OPEN, CLOSED AND EVERYTHING IN BETWEEN
What you really need to know about dental imaging.

BENCHTOP SCANNERS 360°
A roundup of some of the leading digital imaging options in the dental lab market.

KAHNG ON CAD/CAM FOR A COSMETIC CASE
A beautiful outcome for a cosmetic case using CAD/CAM design.

MASTERING REMOVABLE PARTIALS
A tried-and-true technique for great partial denture results.

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10 THINGS THAT BLEW US AWAY AT IDS 2015
The editors of DLP and DPR explain what amazed them at the recent dental extravaganza: bit.ly/IDS2015Prods

ivolcl avivadent
IPS e.max Press MT delivers a new level of translucency.
More on p.3...

3SHAPE
D2000 scanner designed to increase scanning speeds.
More on p.3...

EXOCAD
Enhancements to the DentalCAD system include interface overhaul.
More on p.3...

STRATASYS LTD.
Increase productivity with the Objet260 Dental Selection.
More on p.3...
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SCANNING SOLUTION

A 3Shape D2000
3Shape unveiled a totally new digital dentistry scanning solution at the International Dental Show in Cologne, Germany. The D2000 is designed to have improved accuracy and multi-line scanning – a breakthrough scan technology that has been shown in trials to increase scanning speeds by upwards of 30 percent.

3Shape
908-867-0144  | 3shapedental.com
CIRCLE RS #2

SOFTWARE UPDATE

DentalCAD
exocad announced enhancements to its DentalCAD system. The most obvious enhancement is a complete overhaul of the user interface, which is designed to esthetically and functionally improve the experience of both using and learning CAD/CAM, including the ability to define and retrieve custom CAD views, annotations, more intuitive and functional freeforming controls and tools to merge 2D and 3D facial data with tooth setups, plus many more. DentalCAD add-on modules have been enhanced with more tooth and implant libraries, support for implant analogs in model creator, pre-milled abutment blanks in exocam and many more.
exocad
855-EXO-4CAD  |  exocad.com
CIRCLE RS #3

PRESS INGOTS

IPS e.max Press MT
Ivoclar Vivadent extends the range of press ingots to include a new level of translucency. The IPS e.max Press MT are monochromatic ingots of the medium translucency range. They consist of the tried-and-tested lithium disilicate glass-ceramic material and are said to ensure clinical long-term success and flexibility during cementation. The new monochromatic lithium disilicate (LS) ingots replace the existing IPS e.max Press Impulse Value ingots. The IPS e.max Press Impulse Opal ingots are not affected by this change and will remain part of the range.
Ivoclar Vivadent
800-533-6825  |  ivoclarvivadent.com
CIRCLE RS #4

3D PRINTER

Objet260 Dental Selection
Stratasys Ltd., introduced the Objet260 Dental Selection 3D Printer at the International Dental Show in Cologne, Germany. The versatile 3D printer employs triple-jetting technology and is designed to help mid- to large-sized dental and orthodontic labs grow their business by producing realistic models with true-to-life look and feel as part of their end-to-end digital dentistry workflow, including intraoral scanners. Its ability to build diverse models with multiple materials on one tray, in one print job, is designed to increase productivity, which can further improve profitability.
Stratasys Ltd.
877-489-9449  |  stratasys.com
CIRCLE RS #5

COVER PRODUCTS are chosen because of their innovation or perceived impact on productivity and bench artistry.
Unpacking a tricky technology

Chances are, you’ve already purchased or are planning to purchase some kind of digital imaging system for your dental laboratory. Whether you’re investing in a benchtop scanner or are looking into an intraoral option, you’ve no doubt experienced the myriad options out there for anyone looking to get into imaging. It’s a confusing world: What systems work with what systems? What kinds of files will you receive from dentists? How can you be sure you’re ready to receive imaging files? These are the kinds of questions that are driving imaging purchases—and the kinds of questions we wanted to delve into this month.

On Page 20, you’ll read what we came up with. We talked to some of the leading imaging experts in the dental lab industry—including representatives from some of the biggest manufacturers out there. The goal is to help you navigate the tricky waters of terminology presented by all of the confusing imaging options. I think you’ll be interested in what our experts had to say!

As if that wasn’t enough, we’ve also rounded up some of the leading benchtop scanner options available to labs. I’m certain you’ll find this section helpful as you start to think about your purchases in the still-young year.

As always, I’d love to hear from you. How are we doing? How can we help you more? Email me at rhamm@advanstar.com—I’d love to get your feedback.
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– Dr. Gordon Christensen

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How 3D printing can advance your dental lab

Ever wondered what 3D printing can do for your lab? This FREE webinar can help! You’ll learn the different ways that 3D printing can be utilized in a production dental laboratory, along with the benefits of applying this new age technology to eliminate inconsistencies that come from the current processes in the dental laboratory. Check it out: bit.ly/3DPrintingWebinar
A NEW WAY TO CONDUCT BUSINESS

Carestream Dental’s CS 3500 intraoral scanner is a work of art – one that can create big opportunities for your lab. With our preferred lab program, you can help practitioners hit the right notes by providing a convenient method of submitting digital impressions to your lab at no fee. You’ll gain more control, save time and maximize profits by offering no update or license fees. We’ll even help you advertise your lab’s new capabilities, so you benefit from the perfect harmony of cutting-edge technology and increased business.

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Right next to this page, you’ll find the reader service card with numbers that correspond to advertisements. In this issue you’ll find numbers with each of the products that appear as editorial in this issue of DLP.

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Top 5
CAD/CAM TERMS YOU NEED TO KNOW

01 STL (Stereolithography)
STL is a file format of the surface geometry of a three-dimensional object. STL files are geometry only—there is no representation of color, texture or other attributes. In order for digital scanners and CAD software to have these attributes, the software manufacturers use proprietary file extensions, like .dcm, .cdt, .3dc or .cmf. Open systems will automatically convert their proprietary file format to STL.

02 Machining/milling
Milling starts with a block/disc of a material and takes away the excess of material to leave the geometry of the part. The advantage of this is stability of the material. The disadvantage of this process is that it is limited to the size of the tool used to mill/grind away excess material (drill compensation) and minimum thickness before potential chipping.

03 Additive manufacturing
Additive manufacturing is currently being used in several forms. SLM (Selective Laser Melting, Laser Sintering) and SLA (Stereolithography, printing) are the two most prominent methods used. These methods start from nothing and build up the manufactured product. The advantage of this is increased possibility of detail. The disadvantage is thickness is limited to grit/grain size of material used and the need for further post-processing for the product.

04 Scanners
With IOS (IntraOral Scanning) technology becoming more prevalent in dentistry today, understanding differences between scanners (price and accuracy) can make or break a laboratory. Lab scanning has reached widespread acceptability. Any scanner will have its own workflow. Understanding of the differences between these will dramatically affect the ease of use of the STL files. With varying levels of accuracy between the scanners, an understanding of these differences and how they affect the accuracy of different types of cases is the clinical significance. For crown and bridge cases, the accuracy of all scanners (lab and intraoral) is more than acceptable. The level of clinical significance in accuracy rises when looking at multiple-unit, screw-retained bridges (implant bars).

