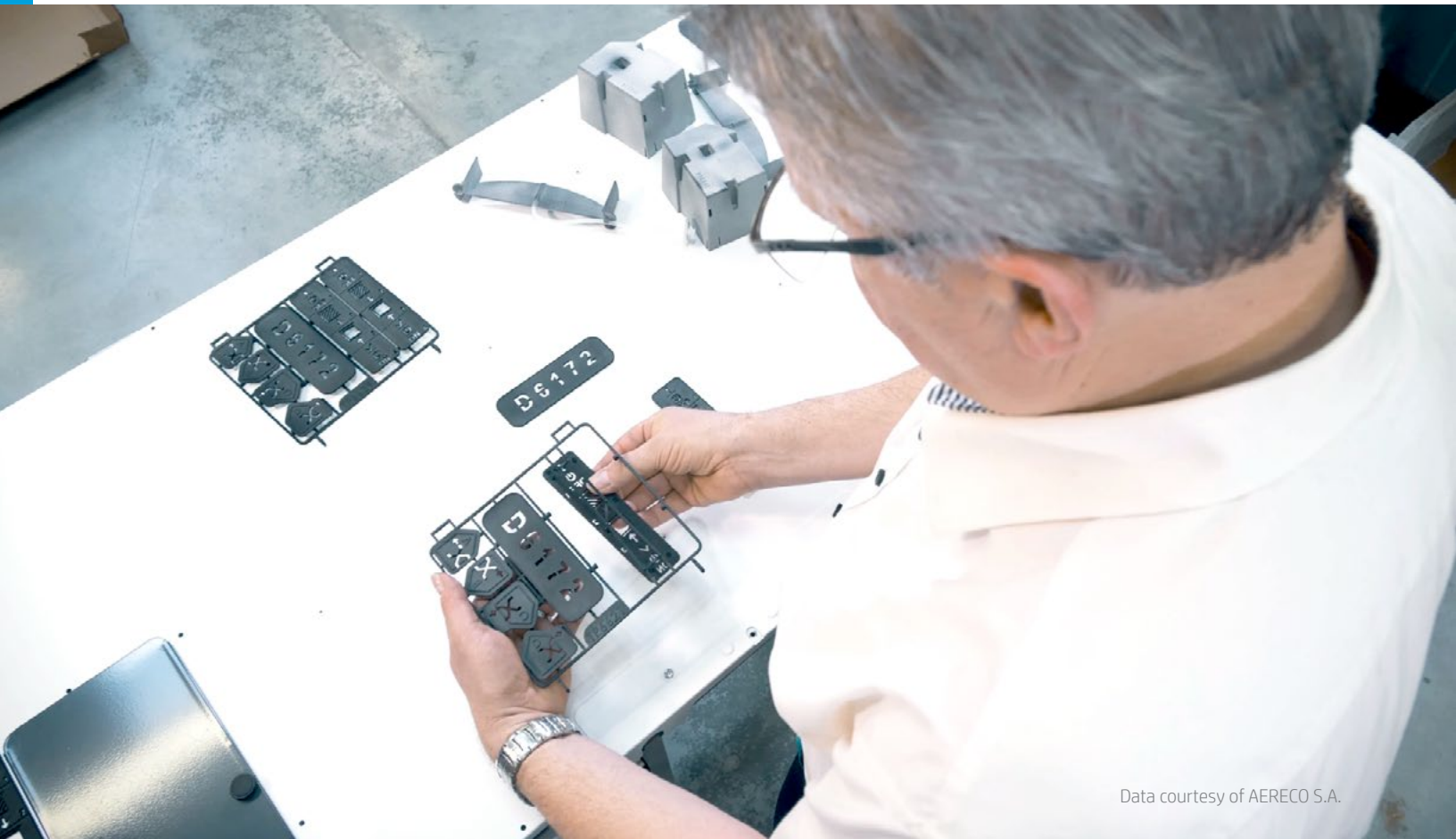


How **Aereco** integrated HP Jet Fusion 3D Printing Solutions to enhance their own production processes



Data courtesy of AERECO S.A.



By using HP Multi Jet Fusion technology to improve in-house production, **Aereco** turns to HP 3D Printing's maximum potential



Introduction

Aereco develops ventilation solutions for residential and office buildings with a key concept: to modulate airflow according to the customer's needs. With this principle applied to specific technologies, Aereco's demand-controlled ventilation systems solve buildings' challenges regarding energy efficiency and indoor air quality.

With a headquarters and factory located in Marne la Vallée, France, Aereco Group has grown to more than 450 employees since its founding in 1984, now with customers in more than 30 countries.

Today, Aereco teams research, design, and conduct tests with innovative tools and products. Aereco has turned to 3D printing to enhance their production processes and develop prototypes more quickly.

- **Industry**

Industrial

- **Sector**

Heating, ventilation, and air conditioning

- **Technology | Solution**

HP Multi Jet Fusion technology, HP Jet Fusion 4200 3D Printing Solution

- **Material**

HP 3D High Reusability¹ PA 12

- **Adoption and implementation of HP 3D Printing protocols and procedures**

Once Aereco's engineering and design teams became familiarized and engaged with HP Multi Jet Fusion technology, Aereco's management aimed to fully implement 3D printing in the company to take complete advantage of its maximum potential. Led by Pierre Kraus, Manager at Aereco, they created a strategic corporate action plan to improve the efficiency and use of HP 3D Printing.

