



AXTRA3D



CASE STUDY  
**LUMIA.X1 DENTAL**  
Transforming Dental Production



## **Axtra3D: Pioneering Precision with the Lumia X1**

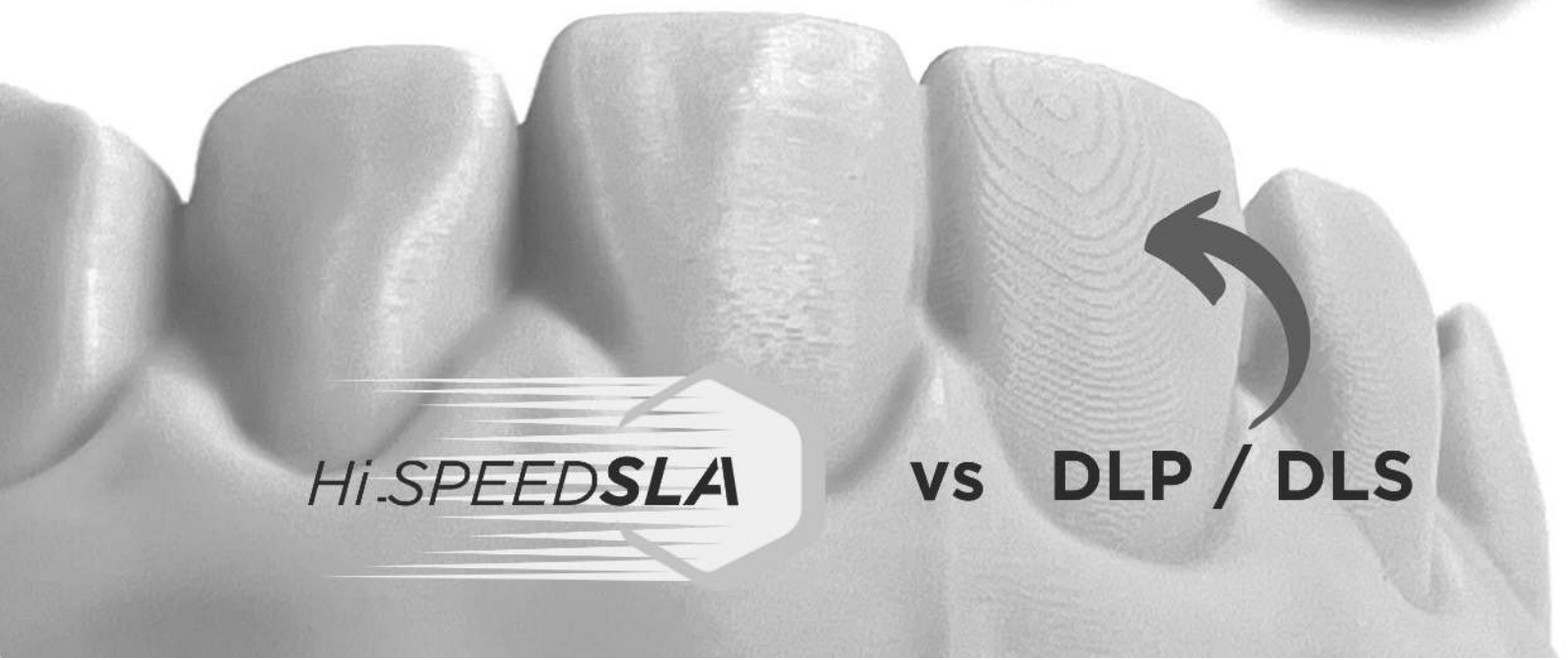
In the rapidly evolving landscape of additive manufacturing, Axtra3D has emerged as a leader by delivering solutions that transcend the usual trade-offs between print throughput, precision, and surface quality. Through relentless innovation, Axtra3D's Lumia X1 3D printer has redefined what's possible across a wide range of industries, with an especially profound impact on dental applications. With advanced technologies like Hybrid PhotoSynthesis (HPS) and TruLayer, the Lumia X1 is engineered to push the boundaries of throughput and accuracy, offering unrivaled performance to industries where precision matters most.



