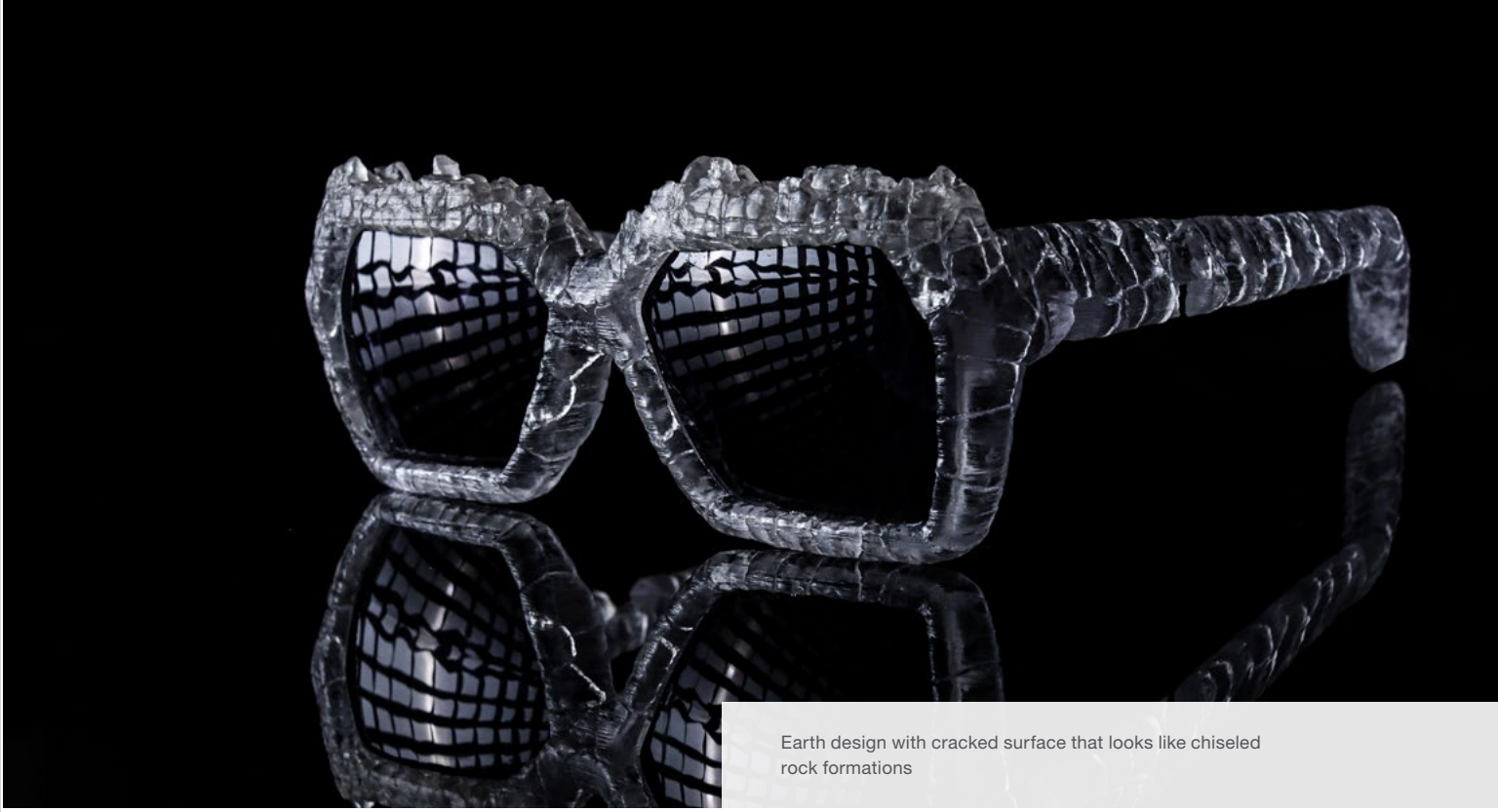
Pioneering Industrial Designer Finds Inspiration for Eyewear Using PolyJet™ 3D Printing Technology

> “If I were to summarize my experience working with Stratasys, it would be accepting and open. You were willing to try some new things using unorthodox softwares and processes, and I think that says a lot about you as a forward-thinking company.

