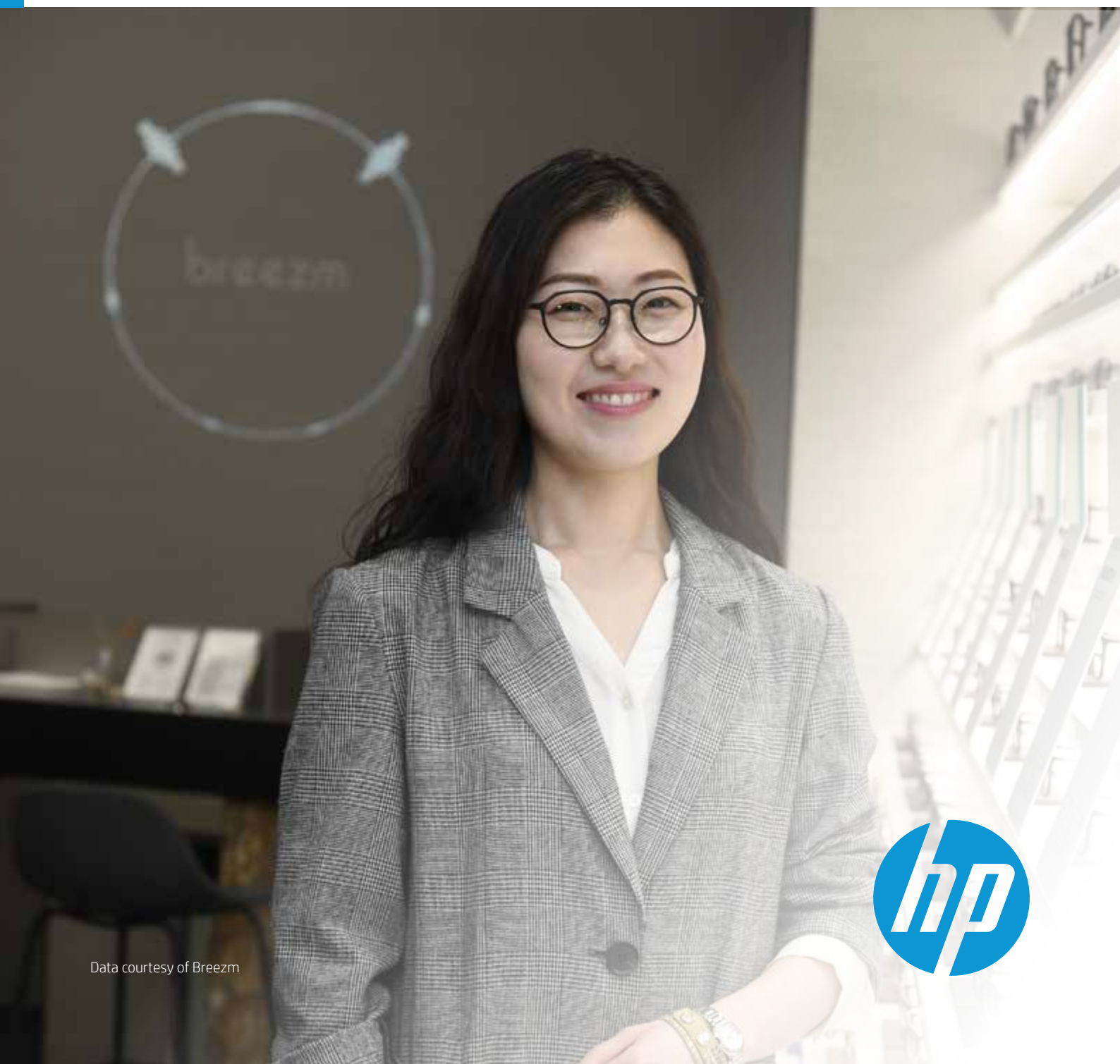


HP Multi Jet Fusion and **Breezm** ramp up production of custom-designed eyewear



Thanks to HP Multi Jet Fusion technology, **Breezm** saves costs, accelerates production, and delights customers with comfortable, custom-made eyewear



Data courtesy of Breezm

Introduction

Breezm is a revolutionary eyewear brand that was created by four individuals with unique histories and broad experiences: a marketer who created an innovative eyewear brand 15 years ago, a creator who ran a branding and creative directing agency, an artisan who has manufactured eyewear and exported them to Japanese markets for 15 years, and a technician who started his career with mergers and acquisitions finance but fell in love with 3D printing. The group strived to understand the needs of eyewear customers and in

doing so, applied fine materials and advanced technologies to their designs to enable customers to access truly well-fitted eyewear. They endeavored to make an eyewear brand that both allows wearers to incorporate their personal identities into their eyewear designs and also provides enough comfort to be worn every day. Thanks to collaborations with creative designers from various fields, they can create glasses for both artistic and commercial purposes, thus expanding the possibilities of eyewear.

