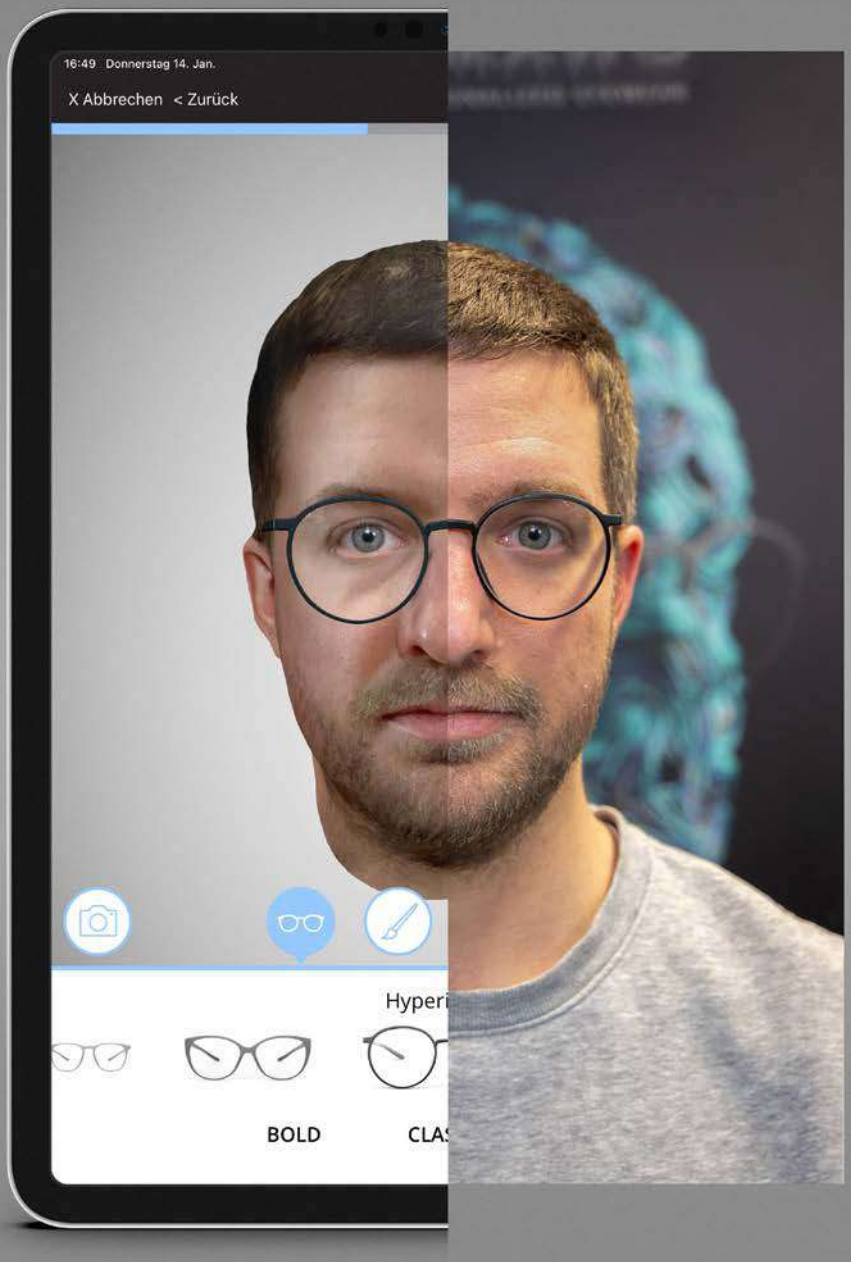
CASE STUDY YOU MAWO

3D-printing pioneers for the eyewear of the future: individual made-to-measure frames

DYE MANSION



YOU MAWO

Individual & sustainable 3D-printed eyewear, based on a 3D-scan, which is produced exclusively for the respective customer. YOU MAWO benefits from a scalable and reproducible process and a wide range of colors.

FOUNDED 2016
EMPLOYEES > 50
ACTIVE COUNTRIES > 20 (750 OPTICIANS)
LOCATIONS KONSTANZ, MUNICH, BERLIN

ABOUT YOU MAWO

At YOU MAWO, traditional craftsmanship is combined with state-of-the-art technology to create real added value for the customer.

The four YOU MAWO founders

INTERVIEW WITH SEBASTIAN ZENETTI

Managing Director and Head of Sales at YOU MAWO.

