



forward **am**

3D Printing for Safe Sharps Disposal

Protective part for dental syringes uses engineering-grade resin for accelerated product development and reduced costs.

OVERVIEW

In partnership with Forward AM and atum3D, Sharpfield Company B.V. used additive manufacturing to rapidly iterate its NeedleCover designs and begin series production. In addition to supplying Sharpfield Company B.V. with UltraCur3D® RG 1100, an engineering-grade resin that's comparable to injection molding materials, Forward AM helped NeedleOff take safety, speed, and usability to the next level and using Digital Light Processing (DLP) technology from atum3D.

You can read the full use case here: [3D Printing for NeedleOff \(forward-am.com\)](https://forward-am.com)

QUICK FACTS

Materials:

Ultracur3D® RG 1100

Technology:

DLP

Partner:

atum **3D**

Industry:

Dental, Healthcare



Sharpfield Company B.V. of Rotterdam, Netherlands worked to develop NeedleOff technology to protect healthcare providers and their patients from accidental jabs with used needles. NeedleOff enables automated needle removal next to the chair. The NeedleCover add-on takes safety, speed and usability to the next level. Now, the needle can be securely covered after every injection for temporary storage, while it allows adding anesthetic as needed. Locked in the closed position after the final injection, the NeedleCover Syringe is safe for transfer to NeedleOff. NeedleOff with NeedleCover is the end-to-end solution for optimal needle safety in every practice or hospital.

[NEEDLEOFF.COM](https://needleoff.com)



Potential to eliminate 2 to 3.5 million needlestick incidents each year



DLP offers rapid curing and faster printer speeds



Cost effective production

Challenge: Create a transparent, protective sleeve that will slide along the entire length of the needle and syringe

Sharpfield Company B.V. wanted to create a transparent, protective sleeve that would slide along the entire length of the needle and syringe. The company needed a material with low water uptake that combined strength, stiffness, and temperature resistance with low shrinkage and high accuracy. Mechanical properties were important, but the ideal polymer also needed to support part details.

During product development, NeedleCover designers wanted to iterate rapidly by incorporating customer feedback and the results of cross-functional collaboration. Then, when development was complete, the designers wanted a quick, smooth transition to production. Waiting for tooling like molds would slow time-to-market, and extensive post-processing would increase project costs.

3D printing supports rapid prototyping across multiple iterations. Unlike injection molding, which is also used to produce dental and medical parts, additive manufacturing doesn't require waiting for tooling. The 3D printer that Sharpfield Company B.V. used, Atum's DLP Station 5-405 EXZ offering digital light processing (DLP) technology for rapid curing and faster printer speeds.

The material that Sharpfield Company B.V. selected, Forward AM's Ultracur3D® RG 1100, is a strong, stiff, polyurethane-based resin with low water uptake, high-temperature resistance, high accuracy, and low shrinkage. This transparent material also supported a smooth transition from prototyping to production, and the only post-processing that was required was the sanding of contact points.

Atum3D's rapid innovation process has revolutionized the development of the Needle Cover for Sharpfield Company B.V., making the production easier, faster, and more cost-effective than before. By using advanced materials such as Ultracur3D RG1100 Clear from Forward AM, Atum3D's AM technology professionals were able to create transparent, detailed twist-lockable protective sleeves that slide along the length of the syringe and needle.



[Learn more about Ultracur3D® RG 1100:](#)