05 HIPAA Compliance
With the dental field becoming more digital, HIPAA compliance will be scrutinized more and more. Basically, HIPAA compliance laws state that patient privacy cannot be compromised. The emailing of files (including photos, STL files, case notes, etc.) with any patient identifying information through conventional means is illegal. Brightsquid Secure-Mail is one example of a HIPAA-compliant email service.

by Mark Ferguson, Core3dcentres
Zirconia milling blanks
Glidewell Laboratories announced the release of BruxZir™ Shaded 16 blocks compatible with CEREC® and inLab® MC XL milling machines, the dental CAD/CAM solutions from Sirona Dental Systems, Inc. The new blocks, available in both 20x19 and 40x19 sizes, are to be distributed exclusively by Henry Schein, Inc. BruxZir™ Shaded 16, the series of pre-shaded zirconia blocks matching all 16 VITA Classical shades, is an iteration of the BruxZir™ Solid Zirconia line. Known for its optimal strength and unique vital translucence, the addition of inLab®-compatible BruxZir™ Shaded 16 blocks to the BruxZir portfolio is designed to deliver consistency and complete shade penetration to dental technicians implementing Sirona’s CEREC® and MC XL milling machines.

Glidewell Laboratories
800-854-7256 | glidewelldental.com
CIRCLE RS #11

Denture system
The Pala Digital Denture System features advanced technology to deliver dramatic time savings and digital precision to benefit dental practices, their dental laboratories and their patients. The Pala Digital Denture System technology uses computer-aided design (CAD) and 3D software to model dentures for a reportedly excellent fit with great aesthetics that practices can deliver to their patients two times faster than conventional systems. There is said to be absolutely no compromise in either comfort or esthetics; the end result is a high quality, well polished appliance that delivers a precise fit.

Heraeus Kulzer
800-431-1785 | heraeus-kulzer-us.com
CIRCLE RS #12

Implant solution
Straumann® Pro Arch is a comprehensive solution that includes implants, abutments, CAD/CAM frameworks and sleek prosthetic components that enable clinicians and dental technicians to provide accelerated fixed full arch treatments. The implant system is designed to provide outstanding osseointegration and healing properties. A diverse prosthetic portfolio of abutments and customized bars complements this scientifically proven implant technology. The Straumann Pro Arch prosthetic solution includes the addition of bone level, screw-retained abutments that offer a wide range of prosthetic options for screw-retained restorations.

Straumann USA
800-448-8168 | straumann.us
CIRCLE RS #13

Resin
Valplast International Corporation announced, at IDS 2015 in Cologne, Germany, the prototype of its 3D Printable Valplast® Resin. This advancement in additive manufacturing is said to represent the very first Class IIA (European Union) and Class II (USA) denture base resin that will yield a permanent restoration directly from 3D printing. This new breakthrough reportedly represents a major upgrade over the current “Precise-Fit” technique, which uses digital design and 3D printing of prototype dentures, which are used to replace the waxing, blockout and duplication stages prior to the traditional Valplast injection molding process.

Valplast Int’l. Corp.
516-442-3923 | valplast.com
CIRCLE RS #14
The PlaneSystem® is the perfect tool to facilitate communication between patients, dentists and dental technicians. It is used to determine the natural position of the maxilla and the individual inclination of the occlusal plane, regardless of physical asymmetries. Using the PlaneSystem® eliminates virtually all transmission errors and helps to detect bone asymmetries and resulting muscular compensation ahead of developing a treatment plan. Selecting the right proportions and positions of the teeth to be set up is made easier by a specially developed set-up aid.

Developed in cooperation with MDT Udo Plaster

This set-up aid helps align the teeth with the occlusal plane during modelling, making sure they have the proper size and their intraoral position is suitable.

- PSI-3D CAD PlaneTool (exclusively for the Zirkonzahn.Scan scanning software) (Fig. 1)
- PSI-3D virtual articulator (integrated in the Virtual Articulator module of the Zirkonzahn.Modellier modelling software) (Figs. 2 – 4)
Three key factors labs need to keep in mind as they prepare for the future.

by Mark Ferguson, Core3dcentres USA

As technicians, we all want to be comfortable with the workflow to process cases through the lab. Most technicians are most comfortable with what they have been doing for years. They may bring CAD/CAM into the process here and there, but they haven’t fully given in to the digital revolution. Yet, with a greater understanding of today’s machines and software, the dental lab can improve on this, providing more precise restorations while still improving turnaround time.

Digital dentistry continues to make dramatic inroads within the dental operatory. With several intraoral scanners already gaining new dentists daily and more scanners recently announced at Chicago Midwinter and IDS in Cologne, labs need to be ready to accept these types of cases. Currently, there is no one digital dental lab workflow. Labs have to make choices on what they can handle between locked and open clinical scanners. The trouble with that is there is no one correct solution. Labs are often kept out of the loop as their doctors decide to make the leap to digital. This ends up leaving the lab scrambling for answers while the clock is ticking on a case. The key is to take a proactive approach to the digital question. Let’s start by being honest with ourselves: The typical laboratory alone cannot be all things to all people with digital dentistry. It’s prohibitively expensive to have the lab equipped to handle any and all types of digital cases coming in every day. Labs should make that decision themselves upfront, considering key factors such as volumes expected by technology, the return on investment on those volumes and which ones they want be prepared for, and then find partners to handle the cases they can’t or don’t want to handle internally. These partners can also open up new business for a lab by connecting to a network previously not available.

So what are the key factors in choosing these “digital partners”?

1. THE BEST PARTNER TO PAIR WITH IS CAPABLE OF HANDLING ANY QUALITY OF SCAN DATA.
Not all STL files are created equal; each scanner’s files are unique. Core3dcentres has software to make otherwise unusable files clean and usable. The reason some manufacturers choose to use proprietary file types is the meta data that can be associated with a file. This could be margin lines, implant positioning or restoration type to name a few. The question becomes, do I need this extra information and what do I want to do with this file?

2. THE ABILITY TO CREATE A MONOLITHIC RESTORATION WITHOUT A MODEL IS NOT ONLY HERE BUT IN DAILY USE.
Yet when a model is desired for these or other types of restoration, digital dentistry makes these models incredibly accurate. The manufacturing of these models has additional labor and hardware/software considerations that you may wish your partner to handle. Can your partner help you create these models for your clinicians? Scan data STL files have no thickness. Additional design software is required to add thickness and preparation sectioning.

3. AN IMPLANT CASE HAS ADDITIONAL CONSIDERATIONS.
Will the model have a replica of the designed abutment or will it be created with a socket for a lab analog? An intraoral scan with an approved scan body from an implant library with the dimensions of a lab analog has the most accurate and streamlined workflow. Can your partner supply it?

