Desktop Metal

CASE STUDY

3D Printing Enables More Efficient Production

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Jade Groupe utilizes Desktop Metal binder jetting to produce fast manufacturing solutions

Customer
Jade Groupe

Location
Agueda, Portugal

Industry
Consumer goods

Application
Luxury fashion accessories

Machines
Desktop Metal Shop System™
& Studio System™

Material
17-4 Stainless Steel

Website
jadegroupe.pt

Increasing Production Capacity with Metal 3D Printing

Jade Groupe produces luxury fashion accessories exclusively for the renowned consumer product group LVMH Moët Hennessy Louis Vuitton. The company houses the entire production cycle in its various metal workshops, from injection molding and polishing to electrochemical plating and quality control. Essential for production, jigs and fixtures needed for a variety of products require expensive tooling and come with long lead times that can delay getting finished products to market. “The high demand on tools, jigs, fixtures, and other mechanical devices overloads the dedicated workshop and as a consequence, the lead time is very high, affecting production efficiency,” said Pedro Domingues, Additive Manufacturing Application Engineering at Jade Groupe. “Desktop Metal systems speed up our production process by absolving a percentage of that CNC workload.”

In 2019 the company decided to start metal 3D printing and invested in a Desktop Metal Studio system as a solution to eliminate hard tooling. Jade Groupe got started with ease using the office-friendly design of the Studio System to print a variety of complex functional metal prototypes to match the final finish and iterate quickly to add more value to products.

With a roadmap to produce end-use parts with additive manufacturing, Jade Groupe ordered a Desktop Metal Shop System to position itself on the leading edge of digital manufacturing solutions. With the area-wide binder jetting technology of the Shop System, the company will be able to increase 3D printing capacity in a wider variety of materials while streamlining production and optimizing products. “With binder jetting we’re able to improve weight and cost while reliably producing quality parts enabling a more efficient workflow,” Domingues explained, “It’s a game changer for us.”

Faster Turnaround, Increased Performance

Fixtures are needed to hold down aluminum buckles for machining yet would traditionally be delayed while waiting for free CNC machine time and setup labor. With the machine shop at full-utilization running products, this wait time could be up to two weeks – and taking a CNC machine offline for fixture production also caused further manufacturing delays.

With binder jet 3D printing, the Jade Groupe is able to produce the fixtures without the cost or lead time of traditional tooling. Designs are produced on-demand and ready for use directly from the Shop System. Using the design freedom of additive manufacturing that eliminates the manufacturability constraints of traditional CNC production the company created a design that was able to conform to the buckles without damaging them while weighing 42% less than the traditional component. The decreased mass results in less machine wear, optimizing production performance.

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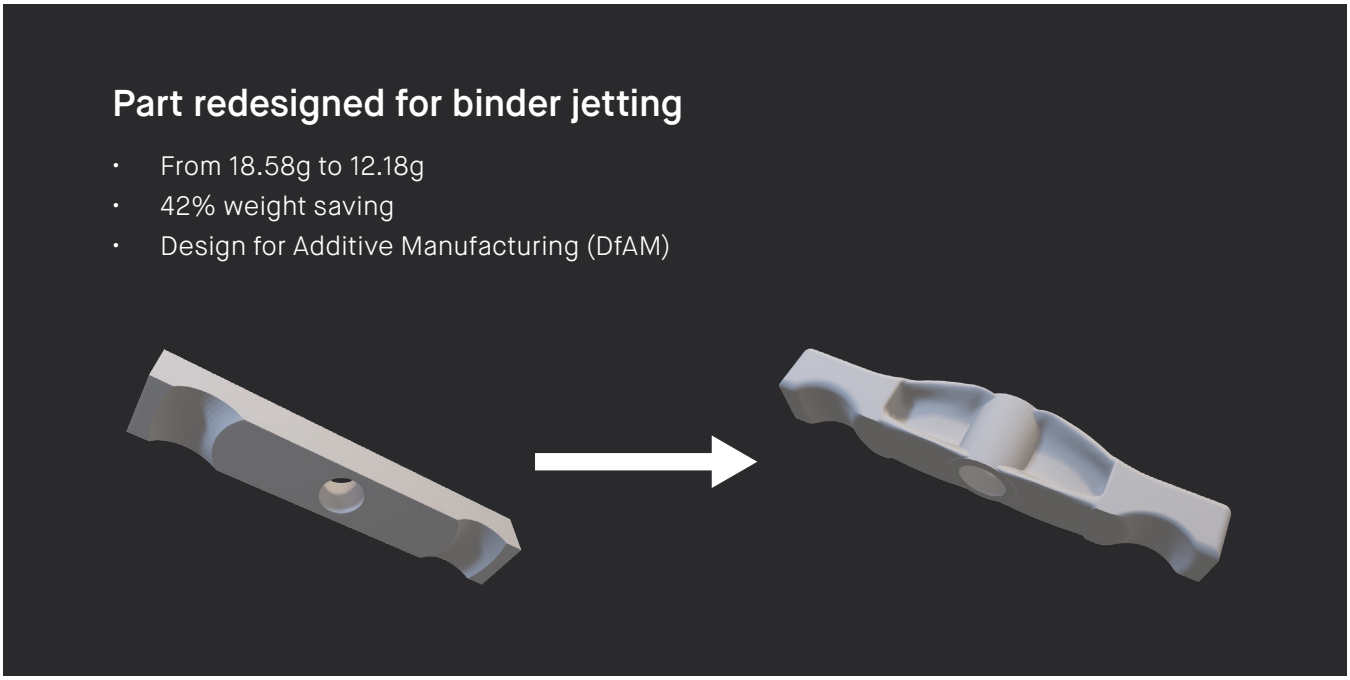
3D printing on the Shop System drastically reduces lead time of this lightweighted fixture