John Mauriello
Industrial Designer

stratasys

Case Study



Earth design with cracked surface that looks like chiseled rock formations

Eyewear's 'Cool' Factor: Breathing New Life into The Design Process

Industrial designer, John Mauriello, has been creating eyewear for years. He rose to prominence with 3D-printed glasses as the design lead for Protos Eyewear, where he developed and successfully launched the first custom-fit 3D printed eyewear. While he has created, in his words, some "crazy designs," over the years, he admitted that the work does get repetitive at times. Mauriello saw the need to seek out new inspiration for future designs.

Most sunglasses are about refined coolness. Think The Matrix or John Lennon. But as Mauriello said, for his new eyewear project, "we wanted to ratchet things up" to create colorful and outlandish designs. Since the project was not intended for paying clients, there were no boundaries, no limits on what was possible for the design.

However, in the design process, there were still some constraints that are often not considered. Whether via materials, manufacturing capabilities, technology, or budgets, designers face an uphill battle on a regular basis. That does not include work with vendors overseas, which presents a series of logistical, supply chain, and intellectual property issues with products. In addition, with standard acetate-created eyewear, it's possible to create numerous beautiful pattens and colors, but replication is often slow and inefficient.

Inspiration Strikes with The Stratasys J55™ Prime PolyJet 3D Printer

To overcome these persistent challenges for Mauriello's project, he decided to take an innovative approach to his statement pieces: he leaned specifically into PolyJet 3D printing technology for prototyping after being approached for a collaboration by Stratasys.

Stratasys let Mauriello use their J55 Prime printers to build out his designs. The J55 is considered a high-end, full-color multi-material printer that prints in 'voxels' instead of sliced layers. This method of precise printing allowed Mauriello to develop multiple samples in one stretch, giving him the ability to evaluate colors, resolution, finishes, and easily print a wider range of ideas in a way that wasn't possible using other methods of 3D printing that he used in the past, such as SLS printing.

Relying on these high-end J55 printers, Mauriello created approximately 100 colorful sunglasses prototypes inspired by the themes of earth, wind, fire, and water. His inspiration for these elements came because people look mysterious in sunglasses, as emotions get expressed through the eyes and sunglasses hide that, creating a 'cool' factor. Mauriello believes that these natural elements work all around us, but with sunglasses, a person's face remains calm and collected to the outside world. As such, his prototypes are absolute statement pieces.

Using the J55, Mauriello printed multiple variations of each element, looking at colors, transparency, and overall finish to help him tweak his own models. Moreover, he accomplished prototyping under a set of circumstances that most designers don't get to explore – a scenario where money, materials, and manufacturing are open-ended.

While no method of prototyping is perfect, as Mauriello found the biggest challenge in 3D printing to be exporting files from the software application. After exporting his files, he found the overall process to be quite straightforward. Once exported, Mauriello could easily create his prototypes accurately and on demand with fewer sample errors in a fraction of the time, and at volumes that are impossible through traditional means of manufacturing through injection molding.