Let’s expand on that question: Do we need a model to fabricate the restoration? With the accuracy of digital technology, my answer to that is usually no. Of course, the type of restoration is a big part of that answer. For monolithic restorations, even those with a cutback, modeless lab work has been done for years. With experience and training, digital restorations can be designed for more accurate and better fitting. When I talk to technicians now, we discuss microns of differences between scanners or machines. Prior to digital, there was no accurate way to measure differences from one case to another (but we would not have been discussing microns for sure). The inherent differences, particularly expansion and contraction from impression materials, stones and investments, left the fit of a case up to the feel of the technician. Digital technology puts a quantitative value to this feel. It also gives the technicians views of cases that were never possible before. To be able to measure the distance to the opposing central groove area of posterior teeth is a great example of this.

Digital workflow has evolved over the past few years. As more elements of the dental field become digital we can expect a higher quality of restoration in a shorter amount of time. Our goal is always to provide the highest quality restoration for the patient. As we keep more accurate records of how we restore cases, we can learn to provide the highest level of care.
Beautiful outcome for a cosmetic case using CAD/CAM design

Laboratories have more choices than before for these cases.

by Luke S. Kahng, CDT

INTRODUCTION

As technicians, we are dependent on the oral surgeon who places an implant because it will dictate and follow or improve the tooth abutment alignment in order to create the highest esthetics for the patient’s expectation regarding the case outcome. Our case study will outline and explain CAD/CAM case evaluation in order to create better design and prosthetic options for the best possible cosmetic solution.

Our patient is a female in her early 50s with a strong desire to improve her smile. She was heavily involved in her case decision making process, with an interest in each step the dentist presented to her.

In the diagnostic stage, the author discussed every part of his evaluation with her—including the incisal edge position of her dentition, size...
Fig. 10 Try-in with lipstick applied  Fig. 11 Left side view  Fig. 12 Try-in without lipstick

Fig. 13 Right side view  Fig. 14 Occlusion check  Fig. 15 Final view

of teeth and her temporaries—especially the color. She wanted bright, high value color without an abundance of translucency. The author made note of all her concerns and her dentition characteristics during the custom shade appointment.

CASE STUDY
In Fig. 1, we see the patient’s old acrylic provisionals before treatment began. The author was asked to look at the incisal edge and tooth color for her final restorations in order to improve on her appearance. She was very unhappy with her smile at the time of her appointment. In Fig. 2, during her custom shade appointment at the lab, the author and patient discussed and communicated regarding her color, opacity and translucency as well as what she expected when her case was finished. A Freedom exocad system scanner (Fig. 3) from Degree of Freedom was used for the scan and design of the patient’s restorations. It was decided to fabricate zirconia abutments for teeth Nos. 6-11 with IPS e.max copings placed over the top.

In this occlusion view, we see the six anterior zirconia abutments that were placed in the mouth (Fig. 4), with custom titanium abutments placed in the posterior. The lab prepared a verification jig in order to ensure fit for the final restorations (Fig. 5). In an occlusion view on the cast model (Fig. 6), we see IPS e.max copings on teeth Nos. 6-11 and PFM crowns/bridge on Nos. 4 and 5 as well as 12-14. After internal staining to the IPS e.max copings, they were tried on the model. Note the warmer tone to the color after the internal staining process (Fig. 7). GC America’s GC Initial’s new LiSi porcelain—for anterior lithium disilicate substructures (Fig. 8) was used for the IPS e.max copings, which created a different color when translucency and transparency were added to the porcelain application. Fig. 9 demonstrates the author’s porcelain build-up stage for the copings. The author then tried the restorations in the mouth, with lipstick applied, and took a right-side view photo (Fig. 10), then a left-side view image (Fig. 11) and then a facial view smile without lipstick application (Fig. 12) for the reader to have a complete understanding of the appearance. Again, (Fig. 13), a right-side view is given before the occlusion check photo—shot to let the readers see the lower teeth, scheduled for restoration in the future (Fig. 14). A final smile view is last (Fig. 15).

CONCLUSION
Laboratories have more choices with this kind of case now than we used to. We may not have been interested in moving toward the digital world in terms of the work we do, but we have had to if we want to keep up with the changing world of technology. The final esthetics for this particular case’s outcome were very high and the patient was extremely pleased with the final result. The more information the author was able to collect about the abutments, the various options available, tissue size and contour and frame design, the better he felt about the case outcome. He would suggest that all dental technicians be open to learning about the world of digital technology and the processes involved. It is becoming more prevalent these days and technicians should gather all the information they can in order to become proficient with the wave of the future.
One of the most complex and demanding endeavors in restorative dentistry is the cast removable partial denture. Therefore, to achieve a positive outcome, it requires careful planning from the beginning.

**CASE STUDY**
The first step is the first office visit at the first inkling that a CRP (cast removable partial) is necessary.

01 At this point, we need several things: 1) Accurate study cast impressions or models. (Fig. 1); 2) Centric relation bite (Fig. 3). When contemplating the design of a CRP, we look at the whole arch—not just the gaps left by missing teeth. It is necessary to look for problems in the occlusion in the whole arch; 3) Some type of face bow registration—be it an actual face bow or a bite plane analyzer such as the one used with the Panadent system when using an average value mounting. (Fig. 2); and 4) The tooth mold and tooth shade.

02 When mixing the gypsum material for the model, it is important to observe instructions from the manufacturer. It is best to use a die stone (Class IV) vacuum mixer at this stage because it needs to stand up to manipulation on the articulator, and vacuum mixing ensures you won’t have any inconvenient bubbles or voids in the mix. The articulator needs to be anatomically sized—not a simple hinge (Fig. 4).

03 Studying the study models is best done by the doctor but often isn’t except by dentists who specialize in removable restoration. It’s also not unreasonable to get assistance from the local laboratory professional that is using his surveyor step-by-step partial removables.

---

**Fig. 1** Accurate study cast impressions or models.

**Fig. 2** A type of face bow registration is used.

**Fig. 3** Centric relation bite.

**Fig. 4** The articulator needs to be anatomically sized.

**Fig. 5** Super eruption of the opposing teeth.

**Fig. 6** Some denture teeth set on a base plate.

**Figs. 7-8** Use a surveyor to mark the height of contour of all the abutting teeth.

**Fig. 9** You can clearly see any path of insertion issues.
Masters Removable Partial Denture Course

Ivoclar Vivadent and BEGO have teamed up to offer a Masters Removable Partial Denture (RPD) course.

Course Dates:
April 13-14, 2015
June 8-9, 2015
Location: BEGO USA
24 Albion Road, STE 103
Lincoln, RI 02865

COURSE FEE: $245.00 (24 CDT CREDITS)
For more information or to sign up, call 1-800-342-2346 or email martin@begocom.

CONCLUSION

Cast removable partials are not a throw-away appliance, a stop-gap measure or easy. They can be an engineering masterpiece or a manufacturing nightmare. To the clinician, open communication is paramount along with a willingness to take the time it deserves to get it right. To the technician: Educate yourself beyond the process of manufacture. Learn about the things that effect the positive outcome you are trying to achieve, learn to set teeth, go to an insertion and stand chairside to see the result of your hard work. Introduce your dentist clients to the improved outcome this approach makes possible. With proper planning and a team approach, we can better address the challenges that cast removable partials represent and have happy, well served patients.
Pour professional models using Wonderfill

Filler saves time and money without compromising accuracy.

by Ellen Gambardella, CDA, M.Ed.