MORE AND MORE COMPANIES PRODUCE 3D-PRINTED EYEWEAR. WHY ISN'T YOU MAWO JUST ONE OF THEM?

Because we are producing the eyewear of the future. Customized eyewear. To understand that, you must understand the traditional way to produce eyewear – which is still like 50 years ago. There were no big innovations. We are searching for new technologies that have a benefit for both, the end consumers, and the optician.

DATA, SOFTWARE, AND ARTIFICIAL INTELLIGENCE PLAY AN IMPORTANT ROLE FOR YOUR BUSINESS. WHAT DOES THAT MEAN?

We are focusing on customization, which so far is a niche. Why? First, it needs a lot of time for the optician to make all the measurements for a customized frame – it can take up to two hours. Second, the production itself, since it's handmade. That also takes a lot of time and is very expensive. And the third point is that the end consumer does not really know what he will receive. Our goal was to make the scanning and measurement part as simple as possible. And therefore, we developed a system where we can use the Dev cameras of iPads and iPhones to create a face scan based on infrared technology in less than 20 seconds. No hardware is required.

> **"For YOU MAWO the key to success lies in innovative 3D-scanning, data, analysis, AI and software. From new designs to customization and scanning of eyewear."**

Sebastian Zenetti,
Managing Director / Head of Sales at YOU MAWO

THE CHALLENGE

Ready for real customization?

WHY DID YOU START WITH 3D-PRINTING?

One of my co-founders worked for a medical company in the past and they used 3D-printing for medical devices. That was really inspiring. Something like ten years ago, he came up with the idea to produce eyewear out of that kind of polyamide with Selective Laser Sintering. At the beginning, we did not start a company, but it was more like a hobby. The brother of my co-founder has down's syndrome and we thought, that with SLS 3D-printing we might be able to customize his frames based on his face. We just tried, and it worked. It fitted better than everything before and the frames were so durable. For us, that was a game changer. Because we realized that we can really provide a benefit to people.

WHAT KIND OF CHALLENGES WERE YOU FACING WHEN YOU STARTED WITH 3D-PRINTING

The idea itself was really a no-brainer, but we did not expect how hard the development would be. Customization is difficult in two terms. We have the atomic perfect fit and the aesthetic fit. All of the different parts have to work together. And on the other hand, eyewear is something we have in our face 12 hours for 365 days a year. UV-light, sweat, and various cosmetics are working all day long on the material, the coloring, and the finish. The 3D-printing technology is amazing, and I am sure it will change the way how we think of our industry and what we are doing right now is just the beginning. But to get even there was a long way. Frames might look like simple 3D-printed application, but at the end we have three parts and all of them must fit perfectly together. Apart from that we need parts to be skin-friendly

THE SOLUTION

Ready for real customization and series production thanks to industrial technologies

HOW DID YOU SOLVE THESE CHALLENGES?

We really started with the basics, like which kind of production technology is the best. After a while it was clear, that we would go with SLS printing. We said, let's go to the company, which is developing that kind of technology, which was EOS. We connected with them and immediately had supporters on our side. They really helped us a lot to go forward with our application. So we have found the right production technology, but that is just the first step. Next step: We needed the right finishing technology. Good surfacing and coloring to turn the parts into a product.

AND THAT WAS THE POINT WHERE YOU MET THE DYEMANSION FOUNDERS FELIX & PHILIPP?

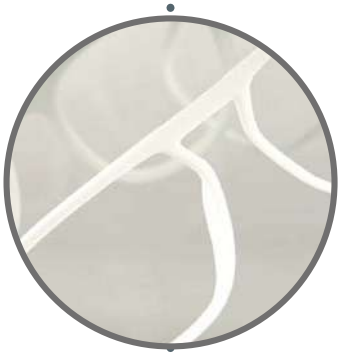
Exactly. That is where we got connected to DyeMansion. I can still remember the first brainstorming session we had in their first office, which was just like one room. We sat there and were thinking about the industry and how we could work together, how DyeMansion could provide the surfacing and coloring for our frames. Today, we are working with more than 800 business partners in 20 countries. We have a completely new level of quality. Of course, one of the biggest challenges was a scalable and reproducible process. That was the main part of the development within the last years and where DyeMansion was one of the most important partners to achieve this. Not only for us, but for the whole industry. Their technology is state of the art and I do not know any kind of competitor from us, who are really doing well, that are not using DyeMansion technology.