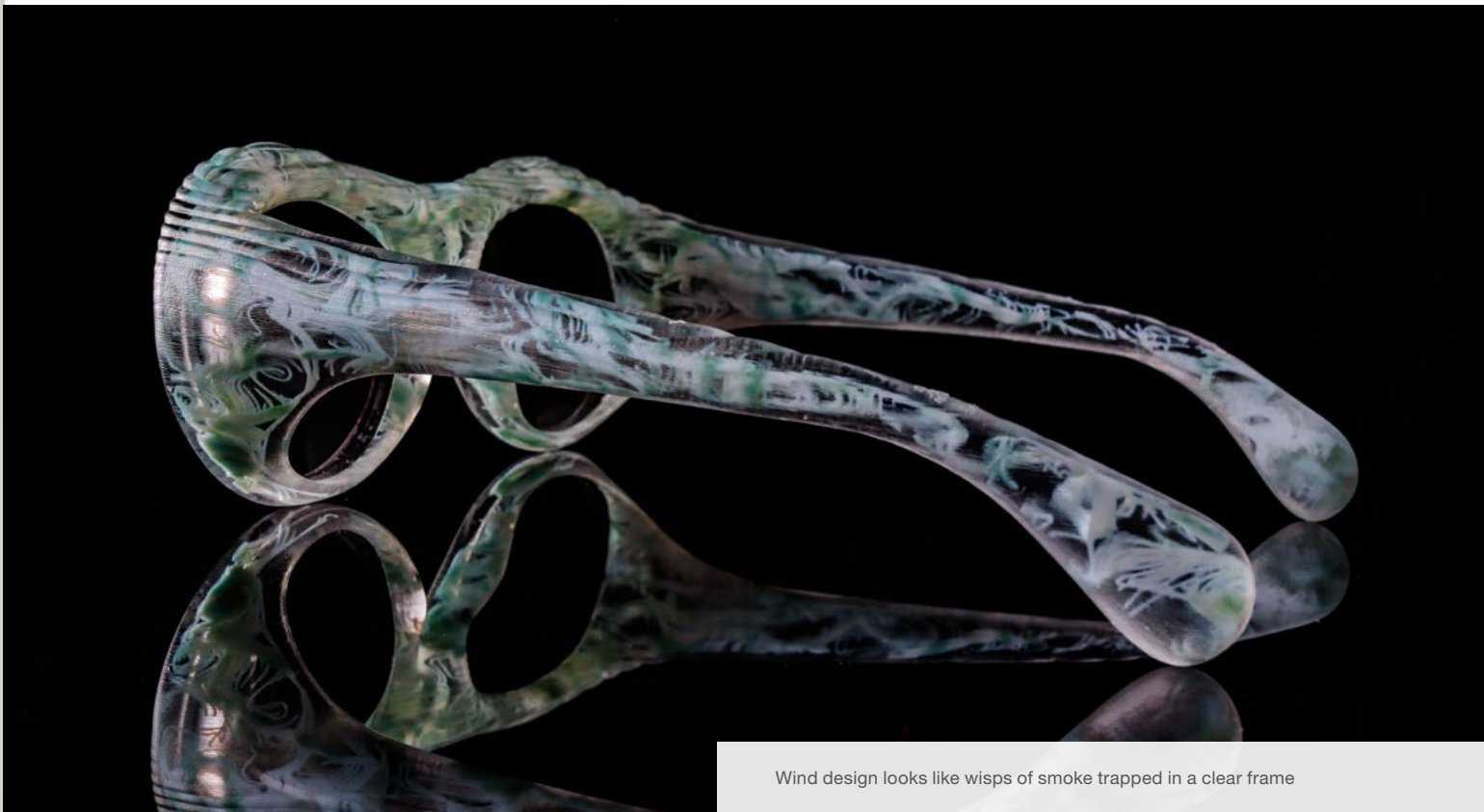
Water design with bubble-like aesthetic

Looking Ahead: Advice for Exploring New Design Techniques

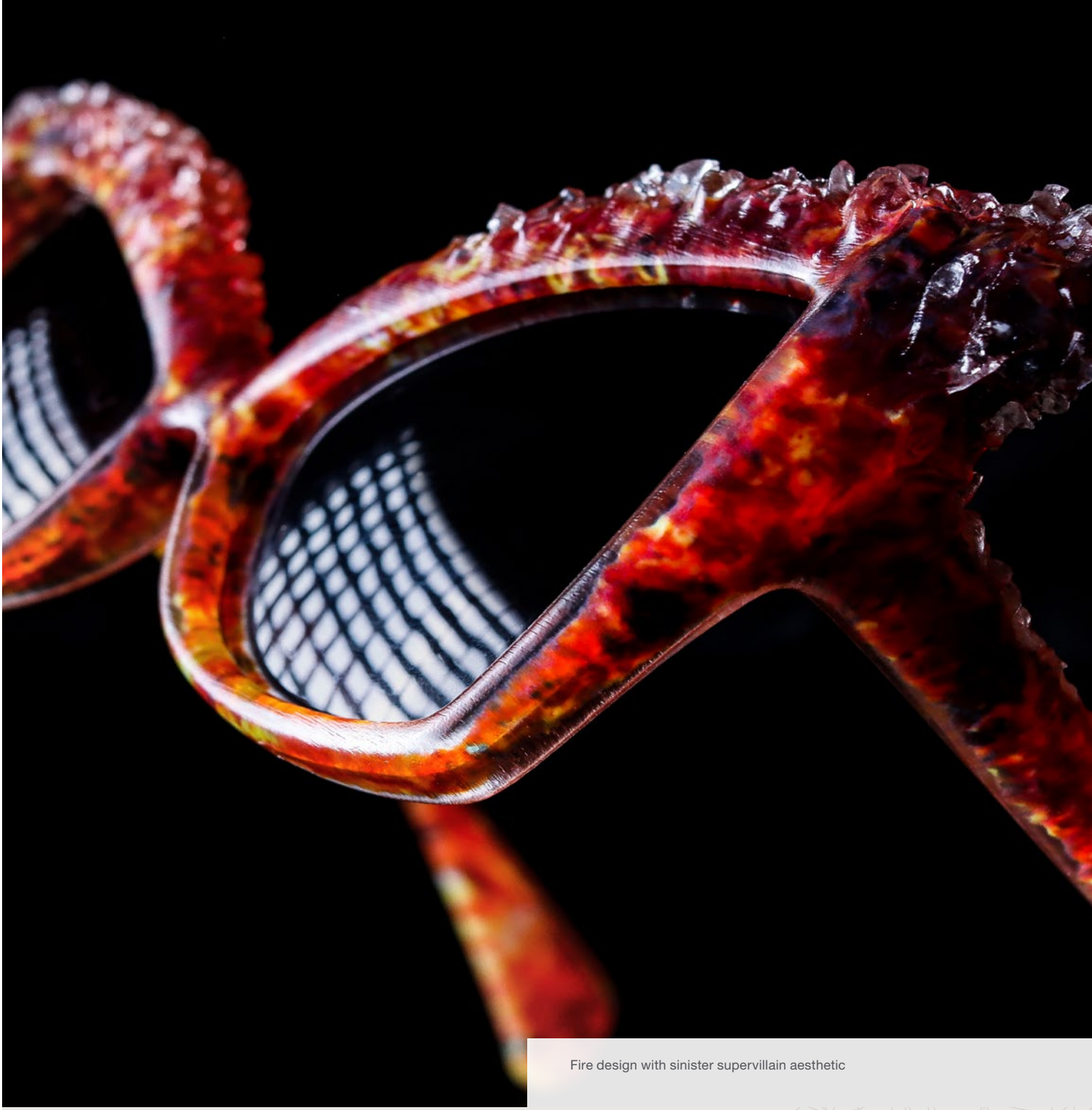
Looking ahead to the future, Mauriello is optimistic about the use of PolyJet 3D printing technology, and its myriad applications for industrial design and prototyping. For Mauriello, he found inspiration in new techniques for prototyping his creations. As an industrial designer in a traditionally risk-averse industry, being open to exploring new techniques in the creative process is key to innovation. In Mauriello's own words, "Progress gets slower as you reach the top. I needed a new challenge. If you can diverge outward, it will serve you well."

"I primarily wanted to use PolyJet printing [for this project] because the technology is more advanced, than anything I've seen from traditional injection molding. For me, PolyJet is the only technology that can achieve a higher level of full color printing for my designs."

John Mauriello
Industrial Designer



Wind design looks like wisps of smoke trapped in a clear frame



Fire design with sinister supervillain aesthetic

Stratasys Headquarters

7665 Commerce Way,
Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937-3000 (Intl)
+1 952 937-0070 (Fax)

1 Holtzman St., Science Park,
PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000
+972 74 745 5000 (Fax)

stratasys.com
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