Taiwanese Dental Clinic Upgrades to EnvisionTEC Printers to Enhance Offerings to Patients.

Sweet Space is a dental clinic located in Taipei City, Taiwan. The clinic boasts a team of 20 dentists, 18 dental assistants and 4 dental technicians together with a further technician, who is based at their education centre, CEREC Asia.

Why look at 3D printing?

At the time Sweet Space engaged with EnvisionTEC distributor DKSH, the team were already using another brand of 3D Printer, a FormLabs Form2. This was being used to print out CT jaw bones for live demo purposes in their education programs.

The large build platform size and depth allows the team to print multiple dental arches at the same time.

The team knew that having the actual dental models printed out would provide a much better educational experience. They also knew that the current machine was not capable of the speed or quality of print they required. So when distribution partner DKSH contacted them in 2017, they decided that it would be a good time to upgrade their machine to further expand the application of 3D printing within the business.

Sweet Space saw how the investment in a professional level 3D printing solution could bring their clinic to another level and allow them to expand into different areas such as the production of amongst other things; dental crowns, full dentures and orthodontic models for the production of clear thermoformed aligners.

Sweet Space

Industry:
Dental/Orthodontic

Machines:
Micro Plus XL

Materials:
E-Model Light and
E-Ortho Shape

Why EnvisionTEC?

The team at Sweet Space were looking for a printer that provided high quality and fast printing speed. They also wanted a desktop format that would fit in a chair-side environment.

After examining the options, and discussions with DKSH the clinic settled on an EnvisionTEC Micro Plus XL 3D Printer. The model was extremely fast with very high quality and precision.

With a large range of Dental and Orthodontic materials the Micro XL is also versatile, allowing the team to switch from printing one type of appliance or model to another quickly and seamlessly.

At the same time they made the move away from Maestro3D, which, though easy to learn and use was not class II certificated, a requirement in Taiwan. They switched to Interware, a TFDA approved 3D dental design program developed in Taiwan. The STL agnostic nature of the EnvisionTEC 3D printer ensured that this process was painless.

Highly accurate dental models are produced in a few hours on the Micro Plus XL.

These are then used to accurately vacuum form aligners for patients.

Outcome

Sweet Space are initially using two of the EnvisionTEC materials. The E-Model series material is used in the production of orthodontic models for the production of thermoformed clear aligners together with E-Ortho Shape for case studies. They are also examining materials such as Clear-guide and E-Guide to directly print.

Extremely accurate Orthodontic/Dental models can now be produced on the machine in a few hours, much more quickly than before they acquired the machine. This speed also cheapens the production of clear aligners and allows them to print out demonstration models in a shorter time.

A reduction in time, combined with greater accuracy has resulted in better service to customers, supplying them with better fitting retainers within a few days, as opposed to weeks.

Though these benefits were foreseen by the team there have been additional ones that became apparent once they began using the printer. Taiwan is a humid country which makes it challenging for clinics and dental labs to store plastic orthodontic models. Sweet Space replaced traditional plastic casting and molding of patients mouths with 3D oral scanning. This allowed them to store them away digitally with no risk or degradation.

Sweet Space has also used the printer outside of the dental field to produce surgical instrument parts they've designed.

"Technology is not just about the frantic pursuit of the latest fad but an understanding of the investments that improve the experience for the patient."

- Dr. Michael Tsao, Founder of CEREC Asia and Sweet Space Dental Clinic.

EnvisionTEC materials and 3D Printers for Dental and Orthodontic applications

EnvisionTEC offers a full range of desktop, full-production and high-speed continuous 3D printers for dentists, orthodontics and dental labs. The machines are known throughout the industry for extreme accuracy, high throughput and a smooth surface finish. EnvisionTEC 3D printers deliver tight-fitting crowns and orthodontic models with a best-in-class smooth surface that results in crystal-clear thermoformed aligners.

Paired with an industry-leading materials library, featuring a variety of FDA and CE-approved materials, EnvisionTEC machines offer unmatched flexibility and a complete solution that delivers reliable, proven results.

"Through our passion and dedication to digital we hope to become leaders in the field, and share this knowledge for the good of fellow dentists in Asia"

- Dr. Michael Tsao, Founder of CEREC Asia and Sweet Space Dental Clinic.

EnvisionTEC materials

• **E-Denture** - A biocompatible Class IIa material suitable for 3D-printing all types of denture bases.

• **E-Denstone** - A material developed specifically for the rapid production of highly accurate, scannable dental models.

• **E-Dent 100/400** - printing materials for the production of crowns and bridges for long-term temporary use.

• **Press E-Cast** - A wax-filled material for the production of partial frameworks and full anatomical crowns and bridges. Both with extreme dimensional accuracy and exceptional surface finish.

• **E-Guard** - A biocompatible transparent material for the production of accurate bite splints and night guards.

• **E-Gum** - developed for use in the creation of flexible gingival masks for use in combination with 3D printed dental models.

• **E-Guide Tint** - A biocompatible Class I material for the production of high precision surgical drill guides for use in implant surgery.

• **E-IDB** - A material allowing for the production of indirect bonding trays.

• **E-Model** - A tough material that is ideal for the production of dental and orthodontic models.

• **E-Partial** - A castable material developed for the creation of delicate partial frameworks with thin features and some flexibility.

Partners

Thanks go to distribution partner DKSH for their support in the making of this case study.

DKSH

About EnvisionTEC

EnvisionTEC is a leading global provider of professional-grade 3D printing solutions. Founded in 2002 with its pioneering commercial DLP printing technology, EnvisionTEC now sells a range of printer configurations based on six distinct technologies that build objects from digital design files. The company's premium 3D printers serve a variety of medical, professional and industrial markets, and are valued for precision, surface quality, functionality and speed.

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