- **Industry**

Consumer goods

- **Sector**

Fashion and wearables

- **Objective**

To transform the eyewear creation and purchasing experience by producing highly customized frames that fit customers' unique face shapes with designs and colors chosen by the customer.

- **Approach**

Breezm needed to transition from traditional manufacturing and former 3D printing technologies in order to accelerate production and expand customization possibilities.

- **Technology | Solution**

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

- **Material**

HP 3D High Reusability¹ 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.



Data courtesy of Breezm

Challenge

Breezm's business concept focuses on changing the eyewear shopping experience for customers by producing highly customized eyewear (both prescription glasses and sunglasses) that fit customers' unique face shapes and with designs and colors that can be personalized, feats that cannot be achieved with traditional manufacturing.

A conventional eyewear manufacturer's average go-to-market time (from design to launch) typically takes 6 months and a minimum order requirement of between 300

and 500 pairs is required. Re-ordering an existing design would take an average of 3 months, and this entire process was too slow and unsuitable for Breezm's standard of quick time-to-market.

Therefore, Breezm explored new solutions in order to accelerate and optimize production and found such benefits with 3D printing technologies, but they were still looking for a better option to dramatically increase production capacity and speed.

Solution

Breezm needed to drastically decrease production times and introduce customization capabilities to meet the individual needs and desires of customers. After conducting market research regarding newer 3D printing technologies, they decided to adopt the HP Jet Fusion 4200 3D Printing Solution, equipped with HP Multi Jet Fusion (MJF) technology.

Breezm was particularly drawn to HP MJF's capacity for a large build size, fast printing speeds, and the fact that HP MJF offers functional final end-use parts production, while other 3D printing technologies focused more on prototyping.

"We customize our designs to each customer's face, which we scan," says Wooseok Sung, CEO of Breezm. **"The end result is a product that is a better fit and also a reflection of their personal style."**

The design process begins with a 3D scan of a customer's face, which evaluates 19 specific points such as head/face size, distance between the eyes, nose angle, and face width, among others. Based on these data, Breezm's technology creates frames that fit the customer's precise facial characteristics. During the customization process, Breezm's technology also suggests colors that may complement the customer's skin tone, or customers can choose their own favorite color from Breezm's selection of 20 different hues.

The chosen frame is then produced using the HP Jet Fusion 4200 3D Printing Solution.

Because this production method has no minimum of quantity (MOQ), Breezm is able to produce the eyewear in low volumes, at a competitive price.

Result

Since adopting the HP Jet Fusion 4200 3D Printing Solution, Breezm has been able to ramp up production. Traditionally made eyewear requires a well-equipped production line and at least 3 to 6 months to produce any design, but HP Multi Jet Fusion technology reduces production time to just 3 to 4 weeks.

“The HP Jet Fusion 4200 3D Printer is faster than other 3D printers,” says Sung. **“We can produce over 200 eyewear pieces per day, while competitors can only produce 40 to 50 pieces of eyewear per day. It’s a big advantage.”**

Prototyping stages are also faster thanks to HP MJF’s rapid manufacturing capabilities. During the design process, Breezm previously would create up to 10 prototypes or design iterations until they reached the final design. The development stage from conceptualization to prototyping, user acceptance tests, design iterations, and final design now results in an average go-to-market time of 1 month, which is a significant reduction compared with the 6 months required for traditional manufacturing technologies.

“Without the old-fashioned mold process, we reap big savings in terms of time and money,” Sung says. **“This is especially important with fast-evolving fashion trends.”**



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Above all, we can provide customized glasses at a more competitive price.

Wooseok Sung,
CEO of Breezm

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With HP MJF, designers also can be creative since they don’t have to adhere to the design limitations that exist with traditional manufacturing.

“The conventional production method requires a minimum output of 300 to 500 pairs,” says Sung. **“However, with the HP Jet Fusion 3D printer, it’s much more efficient because we can overcome existing limits and produce as many as the customer wishes.”**

Not only has Breezm seen a positive transformation in their manufacturing process, but their customers are also enjoying the benefits of custom-fit, uniquely designed eyewear.

“

I’m a chef, and frequently my glasses fall or slide down because of sweat. But now I have started wearing Breezm glasses. I don’t ever have to touch them when I’m working.

YoungRa Lee.
Chef and Breezm customer

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“

Style must follow form, function and fit. Having my eyewear customized is akin to wearing tailored and fitted stylish clothes. This is important to me, living in such a trendy, fashionable capital like Seoul. I often get compliments from my peers and classmates on how trendy and stylish my customized eyewear is.

HeeJin Nam.
Graphic designer and Breezm customer

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“

Until now, other glasses have been uncomfortable and painful. However, Breezm has fixed the troubles I had before because their glasses are customized.

JaeMin Song.
University student and Breezm customer

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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