## Breaking Barriers with Hybrid PhotoSynthesis (HPS)

Axtra3D's Hybrid PhotoSynthesis (HPS) technology integrates the precision of a laser with the speed of Digital Light Processing (DLP), delivering high resolution at unprecedented throughput. The DLP system swiftly cures large internal surface areas, while the laser ensures intricate details on external structures are perfectly formed. This dual-system approach eliminates the bottlenecks that typically slow down traditional 3D printing technologies, making the Lumia X1 an optimal solution for applications demanding both high speed and precision. Case-in-point is the arch below where the left half was printed using a DLP-only printer while the right one demonstrates the pristine surface quality and accuracy using the LumiaX1 HPS printer from Axtra3D.

RA3D



*Hi-SPEED***SLA**

**vs DLP / DLS**



## TruLayer: Seamless Layering for Flawless Prints

The TruLayer system, another breakthrough from Aextra3D, enhances both speed and surface finish. TruLayer Separation rapidly detaches each print layer without the hydrostatic resistance seen in traditional DLP and LCD printers, minimizing delays and producing a glass-like finish. Additionally, TruLayer Adaption ensures that every layer is perfectly aligned by dynamically adjusting the glass plate to maintain precise resin thickness throughout the print job. This combination delivers unmatched consistency, even for complex geometries.

The Lumia XI's **Dual Z-Axis** eliminates pivoting errors common in single-axis systems, ensuring each layer stacks precisely-critical for detailed parts and demanding applications such as dental models and surgical guides.



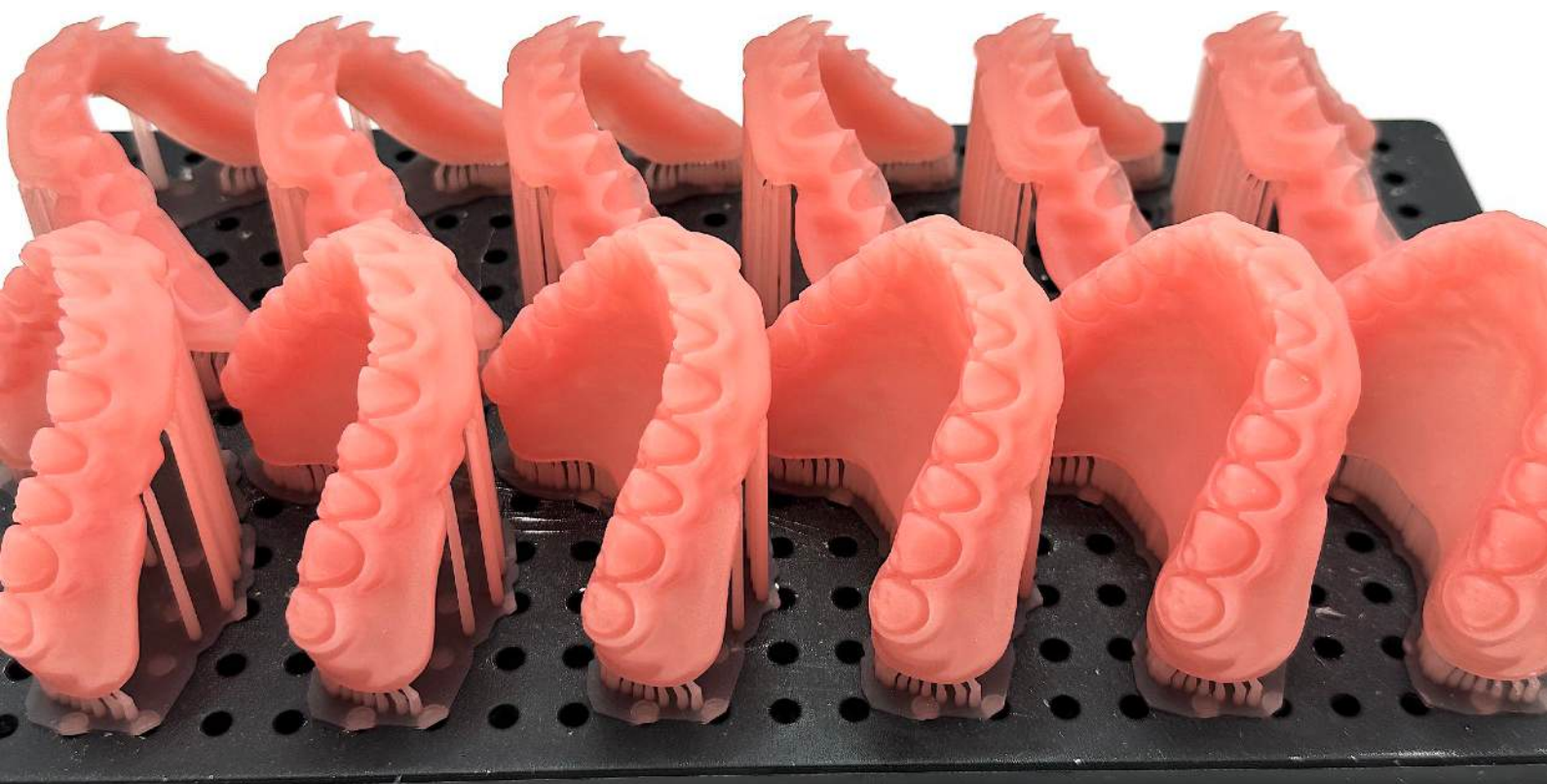
**60% more productivity**  
**50% reduction in cost/model**