Over the years, I have poured numerous models while continually striving to make this task as efficient and easy as possible. Therefore, I would like to share my experiences with different approaches for obtaining the perfect model.

Most of us have spent valuable time at the model trimmer or have used lab burs to remove excess stone from a model. I have experimented with various techniques, such as using alginate, wax, wet paper towels, Play-Doh and Wonderfill to fill the tongue area and voids in the impression in hopes of minimizing the finishing time.

I have found that using alginate impression material to fill the tongue area is quite time-consuming. This requires mixing the alginate, inserting it in the tongue area and waiting for it to set. Once this is completed, additional time is needed to decontaminate work surfaces and equipment, such as bowls and spatulas.

Another method uses wax that has been heated and manipulated to fill the area. I have noticed this procedure may not make a complete seal with the tray. Stone or plaster penetrates those unsealed areas, resulting in an uneven surface. Again, more wasted time is spent finishing the model.

A different technique is to place wet paper towels in the tongue area. Oftentimes, this method produces an irregular stone surface, which requires additional time at the model trimmer to smooth the area.

I have tried using Play-Doh as a filler. Although it filled the tongue area, it resulted in stained models, and the Play-Doh adhered to the stone, making it difficult to clean off the surface of the model. This unattractive appearance does not present well to patients and sends a negative message about the office.

Undercuts also add to the demise of models. Patients with mandibular tori may produce large undercuts, which must be filled prior to pouring models. If this is not done, separation of the impression from the model becomes difficult and may result in a fractured model. If this happens, the model may have to be poured again. The results are too well known: Frustration escalates, productivity declines, materials are wasted and the entire process is delayed.

After experiencing these disappointing results, I asked myself: How can I save time and money without compromising the accuracy and professional appearance of my models? There is an answer: Use the product Wonderfill.

Prior to pouring the models, I always verify that the impression has been properly disinfected. Confirm the disinfectant solution has remained on the impression as well as the tray for the amount of time recommended.

Fig. 1 Form a domed bridge in the tongue area.

Fig. 2 With Wonderfill in the tongue area, pour plaster/stone.

Fig. 3 After plaster/stone fully sets, pop out non-sticky Wonderfill.

Fig. 4 Using only water & a brush, remove the slight residue that might remain.

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After experiencing these disappointing results, I asked myself: How can I save time and money without compromising the accuracy and professional appearance of my models? There is an answer: Use the product Wonderfill.

Prior to pouring the models, I always verify that the impression has been properly disinfected. Confirm the disinfectant solution has remained on the impression as well as the tray for the amount of time recommended.
This article is adapted from one that appeared in the May 2012 issue of DLP.

**TOM ZALESKE ON WONDERFILL AND WONDERFORMER**

Don’t let its lack of sophistication fool you into believing this product has no value. That should be the “tag line” for a pair of products I stumbled across last year and started using in my removable prosthetic laboratory shortly afterward.

The products I am referring to are Dental Creations’ Wonderfill and its counterpart, the Wonderformer.

Like most laboratories, I am always looking for ways to remain accurate, save time and simplify techniques that are common and necessary to produce a quality end product. Conventional boxing and beading of impressions is a tedious technique that must be performed to complement and maintain the clinical efforts to impress border depth and thickness (border mold) and transfer those dimensions to a master model. Inversion of the impression in this technique also ensures the stone poured into the boxed area is intimate to the impression by means of gravity.

The common, time-intensive technique uses rope wax, sticky wax and boxing wax to establish a land area and imitate sulcus and a box to hold the stone pour together. The technique balances on the adhesion tenacity of the wax to the impression material, as well as the speed and dexterity of the technician in using and melting multiple waxes together to fabricate a “sealed” box into which lab stone is poured. Generally, it takes about 20-30 minutes to prepare using the conventional wax method.

**A second look**

Over the years, I had seen ads for the product Wonderfill but always thought of it as only tongue filler. While attending the 2011 FDLA Southern States Symposium, I noticed Dental Creations was offering free samples of Wonderfill to attendees. I remarked when handed the sample that the last time I used the product was with another sample I used to fill a tongue on a lower model. I mentioned it was a nice but rather one-dimensional product. At that point I was asked if I knew that boxing impressions in five minutes was possible when using a newer product, the Wonderformer, along with Wonderfill. Naturally, I said, “Tell me more.”

What I found was the real game changer for Wonderfill comes from a complementary product, the Wonderformer, which when used with Wonderfill becomes an accurate, cost-effective, time-saving “system” for fabricating boxed impressions. The form is a latching metal box or former which, when used like a cookie cutter along with Wonderfill, boxes an impression that is ready to pour in five minutes.

The benefits of boxing and beading impressions include:

- Replicates border molded areas of impression in shape and width
- Maintains border dimensions during flasking by providing uniform land area
- Ensures intimate adaptation and condensing of poured stone to impression
- Controls the base thickness of master models

Since realizing the accurate, cost-effective, time and material savings of these products when used together versus the time-intensive conventional method, I have started boxing all the impressions in my lab—regardless if they are border molded or just for an opposing model—to take advantage of the esthetic and accuracy of pouring aspects this technique and these products lend.

I also like having the ability to scale production of boxed models up or down without large consumption of hours in a day to do so. The conventional method for 11 models based on 25 minutes each is about four hours. The “Wonder” method for 11 models based on five minutes each is about 55 minutes.

This article is adapted from one that appeared in the May 2012 issue of DLP.
OPEN, CLOSED, AND EVERYTHING IN BETWEEN

What you REALLY need to know about dental imaging.

by Robert Elsenpeter, contributing writer

The first time you bought a computer, terms like server, gigabyte and RAM (among others) were probably somewhat befuddling. Every technological thingamajig has its own vocabulary and concepts, which can be confusing to those new to the device. Dental imaging has its own terms and concepts that might be stumbling blocks for those considering a foray into the world of CAD/CAM.

Dental imaging is the first stop in a CAD/CAM solution—it is the place where the dental anatomy is captured by a scanner—either directly from the patient’s mouth by the dentist or from a model in the lab—and put into the computer for manipulation by design software, ultimately to be manufactured on a mill or 3D printer.

But once you understand the terminology and the concepts, the world of dental imaging is not quite as daunting.

CLOSED SYSTEMS

There are some CAD/CAM components that must all be purchased from the same manufacturer in order to function. When that ecosystem exists, the system is said to be “closed”.

For some systems, being closed can present unique features and capabilities. For instance, there’s no doubt that every component of a closed system will “play” together. But by and large, the current movement is to try and stay away from the limitations imposed by closed systems.

“I’m under the personal opinion that nobody should really get into closed architect scanners because you become restricted as to where you can send work and you are restricted as to what types of products you can get based on what they happen to manufacture,” says Bob Cohen, president of Custom Automated Prosthetics in Stoneham, Mass.

