with their technical department, **3DZ ran a simulation of the most complicated part that Biotec was currently 3D printing**.

The part they tested was the handpiece shell of a Biotec product called Lipo-Ice (CAR.1439). In the past, it would take at least 11 hours to print each shell. With the HP Jet Fusion 3D 4200 Printing Solution, they could print 18 parts in approximately 12 hours. Further, **the surface quality and engineering characteristics were nearly identical to what they achieved with Injection Molding**. Perhaps most importantly, Biotec found that the **cost of production was cut in half**. With FDM the part cost approximately 100 euros to manufacture, but with HP's 3D printing technology, the part could be made for less than 50 euros.

Beyond the speed of printing each part, Biotec found that HP's unique 3D printing process also **helped improve their overall productivity**. Because the build unit in their printer is removable, they can remove it after the parts are produced and use HP's processing station to cool the parts, then insert another build unit and print continuously.

The processing station also serves another distinct advantage: **Once the parts are cooled, they can be finished and cleaned on the device**. The extra powder that is removed can be recycled and used again, further reducing cost while also providing sustainability, which was an important benefit for Biotec.

Biotec purchased their own HP Jet Fusion 3D 4200 Printing Solution and began using it to make prototypes and final production parts.

Result

"Our HP Jet Fusion 3D 4200 Printing Solution has allowed us to significantly reduce the production time of our parts," says Pretto. "We can now make them in 24 to 48 hours, instead of taking an entire week. The cost has also been reduced by about 66%, without any compromise in quality. 3D printing is now fully integrated into our production cycle."

Once their new HP 3D Printing Solution was installed, Biotec began producing parts for many of their devices. For example, the company's CoaxMED® machine combines multiple technologies including monopolar, bipolar, radiofrequency, fractional radiofrequency (RF), low-frequency ultrasound, vacuum massage, and cryoliposculpt. Together, they provide a safe and non-invasive system for body and facial procedures.

Today, parts for several of the machine's peripherals are manufactured with HP Multi Jet Fusion technology.

CoaxMed®
Presents the revolutionary combination of monopolar, bipolar, radiofrequency fractional radiofrequency (RF), low frequency ultrasound, vacuum massage and cryoliposculpt.

DuoShape®
3Density® modality that automatically modulates the frequency of the field for a three-dimensional and homogeneous penetration of the radiofrequency.

Vaculase®
Active aspiration that causes the dissection of the tissues and modifies the resistance and elasticity of the connective tissue, keeping the tissues moving and simulating the microcirculation.

CoolFrequency®
It simulates the intra and extracelular ion exchange, allowing the correct functioning of the cells and contributes to the elimination of the "ice block" effect in the portion of treated tissue.

COST REDUCTION
3D Printing with Fortus 360: 100€ - HP 3D MJF: 50€ - 50% Cost Reduction

Beyond producing parts that were previously 3D printed or Injection Molded, Biotec is now looking at how HP Multi Jet Fusion technology might replace other manufacturing methods. **The quality of parts they're getting is so high that Biotec is now considering replacing parts that were previously CNC-Machined**. This would allow them to produce even more parts in-house, reducing their reliance on external job shops.

For Biotec, HP's Multi Jet Fusion technology offers a significant competitive advantage. **It helps the company produce higher quality parts more quickly and less expensively than ever before**. This allows Biotec to expand the use of 3D printing in its production process and helps the company deliver on its goal of using cutting-edge technology to anticipate and meet its customers' demands.

Learn more about HP Multi Jet Fusion technology at
hp.com/go/3DPrint

Connect with an HP 3D Printing expert or sign up for the latest news about HP Jet Fusion 3D Printing
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