1. HP Jet Fusion 3D Printing Solutions using HP 3D High Reusability PA 12 provide up to 80% powder reusability ratio, producing functional parts batch after batch. For testing, material is aged in real printing conditions and powder is tracked by generations (worst case for reusability). Parts are then made from each generation and tested for mechanical properties and accuracy.

Jigs and fixtures to improve 3D printing process

Aereco engineers and designers were challenged to come up with innovative ideas to improve and optimize not only 3D printed parts but also the entire 3D printing process.

“The key to reaching the maximum potential of 3D printing resides in evolving the end-to-end context of the part

that you are designing and transforming from a previous traditional manufacturing process to this new one,” said Aereco Manager Pierre Kraus. **“By redefining the context related to your 3D part or project, you can implement smarter solutions that will be the game changer to success on your 3D printing implementation within the daily workflow.”**

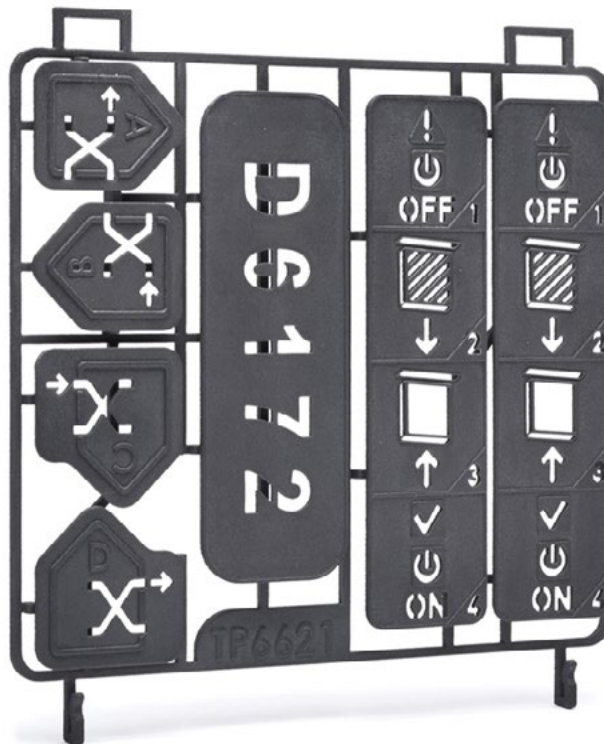
Redesigning labels for a heat recovery device

One example of implementing 3D printing into daily operations involves labels that are placed on heat recovery ventilation devices. Aereco decided to redesign these labels for 3D printing and transform them from conventional stickers—which were difficult to correctly place on the device—to 3D printed parts.

With the design freedom made available by HP Multi Jet Fusion technology, Aereco was able to create new 3D labels to replace their sticker labels. The next step was to develop a way to optimize

workflow. They planned to group together a set of parts (labels) that are destined to be 3D printed for each individual product—in this case, a heat recovery ventilation device.

Doing so meant that they no longer needed to spend time selecting and classifying parts from a bucket of 3D printed parts. Instead, each operator only needed to pick a given group of parts to assemble the device.



Data courtesy of AERECO S.A.

Blister frames help simplify assembly

In order to deploy this process, Aereco engineers devised an idea to design a slim frame that holds a set of labels in order to nest up to seven STL files and simplify the operator's assembly process. This process decreases the likelihood of operator error that could occur when manually selecting parts to be assembled.

Previous processes also required each individual part to be sandblasted and dyed, which ate up more production time. Because the blister frame holds all the parts together, the cleaning process

is quicker as the operator can sandblast the set of seven parts at one time. Now during the sandblasting process, the blister frame can more easily be extracted from the job's raw powder rather than having to pick out the small parts one at a time. To ensure the blister frame's durability so that it does not break during the sandblasting process, Aereco engineers designed a support that is integrated into the blister frame, just behind the labels.

Tooling for blister frames

Once the 3D design of the labels and the blister frames were implemented and Aereco was on their way toward a more efficient manufacturing and assembly process, engineers realized that they could also create tools to optimize their post-processing operations.

During a second round of design for the blister frame, engineers implemented four new small features: two hooks on the lower bar, and two holders on the upper bar. The hooks are used to hang multiple blister frames, one on top of another, so that they can dry at the same time while the holders allow the blister frames to hang onto a special tool where they are dyed.

These two new accessories help accelerate the dyeing process as operators can hang up to 20 blister frames together to be dyed. Using previous processes, operators placed the parts

to be dyed in the dyeing pot chamber which often resulted in non-uniform color. But with the ability to hang the blister frames with the same distance of separation between each one, it ensures the same level of immersion in the dyeing pot and the number of discarded parts due to color uniformity issues has been reduced to almost zero.

From improving current processes to inventing new ways to streamline production, HP Multi Jet Fusion has helped Aereco improve manufacturing for both themselves and their customers.

“We are now able to both solve quality problems and offer an innovative marketing solution for an innovative product,” Kraus said. **“The complexity of the project also pushed us to develop new ideas for low-cost part manufacturing.”**

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

hp.com/go/3Dcontactus

Learn more about HP Multi Jet Fusion technology at

hp.com/go/3DPrint

Learn more about Aereco at aereco.com

