

# Make Radically Better **Footwear**

Powered by **Carbon**



# Why Carbon for Footwear?



Differentiate your product line with unique aesthetics and precise energy control



Achieve better performance with tailored mechanical and thermo-physiological properties



Consolidate parts to ease assembly and simplify manufacturing process



Increase comfort and improve cushioning with variable density designs and data-driven customization



Improve breathability through the open nature of a lattice structure



Get to market faster by reducing product development cycles



Manufacture with the proven and growing Carbon Partner Network—global manufacturers who provide unique expertise where you need it



## Design Insights

- **Energy Control:** Direct, dissipate, or divert energy based on activity through a range of soft energy-returning or -damping materials at a variety of stiffnesses.
- **Data Driven Designs:** With Carbon's design software tools, you can offer customers personalized responses matched to their individual needs through a single, monolithic geometry. Finetune your footwear with multi-zonal pressure mapping for optimal response and support.
- **Design Freedom:** Create a shoe the industry has never seen before with Carbon. From customizable colors to infinitely tunable lattices and personalized lattice skin designs and textures, your designs can be totally unique.
- **Part Consolidation:** Think beyond the midsole. With Carbon, you can print everything from the midsole to the outsole including heel counters, padding, aesthetic features, stabilization elements, or even the entire shoe itself.

## Use Case: The Evolution of a 3D Printed Midsole

4DFWD represents the power of the partnership between adidas and Carbon to realize a vision when ideas are unencumbered by many of the constraints of traditional manufacturing. The Carbon Digital Light Synthesis™ (Carbon DLS™) process enabled adidas designers to create some of the most innovative midsoles ever designed, including the 4D Futurecraft, the AlphaEDGE, and the 4DFWD.



ADIDAS 4D FUTURECRAFT



ADIDAS ALPHAEDGE



ADIDAS 4DFWD

# Powered by Carbon

## MATERIALS

- **EPU 44:** EPU 44: Highly resilient, tear-resistant, energy returning, 40% bio-based.
- **EPU 46:** Carbon's most colorful and flexible elastomer to date. Energy returning, tunable softness, faster print time, stiffer build, 40% bio-based, and can be printed in a variety of colors.
- **EPU 43:** Soft, excellent durability, and energy damping.

## CARBON DESIGN ENGINE™

Carbon Design Engine™ online software empowers designers to make precisely tuned, high-performance latticed padding and other components for products like saddles, helmets, and insoles. It reduces and usually eliminates any need for the tedious, manual editing of struts or structures post-generation and automatically resolves lattice features, both large and small, while robustly transitioning between different zones inside the same part for tunable performance.

## CARBON CUSTOM PRODUCTION SOFTWARE

Carbon's methodology enables rapid and efficient production of customized parts tailored to each user. Customers can easily pair Carbon's lattice design and production workflow with personalized data from scans, pressure maps, or other data sources to automate design and enable mass customization.

## DIFFERENTIATION

Powered by Carbon can produce a wide range of designs, the sky's the limit to what you can do to make your product stand out, whether it's a distinct performance result or unique aesthetic using textures or lattices.

## GET FROM IDEA TO PRODUCTION-FAST

With the Carbon platform, you can iterate rapidly and print a new version without having to change tooling. Because you can prototype with the same materials used in the final product, you can start printing production parts as soon as your design is ready.

## CPN

The Carbon Production Network (CPN) is a global ecosystem of leading industry design firms and contract manufacturers who are experts in the Carbon idea-to-production platform. Find a CPN partner based on your needs and leverage the power of the Carbon platform to design, develop, and produce radically better products.

[FIND A CPN PARTNER](#)

## SUPER STATS

- Millions of midsoles have been printed for adidas shoes, making it **the world's largest application of 3D printing.**
- **Five of the top 10** helmets rated safest by the NFL have liners designed and printed by Carbon.
- **Over 20% of helmets in the NHL** utilize Carbon technology.
- Lattice saddles produced on the Carbon platform can be seen in some of the world's top cycling competitions like the **Tour de France cyclists.**

## PARTS MADE WITH METAMATERIALS:

- Saddles
- Helmets
- Gloves
- Insoles
- Footwear
- Backpacks
- Workwear
- Padding
- Grips

## WANT TO GET STARTED?

Reach out to learn more about how you can make radically better footwear Powered by Carbon.

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# PERFORMANCE ENHANCING TECHNOLOGY

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Published: 08 / 23  
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