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Optimizing the design of this wrench adapter for binder jetting nearly halved the weight

Flexibility Leads to Production Standardization

A wrench adapter was needed to standardize the process of sealing a furnace door on a production line. This seemingly minor step was crucial, since an entire sinter run would be at risk of failure if the pressure applied on the seal was inaccurate. Digital production on the Desktop Metal Shop System meant the team could quickly create a part to solve its specific production problem without disrupting CNC production or ordering an off-the-shelf part. With the flexibility to create production solutions on-demand, Jade Groupe can guarantee it is delivering customers value with differentiation in quality and craftsmanship.

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In-house production of this tool allowed for better process control

Dimensional Accuracy Drives Cost Savings

Jade Groupe manufactures a sacrificial tool used to enable a tight fit in a polishing operation for luxury mousquetons, a type of carabiner used on its clients‘ products. The tool helps control which faces and edges are polished. Instead of doing it manually, the team created this tool for mass production of the mousquetons. 3D printing the parts directly without tooling reduced the lead time by 50%.

The traditional manufacturing process for the tools required a flip-cut operation to machine both sides. However, the flipped parts were not always centered for machining on the opposite side, leading to increased scrap. Utilizing binder jetting, Jade Groupe is able to 3D print 3,100 17-4 stainless steel parts in one build and the tools proved to be more dimensionally accurate because they were printed in one process, eliminating the need for realignment. Comparing inputs such as raw material cost, system amortization, and operator labor, the Desktop Metal Shop System reduced production operations and lead to a cost savings of 20% to 3D print the tool compared to the traditionally CNC-ed component.

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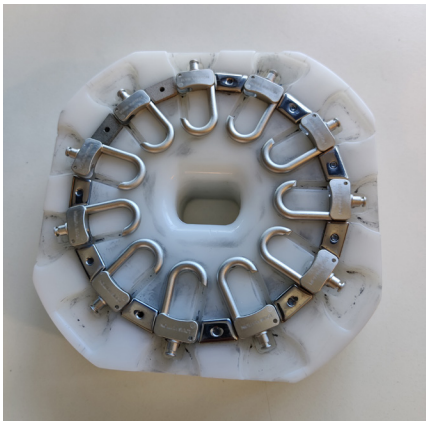
3D printed tools save enough lead time to allow for heat treatment that doubles tool life

In fact, because Jade Groupe saves so much lead time by 3D printing these tools, they are able to heat treat the tools to H900 in an additional hardening step not possible in a timely manner with the traditional production workflow. The hardened tools last twice as long as the traditional CNC-ed versions and the team is able to print more on an as-needed basis to keep production on track.



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The wear component is produced with precision with less cost and and less lead time

Roadmap for a 3D Printed Future

As the market for luxury items expands, custom hardware is essential to establish unique branding and to signal quality. By embracing additive manufacturing, Jade Groupe is able to produce value-added hardware from custom tooling without the investment and long lead times of traditional production.

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As Jade Groupe expands its use of binder jetting the team is finding more ways to avoid delays with streamlined manufacturing and on-demand iterations. “Our goal is to bring this internal experience to production of end-use parts in complex designs and a variety of materials, possibly even precious metals, for our consumers.” Domingues concluded.

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Jade Groupe has been successfully using its Desktop Metal Shop System in its metal workshop for two years

About Jade Groupe

Jade Groupe is a prestigious company in the field of luxury jewelry. Founded in 2007, the company today produces luxury fashion accessories exclusively for the renowned consumer product group LVMH Moët Hennessy Louis Vuitton.

As a leading supplier of unique and precision metal parts to renowned luxury brands, Jade Groupe remains focused on the growth and continuous improvement of its processes and innovations. The company houses the entire production cycle in its various metal workshops, from injection molding and 3D printing to polishing, electrochemical plating and quality control.

About Desktop Metal Inc.

Desktop Metal, Inc. is accelerating the transformation of manufacturing with end-to-end metal 3D printing solutions. Founded in 2015 by leaders in advanced manufacturing, metallurgy, and robotics, the company is addressing the unmet challenges of speed, cost, and quality to make metal 3D printing an essential tool for engineers and manufacturers around the world. In 2017, the company was selected as one of the world's 30 most promising Technology Pioneers by the World Economic Forum, and was recently named to MIT Technology Review's list of 50 Smartest Companies. For more information, visit www.desktopmetal.com.