

U.S. Orthodontic Practice Turns to EnvisionTEC to Provide Cutting Edge Patient Treatments

Dutchess Orthodontics is a friendly, patient centric orthodontic practice based in Hopewell Junction, New York. The practice serves a large cross section of patients with ages ranging from five to those in their 80's.

Dutchess Orthodontics provides an array of treatments including early growth modification such as expanders, aligners and myofunctional therapy (therapy for the lips and tongue) to help faces and jaws grow properly in children. As patients get older Dutchess Orthodontics provides braces for straightening and improving smile aesthetics and Invisalign® aligners to help give a more aesthetic smile and correct issues.

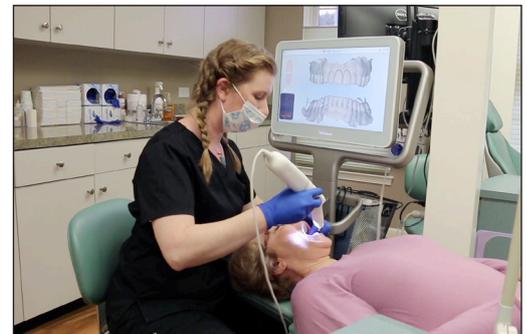
The team aims to ensure that every patient is happy with the outcome and that treatments benefit their lives.

“My goal is that every patient that who leaves here is happy with their smile.”

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

Why 3D printing?

To provide the best possible treatments for its patients, Dutchess Orthodontics monitors the industry for advancements and invests in the latest technology. One technological advancement is the increased use of 3D printing and digital work flows. This technology is making huge waves in both dental and orthodontic industries.



Michelle Baker, lab technician and dental assistant takes a scan of a patients mouth.

“We try to stay on top of the latest technologies so that we can offer our patients the maximum convenience and the best possible quality treatment that they can get.”

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

Dutchess Orthodontics

Industry:
Orthodontic

Machines:
Vida

Materials:
E-Model

3D scanning and printing (CAD/CAM) technology is not only helping to reduce stress for patients through less invasive procedures, but is also leading to faster treatments and turnaround. The technology is also producing better results, better fitting appliances at reduced costs to both the practice and the patient.

For the team at Dutchess Orthodontics the implementation of 3D printing was the way to go.

“3D Printing seemed like a natural progression from our 3D intra oral scanner.”

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

In recent years intra oral scanners have become more accurate, much faster and more user friendly. Older techniques such as taking alginate impressions then manually producing models from stone or even the taking of alginate impressions and scanning them, provided many opportunities for inaccuracy through shrinkage and distortion.

“While we were getting nice appliances and nice retainers with the old techniques, they are nothing like the quality of an intra oral scan and then printing off a digital model.”

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

This appliance accuracy was a concern of the team. They were interested in implementing 3D printing but ideally wanted to do this in-house to allow them to monitor the process and ensure accuracy of the finished orthodontic appliances.

Why EnvisionTEC?

Dr. Walters and her team were looking for a printer that would be easy to use and set up, integrate with the existing intra oral scanner and provide fast accurate prints. Dr. Walters had come into contact with a number of 3D printer manufacturers but was aware of the reputation of the EnvisionTEC brand.

“At the American Association of Orthodontics they have a really big meeting every year, and they display all the latest printers, all that we have available to us. I was going back and forth between several printer manufacturers but I had a friend who used an EnvisionTEC Perfactory Vida and swore by it” - Dr. Kelly Walters, Owner of Dutchess Orthodontics.

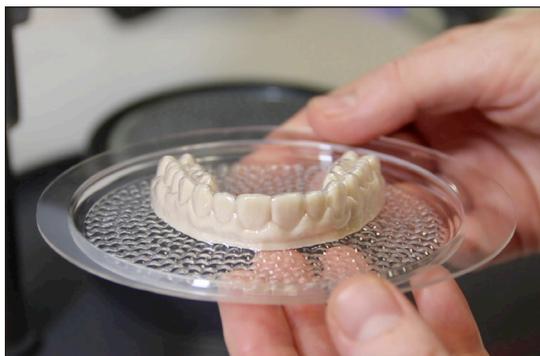
EnvisionTEC is the market leader in 3D printed dental and orthodontic solutions. With years invested in the development of 3D printers and materials for those specific industries, the company now boasts a huge selection of both CE and FDA approved resins for use directly in the mouth. The materials are proven and in use by hundreds of dental and orthodontic professionals around the world.