Buying closed systems is less and less of an occurrence as it was more common with early adopters.

“The biggest problem is on the back end if any of the laboratory’s accounts that they have—or want to get—move into intraoral scanners,” says Alex Thomas, general manager of DAL DT Technologies in Davenport, Iowa. “I would say that if anybody is looking to get it for the first time, open versus closed is almost a non-issue. You’re getting an open system no matter what.”

Using a closed system can limit the lab in the variety of cases it can produce.

“The biggest problem is on the back end if any of the laboratory’s accounts that they have—or want to get—move into intraoral scanners,” Thomas says. “With a closed system, you have everything you need, but there is limited availability for what that closed system can take on. It’s much more difficult to be a versatile laboratory with a closed system. And by versatile, I mean where you can send, who you can receive from and what doctors you can and can’t take on.”

The notion of a system being “closed” is not necessarily a black-and-white issue, however. There are varying degrees of whether a system is closed. For instance, while a given system’s scanner might require the CAD component from the
same manufacturer, in many cases the final file can still be output in an open format. Ultimately, it comes down to which manufacturer you and your client doctors elect to work with.

“Sirona lab software allows for the STL import of scan files,” says Norbert Ulmer, director of laboratory CAD/CAM at Sirona Dental. “And since all the other systems on the market are providing STL exports, these are scans that can be imported into the Sirona software, and, therefore, this makes Sirona the only system—the only lab software—that can accommodate any DI [digital impression] solution out there.”

OPEN SYSTEMS
Scanning devices that can exchange information freely with other components are said to be “open.” This functionality allows a scanner to be purchased from one manufacturer and the case data sent to another.

The industry seems to be moving toward more openness, and Cody Coonradt, global product manager, 3M Connection Center at 3M ESPE Dental in St. Paul, Minn., expects the future of open systems to follow a path similar to the current state of social media.

“In the future, we’re going to have workflows that function like photo sharing does today,” Coonradt says. “I can take a photo on my phone. I can put it on Instagram, and then I can ask Instagram to share it on Facebook and Twitter and maybe my GoPro account. All of the information, and all the architecture behind the scenes to make that ecosystem work, has all been put in place by various companies—oftentimes competitors in one sense or another. We believe that the development of digital dentistry will be similar; we’ll see the ecosystem of companies develop that have to learn to talk to each other. And what that means for customers, especially in the lab, is that we’ve seen that they may have to learn to work with a wide variety of scanners in a wide variety of CAD software packages.”

PLUG AND PLAY
Some might be attracted to closed systems because they are perceived to be more plug and play than open systems. That is, since the components are all designed to work together, they should be quickly and easily connected with feature-rich capabilities.

Cohen says whether the system is open or closed doesn’t really matter. It’s a matter of which vendor provided the system.

“It depends on where you buy the system,” Cohen says. “If you’re working with a distributor that has integrated the products well, there’s really not much difference between closed and open other than the benefits of having an open system.”

While devices being plug and play is appealing for the lab that wants to get up and running with a CAD/CAM solution or add a new component to its existing system, John Just, director of technical support at ETI Digital Technology in Placentia, Calif., warns that simply buying capable equipment does not necessarily make for a capable lab.

“We’ve gone through an evolution,” Just says. “When CAD/CAM first came out, the whole idea was for the dentist to be able to produce a crown while the patient was still in the chair, and it really didn’t matter what it looked like because it was mostly posterior crowns. Today, it’s a different story because everybody can create that crown. They need to know function because as soon as they get off a single crown, they’re into a three-unit bridge, and that’s a totally different animal.”

SOFTWARE
Like your computer, dental scanners require two components: hardware and software. The two have a symbiotic relationship—each needs the other to do its job.

“It’s like Apple,” observes Tony Ly, CAD/CAM manager at Keating Dental Arts in Irvine, Calif. “The hardware and the software have to be integrated perfectly. The hardware needs to be reliable; the software needs to be user-friendly. The hardware has to be accurate. The software has to be able to stitch all the scans together. The two have to work together perfectly for that to happen.”

“You have to look at the system as a whole because manufacturers are becoming more and more open to where the files can be created,” adds Mark Ferguson, assistant manager at Core3centres in Las Vegas. “As systems have gotten more open, they’re starting to look at the system as a whole. Is this scanner accurate enough?

Is this design software easy to use? Is the design software open enough that I can do what I want with it? Because some of the closed systems may not allow you to be able to do certain indications because they’re just not in the software.”

Thanks to ever-evolving design software, more complex cases can be created.

“You can use this technology for crown and bridge work—just simple things,” says Alessandro Cucchiaro, CMDT, MDT, general manager of Zirkonzahn USA. “You don’t need a very sophisticated system to perform these types of restorations. But when you get into something more complicated, like full-arch, screw-retained bridges, this type of technology turns out to be absolutely unique because besides constructing the bridge itself, I use it personally as an amazing diagnostic tool.”

Design software is where new features and functions of scanning systems will show the greatest development and evolution.

“What’s the most important in all of this is how advanced the software is because then it’s about how much time it’s going to take the technician to design a case and then the quality of the design,” Cohen says. “From my perspective, the CAD is just as important, or more important, than the physical scanner the laboratory purchases. The vast majority of scanners available on the dental market today are adequately accurate for more than 99 percent of the cases we do.”

For instance, Just notes that Dental Wings provides the capability of changing workflows midstream—an ability
is especially appealing to dental labs. "If you tell a lab at the beginning that you’re going to do a crown and, before you get all the way through the design, the doctor calls the lab and says, ‘Oh, by the way, I’m not going to do a crown; I’d much rather you did a layered zirconia crown,’ you have to go back and rescanned,” Just says. “You can’t change that midstream because it looks at it totally differently. Dental Wings looks at it as, ‘This is a scan, and, before shipping it off to the CAD software, we’re going to have you determine the path of insertion, the margins and all the other goodies.’ It’s still an STL file, but now it’s an STL file that has the landmarks and information that Dental Wings is looking for.”

**STL FILES**

In order for open systems to share information, they must utilize understandable file formats. For instance, the de facto word processing document is the .docx format. In the CAD/CAM world, it is currently the STL file.

“That open standard is really critical to allow all of this interoperability,” Coonradt says. “The labs we talk to tell us that it can be a real challenge to have a closed CAD system, whether that’s an intraoral scanner or a benchtop scanner, because they can’t take a certain file through their preferred workflow.”

While the STL file format allows communication between different vendors’ devices, it is not perfect. The STL format is used for most CAD/CAM files, regardless of the industry. Many in the industry are pushing for an open format unique to dental work. Coonradt notes that 3M is supporting the development of the UDX standard, a standard being developed by the Open Exchange Dental Interoperability Group (OxDIG). Ultimately, Coonradt says he believes interoperability is inevitable.

