"The digital solution provided by teaming 3Shape and Objet solutions answers the major challenges we face every day - to ensure high quality and accuracy in our products, while delivering them fast and in a cost effective production"

Source: Vladimir Arav,
General Manager
& Moli Krauzner CEO

Case Study

Entering the future with a full digital Orthodontic workflow

By transforming orthodontic model manufacturing into a digital workflow using 3D printing system from Objet and 3D scanning and CAD solutions from 3Shape, Ortholine has reduced its operation costs significantly while also producing even better products for its customers.

About Ortholine

Ortholine is the leading company in Israel of manufacturing orthodontic appliances and providing other medical devices. Ortholine was founded in Israel in 1994. Ortholine currently employs 16 highly-qualified orthodontic technicians. **Ortholine** is a leading orthodontic laboratory. For Ortholine, high precision and quality in their orthodontic products is an absolute must, and when they felt ready to enter the world of digital solutions they initiated a thorough selection process.

Their choice

fell on the 3Shape Ortho System™ and the Objet Eden 260V™ 3D printing system. Since then, Ortholine has taken the leading business position over its competitors – now able to deliver even higher quality, and with greater speed.

ROI Benefits for Ortholine®

- Reduction of complete production times by 70%
- Competitive pricing through economically rationalized production
- Significant increase of daily production output per technician
- New profitable business segments enabled
- Business growth without expanding staff or facilities

The Challenge

Ortholine® provides a wide variety of specialty products, such as functional and removable appliances, retainers, space maintainers, clear aligners, snoring appliances, TMJ splints, sport protectors and more. A major part of their services includes provision of study models to clinics for treatment planning and assessment. With such a broad spectrum of services and positive signs from the market, Ortholine found itself in an optimal position for initiating growth. But in order to grow, Ortholine® needed to streamline its business. The company required a system that could enable faster throughput without compromising its high standards and without costly expansion of their technician staff and facilities

While the increasing numbers of case orders was good news for Ortholine's business, it also meant that they needed to find more storage space for their models. Orthodontic appliances are often lost or damaged during the course of treatment, so, as part of its services, Ortholine would painstakingly label and store individual product models in the event they might be needed for making replacements. This not only required adequate physical storage space, but also expensive man-hours and technician- time away from client cases. Naturally, Ortholine was not the only company in an upbeat market, and competition was becoming increasingly intense. To maintain an edge, it was important to keep production costs down in order to offer services at the most competitive prices.

The Solution

Ortholine opted to go for full CAD/CAM digital in-house production that would streamline every aspect of its workflows, from receiving the patient's initial dental impression, creating study models and all the way to CAM manufacturing. Ortholine chose 3Shape's Ortho System for creating and working with models digitally, and Objet's Eden 260V™ 3D printing system for model and appliance manufacturing. 3Shape's Ortho System™ included the R700™ 3D scanner and the OrthoAnalyzer™ CAD software. With the R700™ scanner, they can capture both impressions and models, and the software features tools for diagnosis and treatment planning using the digital model. Objet's 260V 3D printing system provides fine-detail printing, layer thickness and smooth surface output, even inside cavities, which makes it exceptionally suitable for the manufacture of orthodontic models and appliances.

OBJET

Key selection criteria

- Ensure high quality of manufactured appliance and model
- 3D printing system with high resolutions and fine detail output
- Efficient case archiving for appliance replacements
- Fast and robust 3D printing system for high productivity
- Economical production to enable competitive pricing
- Streamlined workflow from scan to model manufacturing
- Compatibility between system components

About 3Shape A/S

3Shape A/S is a Danish company specializing in the development and marketing of 3D scanners and CAD/CAM software solutions. 3Shape's more than 65 developers provide superior innovation power and their systems are applied in thousands of labs in more than 60 countries worldwide.
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Additional factors cemented Ortholine's choice. 3Shape's Ortho System™ helps to communicate directly with orthodontists online regarding specific cases, and contains features for archiving digital models created by the scanner. The Objet Eden 260V™ 3D printing system is exceptionally easy to operate, and its small footprint made it ideal for integrating into their lab. The printing system contains unique automatic-run features that enable it to produce output completely unattended by operators for long periods of time – even over the weekend if needed. To top it all, 3Shape's Ortho System™ could communicate perfectly with the Objet 260V™ 3D printing system involving extra conversion steps or overhead.

The Results

The intuitive tools in 3Shape's Ortho System™ enabled Ortholine technicians to complete tasks in a fraction of the time it took them through manual methods. They could immediately initiate manufacturing of their digital models on the Objet 260V™ 3D printing system while moving on to the next case. The daily production yield per technician leapfrogged dramatically in a very short time, and Ortholine® could offer its customers appliances and models within short delivery times and at competitive prices. Storage of study models for customers was transformed – no longer a problem, but now an asset. With 3D scanning and the advanced digital archiving features in 3Shape's Ortho System™, Ortholine® could offer efficient and low-cost storage services for their customers' models and case histories. Ortholine could additionally provide orthodontists with tools for virtual treatment planning and assessment without a physical model. These opened completely new and profitable business segments while solving facility space problems. Digital storage additionally made it easy to streamline their appliance replacement services, reduce administration costs and store full models completely safe from damage. With the system's intuitive search functions, rapid case retrieval could be handled by the front desk staff, leaving Ortholine's technicians free to focus on the core products. Ortholine's CAD/CAM investment was rapidly returned through more business, faster throughput, rationalized production and reduced operation costs. The system gave them the freedom to continuously regulate their prices and stay ahead of their competitors on all fronts.

About Objet Geometries

Objet Geometries Ltd., the innovation leader in 3D printing, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing systems and materials that utilize PolyJet™ polymer jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3D Printing Systems and the Alaris™30 3D desktop printer are based on Objet's patented office-friendly PolyJet™ Technology. The Connex™ family is based on Objet's PolyJet Matrix™ Technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth, and highly detailed 3D parts.

Objet's solutions enable manufacturers and industrial designers to reduce cost of product development and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as Education, Medical / Medical Devices & Dental, Consumer Electronics, Automotive, Toys, Consumer Goods, and Footwear industries in North America, Europe, Asia, Australia, and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Mexico, Europe, Japan, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions. Visit www.objet.com.

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