Print-to-Product workflow

1

POLYSHOT CLEANING
POWERSHOT C

After the printing process, the parts are being cleaned from the powder in the Powershot C.



3-10 minutes

2

POLYSHOT SURFACING
POWERSHOT S

After a tumbling process (3rd party technology) the parts are treated with PolyShot Surfacing (PSS) providing a semi-glossy & scratch-resistant surface. It is key for maximum coloring results.

5-15 minutes

3

DEEPDYE COLORING
DM60

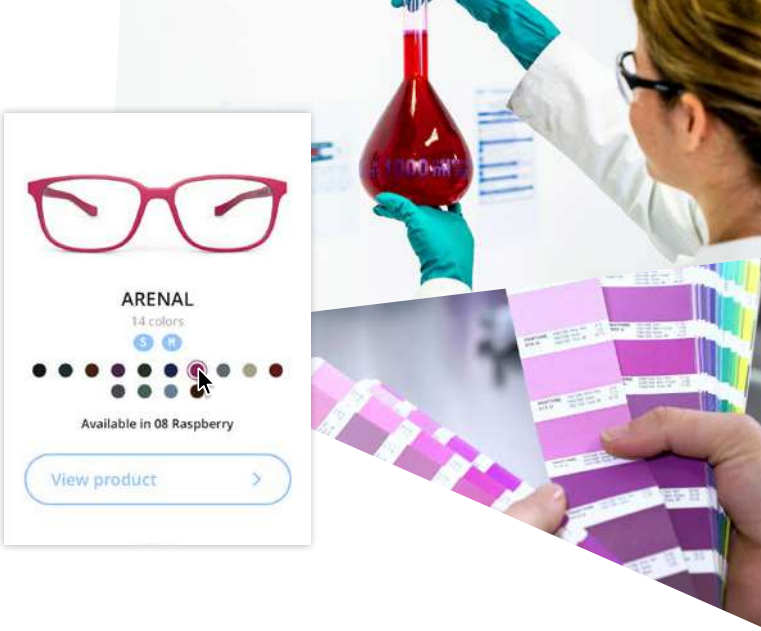
During the DDC in the DM60, the dyestuff penetrates the part and evenly dyed, high-quality parts are being created.

2,5 hours

WHERE DO YOU SEE THE BIGGEST BENEFITS OF AN END-TO-END WORKFLOW AROUND 3D-PRINTING?

One of the biggest benefits we have for the end consumers, the frames are really durable. 30% lighter than traditional plastic frames. Then the second main benefit is for our opticians. In average, opticians have more than 3000 frames on stock, maybe even more. But why that much? Because there are so many people outside the box. With our technology, opticians can now provide them with perfect fit eyewear, tailored to their face. Finally, the technologies and processes we set up, offer huge benefits to us as a brand. We are very close to a production just in time and we have absolute freedom of design and to produce frames one by one. For the SLS machine, it makes no difference if we have 100 times the same frame or 100 different frames inside.

Apart from that, the big brands have to order stock half a year before. At that time, they do not even really know if they will sell this product. And I am pretty sure that a lot of brands are throwing tons of frames away.



LOOKING AT CUSTOMIZED CONSUMER PRODUCTS, WHAT COMES TO OUR MIND ARE COLORS. SO HOW MANY COLORS DO YOU OFFER AND IS THERE ANY LIMIT IN THE FUTURE?

We have a wide range of colors, 15 different at the moment, but we have a lot of more ideas of colors and that is fantastic. Sometimes we just see a color on a shirt for example that we really like and we think “that’s a nice color!”. And with DyeMansion’s Color Matching we can exactly match that color for our frames. So basically, there are no limits here.

> **“One of the biggest challenges was a scalable and reproducible process. That was the main part of our development within the last years and where DyeMansion was one of the most important partners to achieve this.”**

