



HP Digital Manufacturing Network partner **Materialise** enables **Avular** to produce customized, on-demand parts for drones



Data courtesy of Materialise

Materialise's commitment to quality, scalability, and an efficient supply chain—benefits offered by HP Digital Manufacturing Network members—make it the perfect manufacturing partner for **Avular**



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Introduction

Materialise helps companies accelerate and innovate their product development cycle by using 3D printing and, more specifically, by giving them access to a wide range of potential technologies and materials. Materialise also works to develop applications with customers and covers a wide variety of verticals, from industrial goods to eyewear, and from aerospace to healthcare. Based in Belgium, Materialise has a global presence in more than 20 countries.

Avular is a Dutch robotics company that helps its customers design, develop, and implement new technologies in the field of mobile robotics. Avular and its team of highly skilled engineers offer customers essential technologies to develop robotics, including services such as designing custom robots, custom controllers, custom-printed circuit boards (PCBs), and custom interfaces.

- **Industry**

Mobility and transportation

- **Sector**

Drones

- **Objective**

Avular wanted to create on-demand, customized parts for drones that achieve the necessary technical requirements and material properties.

- **Approach**

With HP Digital Manufacturing Network partner Materialise, Avular can benefit from the latest 3D printing technology to produce the high-quality, durable, and lightweight parts they need.

- **Technology | Solution**

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

- **Material**

HP 3D High Reusability (HR)¹ PA 12

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.

Challenge

Avular extensively uses 3D printing both for prototyping and as a production method for parts of their products, such as drones. 3D printing and its materials allow Avular to integrate wiring guides, clicking mechanisms, battery holders, PCB holders, and hollow spaces that would be impossible to make with other manufacturing methods. With a business strategy that revolves around on-demand production, 3D printing gives Avular the advantage of design flexibility when their customers require adjustments to drone designs.

When they began 3D printing five years ago, Avular used entry-level 3D printers, but experienced poor quality and slow production speeds. They found and started working with Materialise in 2014 because it was the only service bureau that could provide the technical requirements that they needed, especially in terms of wall thickness and weight reduction.

“3D printing is in our DNA,” said Pieter Vos, Marketing Director at Materialise Manufacturing. **“We’ve been living and breathing the technology for 30 years, ever since the company was founded. It’s in everything we do.”**

“The reason we chose Materialise is because they have the material we want to print with, which is HP 3D HR PA 12, and we can rely on quality of outcome,” said Albert Maas, CEO and Founder of Avular. **“We want to have the lightest weight we could possibly have, obviously because reducing weight means more airborne time.”**

Being able to iterate and adapt as you go was also a major contributing factor for Avular’s decision to work with Materialise. **“Product development no longer has to be a linear process,”** said Vos. **“Designs can be adapted as they go, which brings them the ability to move their products faster to the market and continuously update and change as they go, and that is a significant advantage over traditional technologies that 3D printing is offering.”**

Avular’s confidence in their relationship with Materialise grew once the service bureau became a member of HP’s Digital Manufacturing Network (DMN) in early 2019.

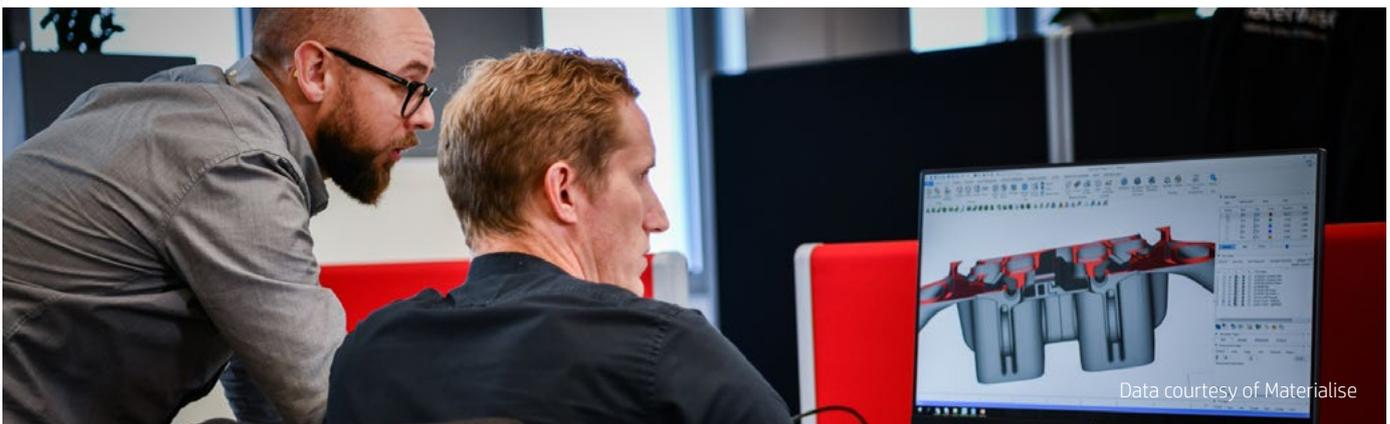
Materialise: An early pioneer of HP 3D Printing

“We were one of the first partners that HP approached when they started developing HP Multi Jet Fusion technology,” said Vos. **“We were closely involved in beta-testing the platform, giving feedback to HP in terms of machine performance and technical requirements, and we were connected from the software perspective as well because our software unit makes the build processor for HP MJF.”**

In late 2018, HP 3D Printing reached out to Materialise with an idea to form a network with some of the early adopters of HP MJF technology and like-minded companies. Through this platform, members could share experiences and ideas, as well as establish a centralized and certified network where HP can direct potential customers.

Regarding Materialise’s decision to join the HP DMN, Vos added: **“Any third party that is scoring us on topics such as part quality, quality control, scalability, and process know-how gives us proof in the market that we are ready to take on serial manufacturing. The network has the value of signaling to our customers that another party has qualified us for this.”**

“It’s a confirmation of the fact that we are leading in terms of adopting 3D printing as a manufacturing technology, so it’s important for us to be part of this network and be seen by the world as the leader we are.”



Data courtesy of Materialise

A partnership grows

Thanks to their use of HP Multi Jet Fusion technology, Materialise can meet Avular's needs for customized drone parts at low volumes: **"We don't need to order our parts in high quantities,"** Maas said. **"We can have customized designs and prints based on the customer's specific needs."**

Avular also benefits from faster production speeds compared with their previously used technologies: **"We can have it shipped by Materialise within one week,"** Maas said.

Vos has high hopes for the future of Materialise and the HP Digital Manufacturing Network: **"We have always embraced co-creation in the industry and looking beyond the competition to connect different parties in the ecosystem of 3D printing, be it machine manufacturers, material suppliers, or other service companies. When we work together as an industry, we drive adoption forward."**



Data courtesy of Avular

For more information on Materialise visit materialise.com

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For more information about HP Digital Manufacturing Network, please visit hp.com/go/DigitalManufacturingNetwork

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

