3 Real-World Applications of 3D Printing in Sports

From high-performance bike saddles to shock-absorbing footwear inserts:

Real cases developed with Carbon® technology and advanced elastomers.

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Overview

3D printing has evolved from purely aesthetic prototyping to become a real tool for functional testing and product development.

At Prototek, we use Carbon® DLS technology and advanced EPU elastomers to produce prototypes and short runs for top-tier companies in the sports equipment and performance footwear industries.

PUNTOZERO
Design for Additive Manufacturing

selleitalia

Filippi

These same technologies are ideal for:

- ✅ Technical outsoles and custom midsoles
- ✅ Running, trail and cycling shoes
- ✅ Fashion-sport accessories (insoles, inserts, grips)
- ✅ Custom protective and biomechanical components

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Case Study #1:
Selle Italia | EPU 41 by Carbon®

Client: Selle Italia → Premium Italian brand specialized in ergonomic, performance-driven saddles for competitive cycling.
Goal: create high-performance bike saddles with energy-absorbing zones and optimized comfort.

Solution:

- Internal design + reticular geometry optimization.
- 3D printed using **EPU41 by Carbon®**, a flexible elastomer.
- Real-world testing by athletes.

Results:

- Targeted cushioning and structural support.
- Lightweight yet durable saddle.
- Long-term fatigue and abrasion resistance.

👉 ***Transferable to:***
midsoles, heel pads, protective cushions for arms, elbows, knees and grips.

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Case Study #2:
Filippi | EPU 46 by Carbon®

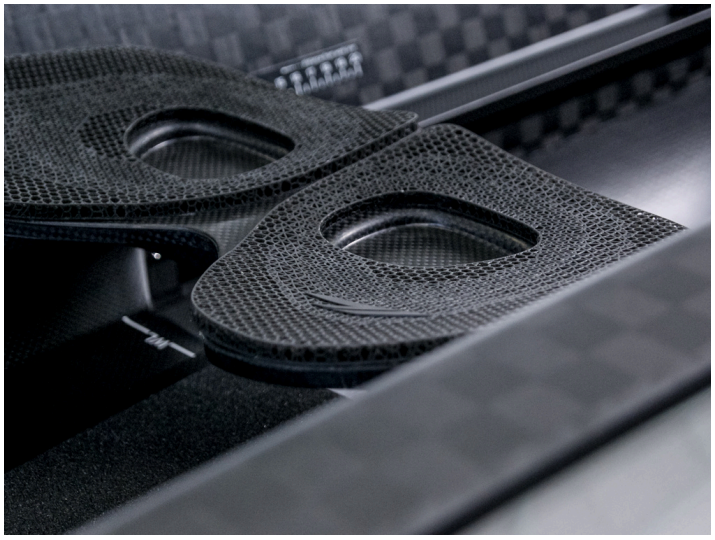
Client: Filippi → Italian leader in advanced rowing boats and accessories, trusted by Olympic-level athletes worldwide.
Goal: improve rowers' comfort and energy efficiency by enhancing seat ergonomics, reducing vibrations and impact forces during training and competition.

Solution:

- Biomechanical assessment and optimization of footboard geometry
- 3D printing with **EPU46 by Carbon®**, a high-resilience elastomer offering superior durability and energy return
- On-water validation through field testing with professional and Olympic-level athletes.

Results:

- Reduced muscle fatigue.
- Improved seat grip and energy return.
- Athlete-validated under competition conditions.



Filippi

👉 *Transferable to:*
high-performance running shoes, midsoles, athletic insoles, pads, grips

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Case Study #3:
BoxingHandGrenade | EPU 41 by Carbon®

Client: BoxingHandGrenade → innovative boxing gear.
Goal: redefine hand protection and grip in boxing gloves using advanced lattice structures for enhanced impact absorption and fist stability.

Solution:

- Ergonomic grip bar design with Voronoi lattice.
- 3D printed using **EPU41 by Carbon®**, a flexible elastomer with excellent energy return.
- Co-developed and tested with professional fighters.

Results:

- Superior impact absorption and punch stability.
- First-ever 3D printed boxing glove component used in combat sports.
- Enhanced comfort and structural support for the fist.

👉 ***Transferable to:***
headgear, mouthguards, glove liners, insoles, combat boot inserts, protective sports padding

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Have a product in development for the sports, footwear or performance fashion sector?

The same Carbon® and elastomer technologies can be used for your prototypes, functional testing, and low-volume production.

Prototek provides:

- Engineering support
- Access to advanced materials (EPU41, EPU46 and other elastomeric or rigid resins)
- Fast turnaround and functional parts
- Experience with top-tier sports brands

📩 **Contact us for a free technical consultation or to request a sample:**

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