Sebastian Zenetti,
Managing Director / Head of Sales at YOU MAWO

THE BENEFITS AT A GLANCE

From plastic parts to superior products

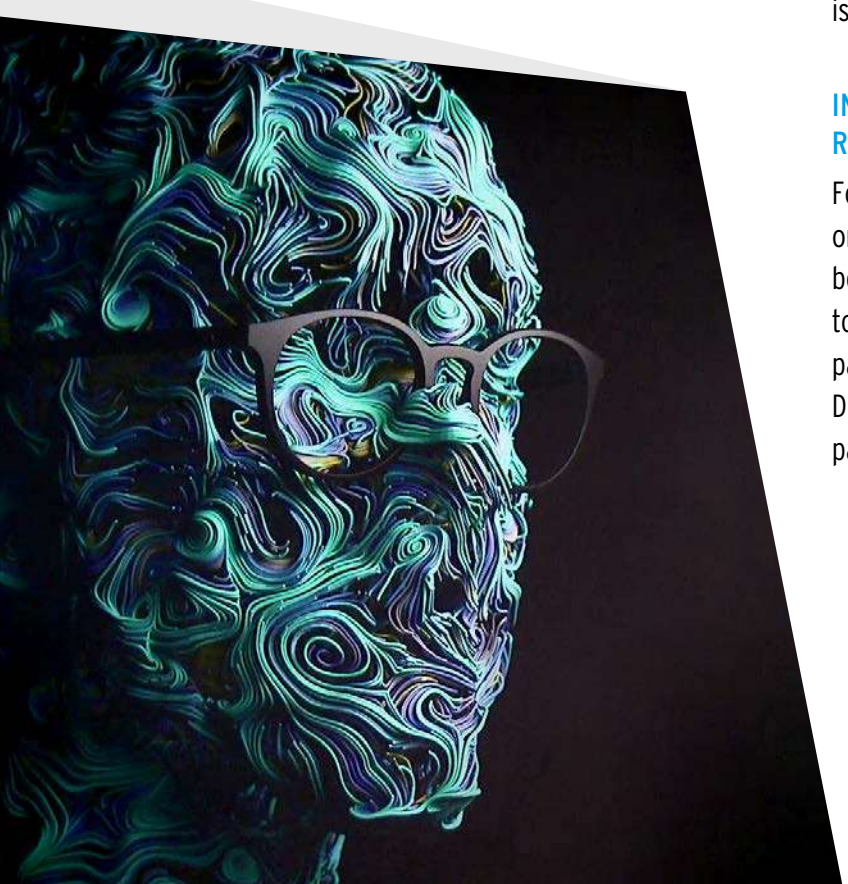
YouMawo's many years of experience combined with EOS technology and the DyeMansion Print-to-Product workflow enable high-quality, end-use products at scale and are the basis for mass-customization.

SHORT INNOVATION CYCLES & A MORE SUSTAINABLE PRODUCTION?

3D-printing helps with frequent product customization and helps shorten innovation cycles. For example, a small amount of a product can be produced and tested. If there are adjustments, they can be made quickly, and new parts produced without wasting parts. The intermediate step of tool and mould production is not required. This also makes innovation cycles more sustainable.

SUPERIOR PRODUCTS WITH OPTIMIZED HAPTICS

Thanks to the tumbling step (3rd party technology) and the DyeMansion PolyShot Surfacing, the parts not only achieve an ideal surface for subsequent coloring, but also a surface finish that is perceived as premium. This finish transforms the raw part into a scratch-resistant application that is suitable for daily use.



ISO-CERTIFIED COLORS FOR DAILY USE ON YOUR SKIN

The original problem of color abrasion after painting the plastic parts no longer exists since the use of DyeMansion's DeepDye Coloring. During the process, the paint is absorbed deep enough into the part to withstand daily wear and tear, even if it is scratched. In addition, the paint does not lose its strength, even when the scanner is used for a long time.

INDUSTRIAL SCALE MANUFACTURING THROUGH REPRODUCIBLE PROCESSES

For YOU MAWO, large scale production is possible. Not only because of the SLS technology used, but also because of the reproducible processes of the print-to-product workflow. By using defined and consistent parameters for Cleaning & PolyShot Surfacing and the DM60's cartridge system, it can be ensured that every part looks the same.

WHAT'S NEXT?

Producing in the markets for the markets

WHAT IS THE FUTURE OF EYEWEAR?

We really want to change the industry. It sounds huge and it sounds loud, but we really believe that we can do this in different ways. In one or two years from now, we want to produce in the markets for the markets. That has so many benefits for us. For example, shorter lead times. This means shorter delivery times and manpower in the countries for the countries. And Covid taught us that supply chains are fragile. With the help of digital manufacturing and automatization, we want to bring the process to a whole new level. Imagine we can offer a custom frame for the same price as a standard frame. What will you choose?

> "We really want to change the industry. It sounds huge and it sounds loud, but we really believe that we can do this in different ways."