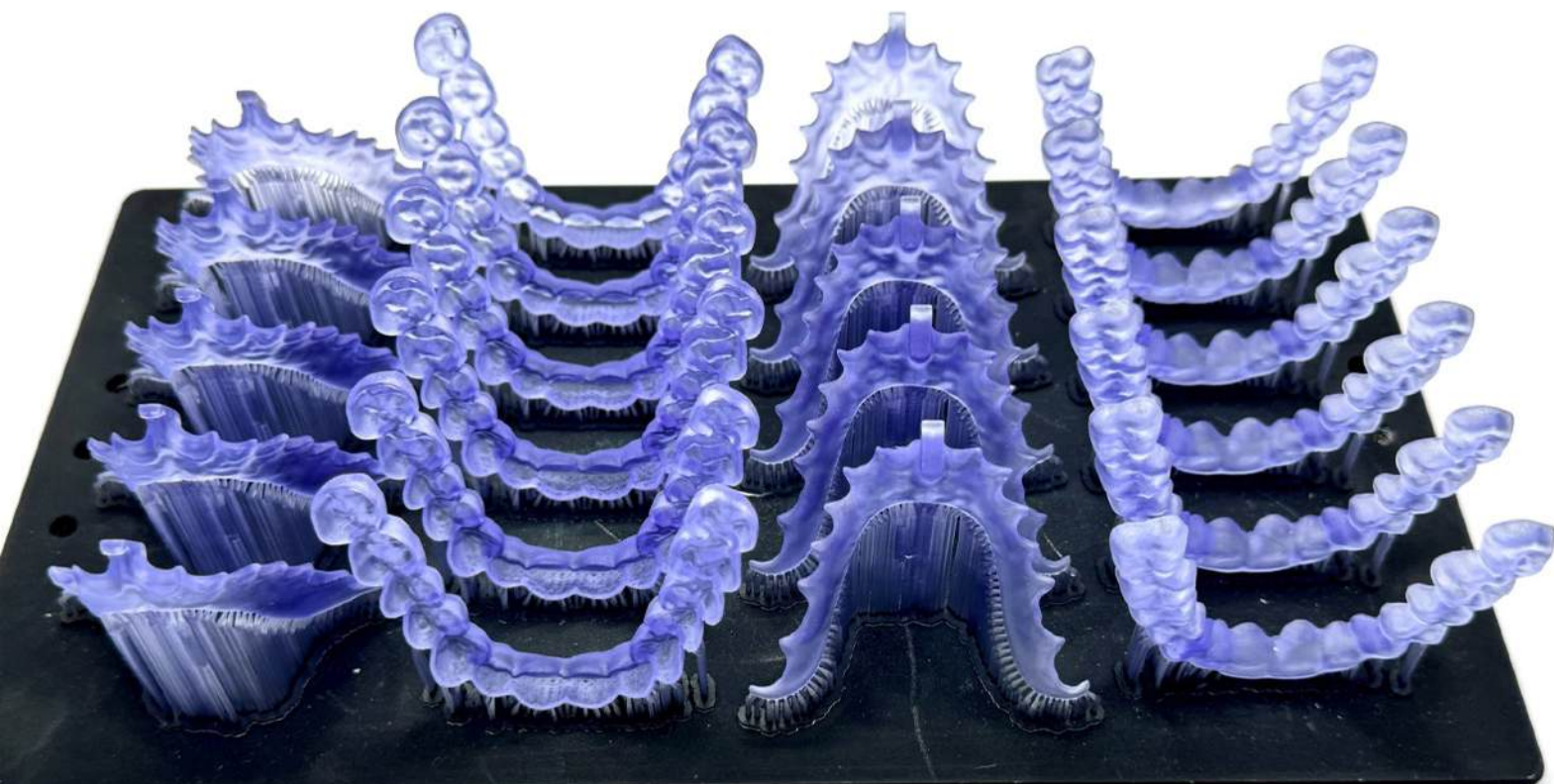


## The Lumia X1: A Game-Changer for the Dental Industry

In the dental market, where precision and speed are non-negotiable, the Lumia X1 is proving to be a transformative tool. The HPS technology allows dental labs to increase production capacity by up to 40%, compared to existing Digital Light Synthesis (DLS) systems, enabling labs to meet rising demand without sacrificing quality.

The Lumia X1 excels across a broad range of dental applications, beginning with dental models, accurate models for precise planning and analysis. Additionally, perfectly fitting orthodontic aligners, along with durable splints for multiple dental procedures. Moreover, surgical guides, precision tools for accurate surgical placement. Lastly, comfortable, biocompatible dentures that ensure durability. The variety of dental applications enables dental labs to streamline their workflow with enhanced flexibility and versatility.





With the Lumia X1, dental professionals gain access to an expansive portfolio of biocompatible materials, developed in collaboration with material leaders like NextDent, Pro3dure and Keystone. These materials meet the rigorous safety standards of the dental industry, providing patients with safe and comfortable solutions.

**“We are able to improve the surface quality of splints significantly, compared to our current technology. Overall, we can increase our daily output by almost 100%,”**  
said Ralph Ziereis, CEO at TeamZiereis.



## Redefining Cost and Performance

For small and large dental labs alike, the Lumia X1 offers a cost-effective pathway to high-quality production.