“We’re going to see some phases in this transition like we’ve seen in other industries,” Coonradt says. “First of all, we’ll see silos of information crop up, and it’s very much on the consumer, in this case, the lab, to try and get those silos to talk to each other. 3M is pushing toward the second phase; we’re working together with other manufacturers to get these isolated silos of data to talk to each other. We call these Trusted Connections. This phase often requires a great degree of technical work to get the different systems communicating reliably. We’re looking forward toward the third phase—more of a standards-based approach—where interoperability becomes easier because everyone’s systems are essentially speaking the same language.”

**PORTALS**

Once scanned, the file might have to be transferred between partners—for example, from the doctor’s office to the lab or from the lab to a milling center. To accommodate this, vendors have set up “portals,” which allow the information to be shared securely and compliantly. Portals can also offer added features, like communication tools.

“When it comes to Sirona, we do everything through Sirona Connect,” Umer says. “And Sirona Connect does not require any licensing fees, neither for the doctor nor for the laboratory. There are no licensing fees; there are no data plans or anything associated with it. In addition to the connection between dentist and laboratory, we also add chat and Skype functionality to that portal to enhance communication between dentist and laboratory.”

Some portals also allow conversion to different file formats. For instance, the 3M Connection Center offers such ability.

“We can also transmit case status and alerts to the lab and to the doctor’s office from the Connection Center,” Coonradt says. “Our portal also allows us to convert our files to different export formats. We can export an esCAD-compatible file. We can export a 3Shape-compatible file. We can export a Dental Wings-compatible file. We can export a UDX-compatible file and then we also have access for the labs to download that open STL file.”

In order to get the most out of these portals, and depending on the lab and how deeply they want to invest in their CAD/CAM solution, it might make financial sense to partner with a milling center.

“Most intraoral scanners have portals like that to get their scans to the lab,” Ferguson says. “Some of the labs might have to buy additional software to receive it. Companies like Carestream, which is really open, have Carestream Connect. They make the STL files available to the lab, and the lab can just bring in the STL files and use them however they want. 3Shape has Communicate, in which case the doctor can just send the files, but the lab has to have software in order to accept those files, and that’s where partnering with companies can really help and save a few bucks until they can actually see a return on investment.”

**UPDATES AND FEES**

Like your computer, scanner and CAD software is regularly updated, and it is in the best interests of labs to stay current with those updates. As such, oftentimes labs will have to pay a monthly or yearly fee or subscription. The fees associated with ongoing maintenance are used to fuel innovation in scanner and CAD software.

“3Shape charges an annual fee to every laboratory that has a 3Shape system—it’ll depend on how many system—it’ll depend on how many

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licenses you have, and then what software you have,” Cohen says. “That fee enables 3Shape to employ about 200 full-time engineers to continually develop products.”

Not every vendor requires an annual fee, and some have been able to offer a different business model because of it. “Because of [3Shape’s] fee, it’s given exocad inroads to the marketplace because a lot of lab owners don’t want to pay the annual fee,” Cohen notes. “With 3Shape, if you want an upgrade, there is a fee, but it’s not mandatory that you pay. With 3Shape, you actually get shut down if you don’t pay it. Whereas exocad, if you buy it this year, you have 2015 software. If you want to operate on 2015 software for the next 10 years, you can do that. You [just] won’t get any other new features.”

In the exocad model, labs don’t have to stay current. However, if there comes a time they want to upgrade to the latest version of the software, whichever years were skipped between the last version that was paid for and the current version must be made up. “What I recommend to everybody for updates is once your one-year warranty is up, just immediately pay for another year,” Thomas advises. “It’s going to be the least expensive option to pay up front, as every month you miss, every year you miss, you have to go back and pay for those years.”

Some vendors’ fees are part of ongoing maintenance programs. “The fees that are involved are related to the maintenance fees,” Cucchiaro says. “It’s helping the technician in learning how to utilize the system. If there’s anything wrong with the system itself, we’re able to intervene and help him out with any type of issue that he is encountering. It’s not a mandatory fee, but we recommend it for the first year.”

Labs should take a look at the fine print regarding fees before they sign on to any system. “You have to be careful because, oftentimes, the ongoing fees are not well communicated to their customers until very late in the contract process,” Coonradt says. “We’ve taken a deliberate practice to be very transparent in our pricing. We give the device and data package pricing right up front.”

**SUPPORT**

What’s the most important consideration in buying a scanner?

“The top three things they should be looking for are support, support and support,” Ferguson says. “Every system has a learning curve. Does the company that they’re purchasing from have the know-how for how they want to use it? I’ve seen people buy systems to save a few bucks from a vendor that may not train on the more advanced type of cases, and then they’re left trying to figure out on their own how to do it or they’re paying more in the end to get trained somewhere else.”

Support goes beyond understanding the basic capabilities of the scanner—it’s necessary to get all the functionality out of the device. “The laboratory wants to have something where it is easy for them to understand the workflow, and for those doctors who want to go more in-depth, it’s good to know that there is an infrastructure on the education side, whether it’s on a local level, through online-based training classes and so on,” Ulmer says.

Cohen compares the intricacies of CAD software to those of Photoshop. However, CAD software is even more complex, and, for lab technicians, time is a precious commodity. “The thing with Photoshop is if you don’t know how to do something, you play, you play, you play, you play, but, with these technicians, they have work to do. They want to get home,” Cohen says. “When you have a problem and you can’t figure it out, you should be able to pick up the phone and reach a technical support person to help you through that problem. That’s probably one of the most important things in purchasing a scanner.”

**BEST PRACTICES**

The acquisition of a scanner is not a small investment, and labs should get the most out of the purchase that they can. “The main thing typically is how committed is the laboratory to digital impressioning, and I would say the majority of labs today are not committed yet,” Ulmer says. “It’s still a relatively small percentage. The majority of labs have not invested into impressioning units yet.”

While newer lab technicians understand computers and might need a better understanding of dentistry, it works the other way around—especially for older lab techs.

“It also depends on the age of the people who are looking to get involved in this technology,” Cucchiaro says. “I am a 52-year-old dental technician who has been working at the bench for 35 years, and my impact by this technology was terrible. I’m not a computer person. Guys who are in my age range are very frightened because they’re not used to this technology. They’re not used to this terminology, but they see the benefits of what it can be. So they need a little bit of patience, and they need a little bit of time to be able to acquire as much knowledge as they can be able to use it.”

Communication with client doctors is critical, especially in terms of education about scanners. “As digital impressioning becomes more prevalent on the doctor side, it would be really good for the labs to pay attention to seeing what’s out there with intraoral scanners, having an understanding of the positive and negative points of each of the different scanners and then price points, so that if their doctor calls, they can have an intelligent conversation about it,” Ferguson observes. “The last thing they need is for their doctor to want to go digital and they’re not prepared with the information. Be aware of what’s out there on the doctor side. If you’re outsourcing, make sure you communicate with your outsourcing center so they understand the types of cases that you’re going to send and that they’ll be able to handle them as well.”