Accurate arches are produced on the Vida in a matter of minutes, not hours.



Once arches are printed, they are placed in the vacuum forming machine



The vacuum formed retainer, ready for cutting, shaping and finishing.

After taking the advice and comparing the prints and options from a number of competitive brands she recognized both the accuracy and the speed of EnvisionTEC printers and was pleasantly surprised at the cost of the machines and materials.

The materials themselves were attractive, with a large number being both FDA and CE approved for a cross section of dental and orthodontic applications. While the initial use of the technology within the practice would be for the production of arch models for vacuum formed retainers, this choice would give the practice the ability to move into the production of other appliances quickly and easily.

Ultimately after considering the options, Dutchess Orthodontics settled on an EnvisionTEC Vida with E-Model material. This printer and material combination would allow them the ability to quickly produce accurate arch models.

The Results

The implementation of the EnvisionTEC printer in the practice has improved efficiency, reduced costs, reduced waste and resulted in better results for patients. The E-Model material has proved a good upgrade from the traditional models. The team finds it much stronger, more durable and experience less breakage than with stone models.

Patients are already benefiting from the less intrusive process and the increased speed, allowing them to have retainers measured and fitted in only a few days or less. The retainers are more accurate resulting in better results for the patient, better fit and comfort.

“The Vida has really helped our office with the work-flow of creating a retainer. It’s a really clean, hygienic process and ultimately the biggest difference is that I have yet to put a retainer in someone’s mouth and find that it doesn’t fit. That would happen about once a week when we were using the old technology.”

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

Though initially the Vida is being used for retainer models, the team are aware of the flexibility open to them by using EnvisionTEC technology. They know that when they want to move into the production of other orthodontic applications the machine will allow them to quickly and simply change materials.



The formed retainers are simply cut out and finished ready for use in the patients mouth.



Accurately printed models ensure that the vacuum formed retainer fits perfectly with the correct orthodontic pressures.



Dr. Kelly Walters with her EnvisionTEC Perfactory Vida 3D printer.

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. EnvisionTEC machines are known throughout the industry for extreme accuracy, high throughput and a smooth surface finish.

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.

EnvisionTEC Materials

- **E-Denture** - biocompatible Class IIa material suitable for 3D-printing all types of denture bases.
- **E-Denstone** - material developed specifically for the production of scannable dental models.
- **E-Dent 100/400** - printing materials for the production of crowns, bridges and veneers for long-term temporary use.
- **Press E-Cast** - wax-filled material for the production of partial frameworks and full anatomical crowns and bridges.
- **E-Gum** - for use in the creation of flexible gingival masks for use in combination with 3D printed dental models.
- **E-Guide Tint** - biocompatible Class I material for the production of high precision surgical drill guides.
- **E-Guard** - biocompatible transparent material for the production of bite splints and night guards.
- **E-IDB** - material allowing for the production of indirect bonding trays.
- **E-Model** - tough material that is ideal for the production of dental and orthodontic models.
- **E-OrthoShape** - grey ABS-like material recommended for the affordable volume production of models or thermoformed aligners.
- **E-Rigid PU** - material solution for 3D printing dental diagnostic waxups.
- **E-SepFree** - for easy release without a separator when directly building orthodontic appliances. The material is also easy to carve.
- **E-Partial** - castable material developed for the creation of partial frameworks with thin features and some flexibility.
- **Press-E-Cast** - wax-filled photopolymer material for the production of full anatomical crowns and bridges.

"The accuracy and the fit of retainers has just been incredible since we have been using the digital printing."

- Dr. Kelly Walters, Owner of Dutchess Orthodontics.

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.

ENVISIONTEC, INC.

Dearborn, USA
Phone +1-313-436-4300

ENVISIONTEC GMBH

Gladbeck, Germany
Phone +49 2043 9875-0

ENVISIONTEC UK

Stoke-on-Trent, UK
Phone +44 (0)1782 418040

ENVISIONTEC Asia

Shanghai, China
Phone +86 186 163 10393