By reducing the time and labor needed for complex print jobs, it enables labs to lower operational costs, translating to more accessible solutions for patients. Whether producing a single surgical guide or large batches of custom aligners, the Lumia X1 ensures fast, reliable, and economically viable production.

**“Thanks to the extremely fast HPS process, we were able to increase our 3D printing capacities many times over, offer our customers completely new materials and thus take our innovative manufacturing concept a further step forward.”**

-Marcus Klab, CEO Prinoa Dental





## An Emerging Company

As Axtra3D continues to expand its material portfolio and build relationships with key industry players, it reinforces the company's commitment to excellence and innovation. The Lumia X1's ability to handle diverse applications—from industrial prototypes to biocompatible dental products—makes it a cornerstone for companies seeking reliable, high-performance printing solutions.

With advanced technologies like TruLayer and Hybrid PhotoSynthesis, Axtra3D's Lumia X1 exemplifies the company's core promise: a future where users no longer have to choose between speed, accuracy, and surface quality. Whether in manufacturing, healthcare, or the dental sector, the Lumia X1 sets a new standard, helping businesses unlock new possibilities with every layer printed.

“We have rethought the dental manufacturing center in a completely new and digital way, setting the course for the future of dental technology”, explains Marcus Klab from Prinoa. He continues, “Our investment in the Lumia X1 reflects our commitment to pioneering the latest technologies to benefit our customers”.