FRIDAY
MAY 16, 2014

C77 Design Daily

ISSUE 1 2 3 4



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"What's the point?"

(p.6) DESIGN

Hu, Ray. "Soft Cell: In The Studio With Joris Laarman." *Core 77*, May 16, 2014
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IN THE STUDIO — BY CARLY AYRES

"SOFT CELL"

In the Studio with JORIS LAARMAN



The Dutch design studio Joris Laarman Lab is known for merging technology and craftsmanship to challenge our notions of how furniture looks and feels, and its work currently on display at Friedman Benda in Chelsea certainly doesn't disappoint. Joris Laarman Lab: Bits and Crafts, which runs until June 14, contains no shortage of mind-bending furniture—but perhaps the standout example is the Gradient Chair, a curvy, dark-navy lounge that appears to be made of hundreds of tiny circular structures.

Microstructures is actually the correct term for the chair's components—and that's also the name of one of the four themes highlighted in the exhibition. (The others are Maker, Vortex, and Spirographic Series.) Earlier this week, I caught up with Laarman to find out more about how his studio developed these particular microstructures, and how they came together in the Gradient Chair.

As with much of Laarman's work, the impetus for the project was a desire to push the limits of digital fabrication—in this case, 3D printing. "We want to make objects that are actually usable, and we still see that 3D printing is most often used for prototyping," Laarman says. "We want to bring it to a higher level." With the advance of new printable materials like polyurethane and aluminum, Laarman saw an opportunity to create an utterly new and innovative chair, one that defied many of the structural concerns faced by other 3D-printed products.

Having already studied the microstructures of cells, Laarman worked with his team to devise a system of 3D-printed cells that would yield the proper strength for a chair, yet with enough flexibility to be comfortable as well. (Specifically, Laarman chose to build the chairs from bi-truncated cubic honeycomb shapes.) The resulting Gradient Chair got its name because it's comprised of a series of parametric cells that vary in gradient of size, porosity, thickness, flexibility, rigidity, hardness, softness, expansion and color—not unlike a cellular system. Printing out a myriad of tests, the designer checked the effect of each of these variables before welding together a final prototype. "3D printing allows for very intricate aesthetics, and this project wants to make it logic," Laarman says, adding somewhat mysteriously: "The microstructures project aims to research and develop a necessity to the possible complexity."

The chair comes in two editions, a soft version printed in thermoplastic polyurethane and an aluminum version. In both cases, this is the first time that a chair has been 3D printed in those materials. Each version has been engineered on a cellular level to create an optimal weight, strength and comfort ratio. "It is basically like polyurethane foam that is engineered for specific functional needs on a cellular level with parametric software," Laarman explains. "The solid cells in the design create structural strength, and the more open cells are soft and comfortable and create material reduction."

Laarman's team also had to develop special tools to seamlessly weld the different chair sections together. At the end of the process, the polyurethane version is cooked in a heatable steel bathtub of textile dye, large enough to submerge the entire chair in order to achieve its dark-navy hue.

"All the techniques we used in our exhibition were relatively new to us," Laarman says. "We had never worked with the polyurethane material before, and most of the manufacturers we contacted hadn't either." But just because Laarman ultimately pulled it off doesn't mean that he's totally satisfied with the result. "After doing the first prototype, I already see many things that I'd like to improve or want to evolve into a new design," he says. "That's the nice thing with working with new technology—there are just so many things to discover!"

PHOTO GALLERY — BY RAY HU, PHOTOGRAPHY BY GLEN JACKSON TAYLOR







A Puzzled Expression

In addition to the Microstructures series, Joris Laarman: Bits and Crafts includes several other explorations on the bleeding edge of digital fabrication. Where 3D modeling software catalyzed that parametric design language that has evolved over the past few decades, 3D printing offers an even broader new horizon of formal and material experimentation, as well as the challenges that come with those opportunities.

But Laarman is confident in his vision of the future, and if the work on view at Friedman Benda is any indication, he has every reason to be optimistic.

Joris Laarman: Bits and Crafts
Friedman Benda
515 W 26th St. NY, NY 10001
212 239 8700
Tuesday–Saturday, 10am–6pm
Through June 14th



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