Labs also need to spend a little time getting to know the system and what it can and cannot do. “They tend to have problems if they don’t nail down the parameters, the contacts, the occlusions,” Ly says. “You really need to nail that down to do the digital impression because you don’t have the model. Most labs do not lock down those parameters. Just do R&D. If you get a digital impression, you must have a model printer to print the model. Then you check the parameters and try to drop the crown in. If it’s too tight, you reduce the contacts on the software design.”

Labs that might be waiting for scanners to mature need not wait any longer. Their capabilities are in a great place. “I think that scanners are already at a great level,” Cucchiaro says. “The accuracy is amazing. The speed, to my point of view, is acceptable. They are scanning in a couple of seconds. I don’t know where else we want to go.”
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We wanted to bring lab technicians a quick roundup of some of the leading benchtop scanner options out there. Whether you’re a small lab, large lab or somewhere in between, here is a snapshot of some of the top benchtop scanner companies and products.
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3Shape released new versions of its D-series desktop scanners and two new D-series models—D2000 and D1000. The D2000 and D1000 feature multi-line scanning technology—a new 3Shape proprietary scanning technology shown in trials to increase scanning speeds by 30 percent. The two scanners are equipped with 4 x 5.0 MP cameras and high quality mechanics to reportedly improve scanning accuracy. They are also said to boost speed and performance and include three years of LABcare, which features yearly software updates, product training and service.

908-867-0144
3shapedental.com
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Amann Girrbach

**CERAMILL MAP400**

The Ceramill Map400 is designed to stand for a high degree of operating comfort and high resolution scan data, which are created using strip light projection. Highly sensitive 3D sensors are designed to provide a precise image of the model. The particularly large measuring field is said to enable quick, efficient scanning of dental models using only two axes, which reportedly greatly reduces the scan times. This scanner also easily records articulated models in an occlusal relationship—a prerequisite if a “virtual articulator” is used in the design software for an automatic fully anatomical framework design. The Ceramill Map400 has an open interface so scans (STL files) can also be loaded in other CAD programs.

704-837-1404
amaangirrbach.com
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Aurident

**OPTIMET DSI 6000**

Using proprietary conoscopic holography technology, Aurident’s Optimet DSi 6000 impression scanner is designed to conquer the complexities involved in accurately scanning steep angles, narrow or deep holes and undercuts captured in the dental impression that has been the bane of other 3D scanners. Full-jaw or quadrant impressions can be scanned without the need for powder. Triple-tray scanning with occlusion registration is done automatically. The DSI 6000 is said to allow dental laboratories or offices to accurately scan and design restorations with exocad CAD software directly from the impression, thus eliminating the need for creating gypsum models and improving productivity.

800-422-7373 | aurident.com
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ETI Digital Technology

**DENTAL WINGS 7SERIES**

The scanning performance of the 7Series is designed to combine years of mechanical engineering experience with state-of-the-art technology components. The optical setup, running with five axes and two high speed cameras reportedly give access to a superior scanning volume (140 mm x 140 mm x 140 mm) with a high degree of accuracy. The scan chamber is large enough for fully articulated models. The 7Series is said to demonstrate high precision scanning of both models and impressions and can scan 30 copings in 15 minutes. Included software applications range from implant prosthetics to partial frameworks, and optional applications for restorations like full dentures and bite splints are available.

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Optimet

**DSI 6000**

Optimet’s ultra high precision DSI 6000 dental chairside scanner is said to offer patients the highest standards for complex dental prosthetics. With the push of a button, the DSI 6000’s advanced scanning technology is designed to capture the dental contours of impression materials with extraordinary precision, including narrow and deep holes, steep angles and other features that are difficult to scan. The DSI 600 is based on Optimet’s patented conoscopic holography, where the scanner’s transmitted laser path is exactly the same as the reflected laser path, which records the shape of the dental impression. It can also scan a wide range of dental impression materials, meaning dentists can use the resources they are most comfortable with minus powders.

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**Shining 3D**

**AUTOSCAN-DS200**

AutoScan-DS200 is an automated scanner that is designed to be capable of providing users with detailed and precise scanning data by using advanced blue light technology. AutoScan-DS200 is mainly designed for dental applications. Shining3D offers the scanning solution to dental labs, which helps clients entering into the CAD/CAM digitizing dental field. The new-generation AutoScan-DS200 dental scanner adopts blue light technology, reportedly providing excellent data quality and improving the scanning algorithm. In addition, it is said to capture the complete plaster model and mark drawings by hand clearly. The fine details are said to offer a reference in the digitizing design for dental technicians. AutoScan-DS200 is designed to provide fully automatic scanning in one-click, reportedly making it efficient and cost-effective.

+86-571-82999050
shining3d.com
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**Sirona**

**INEOS X5**

The inEos X5 is said to be a revolutionary 3D scanner that features a unique robot arm, innovative model positioning and the latest scanning technology for reportedly unrivalled precision, flexible handling and a comprehensive spectrum of applications, including scanning both models and physical impressions. The inEos X5 is designed to employ superior five-axis technology that utilizes a robotic arm to enable quick, automatic positioning of the model while reducing data quantities and accelerating model computation. The automatic image capture function allows free movement of the model in any direction, reportedly providing complete control of the angle and producing a scan only of the required treatment area with interactive control and flexibility. This function is said to ensure maximum efficiency and has been further enhanced by a manual scanning option that provides quick and efficient capture for more simple restorations.

800-659-5977 | sironausa.com
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**Zirkonzahn**

**S600 ARTI**

Zirkonzahn's fully automated S600 ARTI optical-structured light scanner has twin cameras that are adaptable to all articulator types, a beltless precision mechanism, a 360° rotational and 100° tilting axis and an extra-large measuring field. In combination with the Zirkonzahn Scan software, you can register your articulator into the scanner to measure its axes. The scanner, with a precision of less than 10 microns, can record practically every point of the object digitally—even undercuts can be measured very easily. The scanner features two high speed cameras and a new projector for fast scanning and exports data in .STL format.

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“The inEos X5 is an essential part of our lab’s workflow. Precision scans, ease of use, reliability and speed allow us to produce a larger number of crown and bridge restorations with accuracy and shorter turn around times. Additionally, we are able to save labor, outsourcing expenses and shipping costs. The STL export features allow us to digitally send our scanned in models to milling centers of our choice for custom titanium abutments or SLM copings and frameworks. In addition to being able to scan our models and PVS impressions, we are able to receive cases through Sirona Connect, a digital network that allows us access to tens of thousands of clinical CEREC users worldwide.”

—Tra’ Chambers, owner, Express Dental Laboratory
The right one for everyone.
A new way to get digital dental education

Tim McKimson, global engineering director and general manager at Core3dcentres USA, explains how Core3daCADemy is changing the game.

by Ryan Hamann

Core3dcentres was actually formed by a group of dental lab companies with an extensive history in the industry. So we realized early on that many laboratories may not have the money, or desire, to invest in the latest equipment in-house to manufacture the wide variety of CAD/CAM restorations available today. Instead, we made the investment in high-end “best-in-class” machinery and people to provide these products to the individual laboratory, allowing them to offer a full line in turn to their practitioner clients. This allows our customers to play in the CAD/CAM sandbox without them having to make the investment.

