



Perfect-fit 3D Printed Prosthetic Socket

Additive Manufacturing Results in Huge
Strides in Comfort and Durability

OVERVIEW

Most amputees requiring prosthetic limbs often deal with uncomfortable, poorly fitting sockets. Inspired to offer a better option, the leaders at ProsFit collaborated with the experts at BASF Forward AM in developing innovative strategies and cutting-edge materials to accomplish just that. Using two high-performance polymer powders, Ultrasint® TPU01 and Ultrasint® 88A, ProsFit designed and fabricated a prosthetic socket delivering a much higher level of comfort resulting in a better quality of life for the wearer. The utilization of the principles of Additive Manufacturing also greatly accelerated the design and production process.

QUICK FACTS

Materials:

- Ultrasint® TPU01
- Ultrasint® TPU 88A

Technology:

- HP Multi Jet Fusion



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The ProsFit Vision is a world where innovation provides limb wearers a choice of affordable, reliable and desirable prosthetic products and services. Their Mission is to leverage knowledge and technology to enable confident mobility. Along with innovative 3D printed sockets, ProsFit has also developed the PandoFit and Cloud plan, a comprehensive end-to-end solution for next-generation prosthetic fitting.

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Sockets are manufactured and delivered in a matter of days



80% recycling rate for materials used in production

Challenge: Accelerate the design and production process utilizing a comfortable and durable material

Striving for the best possible patient experience as well as for maximum comfort, ProFit teamed up with the experts at Forward AM and identified the ideal material for this challenging application: [Ultrasint® TPU01](#) and [Ultrasint® TPU 88A](#). Ultrasint® TPU delivers outstanding vibration cushioning while showing no performance or visual degradation over time. This innovative material maintains its mechanical characteristics under a repetitive load, which is essential to maintaining a consistent and comfortable fit. Having successfully passed skin sensitization, ISO 10993-10, skin irritation OECD Guideline and cytotoxicity ISO 10993-5, TPU can be used in applications like the prosthetic socket close to the human body with complete peace of mind.



Result: A fully digital solution and a boost in clinical productivity

By leveraging the technology and materials of Additive Manufacturing, ProFit benefits from two key advantages: on-demand production and individualization. From design speed and the flexibility of 3D scanning and printing to the customized fit and outstanding end-product consistency, this combination of innovative technologies results in a better quality of life for prosthetic patients around the world.

[Learn more about Ultrasint® TPU01:](#)