Sebastian Zenetti,
Managing Director / Head of Sales at YOU MAWO

Find out more about the project in our Coffee & Cases Interview with Sebastian Zenetti:
https://youtu.be/LxztIH6p-DY

TRYMANSION - TRY OUR TECHNOLOGY FREE OF CHARGE

Not familiar with DyeMansion technology yet? Feel free to test our finishing and coloring solutions with your own parts. Contact us for your first, free benchmark.

YOUR SAMPLES

Send us your non-depowdered parts that were agreed with our team.

CHOOSE FINISH

Choose between PolyShot Surfacing (PSS) or VaporFuse Surfacing (VFS). Our guidelines answer open questions and help to choose the right finish.

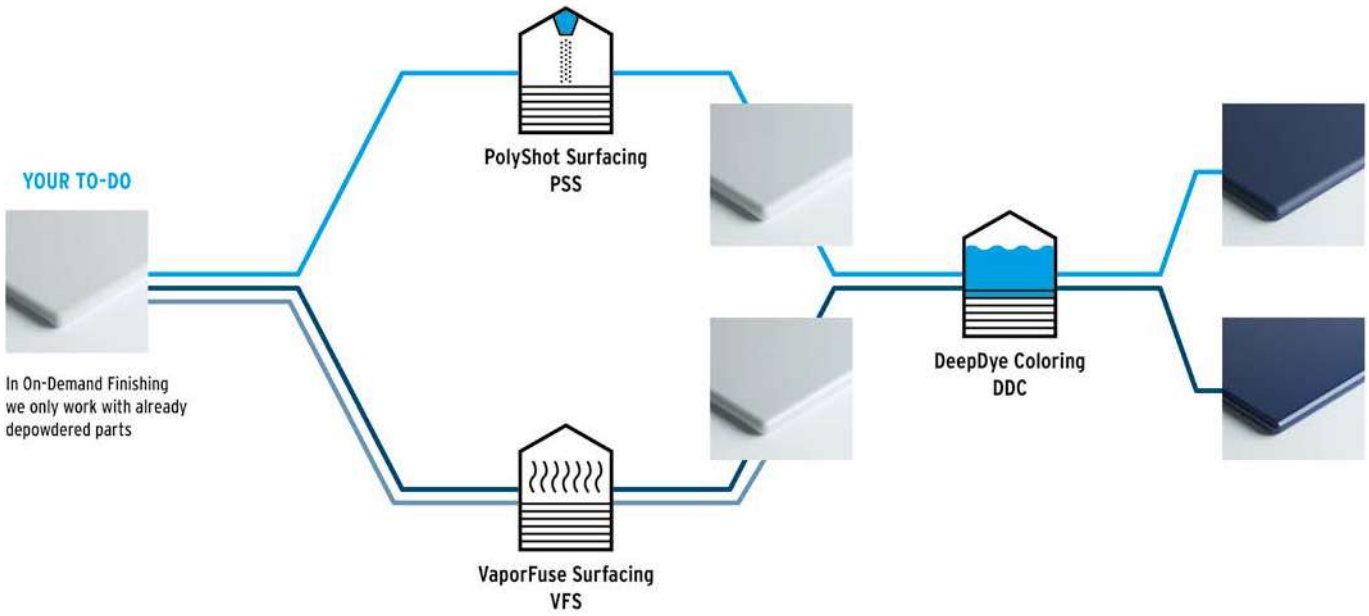
CHOOSE COLOR

Following the surfacing process of your choice, the parts in the DM60 are dyed in your desired color. Click here for color options.

GET SAMPLES

Receive your finished parts. Delivery date depends on scope of delivery and location.

1 CLEANING | 2 SURFACING | 3 COLORING



What's your desired finish?

PolyShot & DeepDye
Semi-gloss, scratch resistant, soft haptics asthetic finish for hard plastics such as PA11 or PA12 and applications like eyewear or prosthetics.

VaporFuse only or **VaporFuse & DeepDye**
Sealed, washable, injection-molding like functional finish for both flexible and hard plastics such as PA11, PA12 or TPU and applications like pipes or midsoles.

DyeMansion GmbH

Robert-Koch-Straβe 1
82152 Planegg-München
Germany

+49 89 4141705 00
hallo@dyemansion.com

DyeMansion North America Inc.

4020 S. Industrial Drive, #160
Austin, TX, 78744
USA

+1 737 205 5727
hello@dyemansion.com

For more information, visit:

www.dyemansion.com

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HOME OF A COLORFUL FUTURE.