What was it that led Core3dcentres to launch Core3daCADemy™?

Since we have been in the forefront of the digital dental movement, we were getting a lot of calls into our tech center about how to create efficient designs for today’s technologies and how to handle certain data they were receiving from their dentist clients. Some of these calls were not even from our own customers but referred to us from other companies. As it seemed that we were becoming the “go-to” people in the digital laboratory arena, we thought it would be appropriate to develop classes to address some of these needs on a broader scale and scope. Hence, Core3daCADemy was born.

What do you feel has been the most successful aspect of the aCADemy™?

Up to this point, it has been the aCADemy classes offered in Las Vegas and in Calgary. This is a three-part structured set of courses running from aCADemy 1 to aCADemy 3 that will take students from the basics to implant design to a full-arch smile design. It seems like everyone, no matter how long they have been involved in dental design, gets some “ah-ha moment” where they find a new technique that they didn’t know existed in the software. The popularity of this series, our ongoing monthly webinar series and our “Traveling Core3daCADemy,” offering customized education at individual labs themselves, are all growing rapidly as the word spreads. In fact, we have just launched the aCADemy in Toronto, Ontario, as well so the demand for quality hands-on laboratory education is certainly there.

Conversely, where have you felt challenged in the education component and adjusted your focus?

Having the structured classes mentioned above is great. One of our challenges was to get out the word when new products and/or equipment enter the market. So we decided to set up the webinar series I just mentioned that informs the listener about these new products, technologies and techniques. These webinars are hosted by Core3dcentres, but many times the presenter will be an industry leader. We host these on the third Wednesday of every month. The webinars are free, interactive and you can listen from the comfort of your home or office or wherever.

What have you seen in the industry in the last few years that have changed what Core3dcentres is offering?

Custom Ti abutments and hybrid abutments on printed models. Now that more and more doctors are getting intraoral scanners, the need for an impression is going away. So, we have seen a big growth in taking an intraoral scan, creating a printed model with an analog and sending that with the custom abutment to the lab for finishing work. This is a very efficient method.

Where do you see the dental lab industry going in 2015-2016?

Materials seem to be making a move early this year; a whole bunch of companies were announcing in Chicago and at IDS in Cologne. These are both in the milled and printed sector. Core3dcentres, as I mentioned earlier, usually gets in early on this material development workflow so as these products are released we have already validated the process.

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New scanners, new options

The latest line of imaging systems from Dental Wings provides a variety of solutions for labs.

compiled by Ryan Hamm. Information provided by ETI Digital Technology.

The new line of dental scanners from Dental Wings features a completely new look designed with enhanced ease of use in mind, thanks to a wide door opening and fully finished interior panels. The new line, which features the 3Series, the 7Series and the iSeries scanners, reportedly features high scanning accuracy thanks to the scanners’ powerful on-board computers and their high-precision mechanical and optical components. Each of the scanners uses DWOS as the platform, seamlessly covering extensive multidisciplinary design and planning workflows. The scanners are open architecture through open STL import and export and can import intraoral scan files. Additionally, the scanners are equipped with a flexible software configuration that can be expanded with additional applications to meet the evolving needs of the lab. Finally, the scanners are equipped with DWOS Connect, through which dental technicians and dentists can share STL files and case related information.

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**Q&A**

**Paul Stevens**  
PRODUCTS MANAGER  
FOR INFINIDENT

01. **infiniDent added some major services in 2014. What are a few that were added that you’re most proud of?**  

We’ve worked very hard throughout the years to listen to our customers and provide services in demand. We now offer new removable prosthetic frameworks with several new offerings to come soon. I am proud of each and every component added to infiniDent. With each service added, we are further expanding the scope of what our infiniDent clients can offer to their own customers.

02. **What do these options do for dental laboratories?**  

infiniDent offers the most immediate services and products that a dental lab may require. With a full offering of services and a wide selection of materials, we help labs fulfill client requests. Models, milling and third-party services are right at their fingertips. infiniDent is there to supply the materials and services they need to sustain that business.

03. **infiniDent is known for offering open architecture options. How does this help your lab clients?**  

For many infiniDent customers, it provides that first taste of open architecture. It sets the lab on a course of expanded knowledge in its new digital workplace. Labs can use existing equipment and software; they can use third-party offerings; many choose to stay right here with infiniDent as we offer most of the options they are looking for. Moreover, they can also add options while eliminating some of the more unprofitable steps.

04. **What does infiniDent offer to clients that other options do not?**  

infiniDent offers the widest variety of materials and services. As a company, Sirona reinforces and uses our industry know-how and knowledge by providing superior customer service, ongoing product and service education for our clients and technical support. Sirona and infiniDent cover all bases when it comes to products, service offerings and education.

05. **How does infiniDent benefit labs of every size?**  

One word—options! Not every lab requires the same products and services, regardless of the size. We can work with labs on special requests and keep an inventory of a large number of sizes and shades of particular materials that some smaller labs may not stock. They can do their everyday milling and, if the situation arises, use infiniDent for that shade or size they don’t normally use.

06. **How can dental labs discern if they are ready to make the jump to digital?**  

It is imperative they get into the digital game. At this point it is a matter of “when.” Once the commitment is made, there is a learning curve, but that is one example of exactly how infiniDent becomes a valuable resource. infiniDent is a part of a large, connected digital community, and if there’s a question that we can’t answer, it can be addressed by Sirona personnel or one of our many advocates.

07. **How does infiniDent help labs transition from needing an outsourcing partner to doing more in-house?**  

The most basic equipment needed to move toward a digital lab are a scanner and software. You can then use infiniDent for milling services and models until you decide to purchase a milling machine or printer. After that, you can use infiniDent in all ways as stated above. You may use infiniDent forever or you may become digitally self-sufficient.

08. **How does infiniDent fit in with other Sirona offerings, like Sirona Connect or the inLab system?**  

When you talk about using infiniDent, you have to talk about using Sirona Connect. Labs can acquire their work conventionally, scan that work and send to infiniDent or go the total digital way of receiving their cases via Sirona Connect and then send to infiniDent. Either way works primarily the same once infiniDent receives the case; the difference is mainly on the lab side. All components of CAD/CAM offerings at Sirona are also components of infiniDent.

09. **What does Sirona have planned for infiniDent heading into 2015?**  

New products and services are always being evaluated. If you know anything about Sirona Dental, you know to stay tuned and watch the fireworks as they happen. I strongly recommend all lab professionals periodically visit our website for new items or establish a relationship with one of our territory representatives. You can also call me personally at 800-659-5977, ext. 1145, or email infinident@sirona.com.

10. **Anything else you’d like to add?**  

It is important for all labs to stay abreast of what will ultimately affect your bottom line. infiniDent will be a valuable resource for years to come. Gain knowledge from their successes and failures, as there are plenty of both. And finally, don’t be afraid to challenge what you see—you may be part of the next big thing.

> “It is imperative they get into the digital game. At this point ... it is a matter of ‘when.’”  
> — Paul Stevens
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