

A new solution in the field of digital workflows



Fig. 1: Adrian Hunn was elected new CEO of Dentalpoint at the beginning of 2020.

In this interview, new Dentalpoint CEO Adrian Hunn talks about the new competence centre for Zeramex Digital Solutions and master dental technician Peter Hölldampf, laboratory manager at the Germany-based machining centre Geiger Dentaltechnik, a close partner of Zeramex, discusses material-specific aspects of zirconium dioxide.

Mr Hunn, the company Dentalpoint, which owns the Zeramex brand, opened its new competence centre for Zeramex Digital Solutions last year. There are probably at least some users, dental technicians and dentists who have not heard of it yet. Can you explain exactly what a competence centre is and how the customer can benefit from it?

Hunn: The market is demanding new solutions in the field of digital workflows, so it is a logical step for the R & D department at Zeramex to find new ways, approaches and, ultimately, solutions for our two-part and 100% metal-free systems to meet this demand. And our R & D department has done a great job in this regard over the past two years. We are now able to offer fully cus-

tomised and 100% metal-free solutions from the new Zeramex Digital Solutions competence centre. Our customers now have the possibility of sending digital data to our competence centre by secure data exchange, which enables them to order, for instance, customised abutments directly from us. But that is by no means all. Our product portfolio embraces fully customised abutments, one-piece monolithic crowns, and custom-made crowns with and without screw holes for ZERABASE abutments, all made to the highest degree of precision. Whether for restorations of anterior or posterior teeth, we have the perfect solution for each and every situa-

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tion. In addition, customers can choose to have their crowns ready coloured and glazed. A 3D-printed model can also be produced on request so that the practitioner can check the restoration before insertion and show it to the patient as a tangible model. Of course, every order comes as standard with the required 100% metal-free VICARBO screw. In addition to the direct implementation of the orders, our competence centre offers advice in the field of data processing and in the selection of the perfect product for the individual needs of the customer.

It has been a few months now since Zeramex Digital Solutions was first launched. How much has the new competence centre appealed to users and how strong is the demand?

Hunn: As I pointed out earlier, the ordering process is very simple and uncomplicated and therefore runs very smoothly. This meant that, at start-up, only minor changes to the ordering process were necessary. The simplicity with which customers can get high-quality, customised and, above all, metal-free solutions adapted

to the specific gingival situation generated a great deal of very positive feedback. This interest, combined with the fact that the demand for digital solutions is already very great, made it possible for us to achieve an even better start than we expected. Customers and users with whom we have long-standing, close relationships naturally knew about our project at an early stage and were involved in product and process optimisation. Not only did they support us in this project, but they also confirmed that there will almost certainly be great demand for the new competence centre in future.

The word “future” brings us to the next question. Will the digital workflow at Zeramex offer even more options in future? Are you already working on further developments in the Zeramex Digital Solutions department, and if so, what form will these take?

Hunn: I thought you might put this question to me [laughs]. Indeed, there are product enhancements that are already in development and, in some cases, almost completed. In the near future, the competence centre will certainly provide users with innovations as well as enhancements of existing products. Of course, I cannot yet tell you exactly what these will be. In addition to the product, delivery times are an issue. We are already working intensively on offering the customer shorter delivery times as soon as possible. The aim is that, in future, Zeramex Digital Solutions products will be received by the customer within two days of placing the order.

Mr Hölldampf, you are the laboratory manager at Geiger Dentaltechnik, one of the longest established machining centres in southern Germany and a close partner of Zeramex. In 2000, your laboratory was the first in Germany to use 3M ESPE to implement a pilot project for milling zirconium dioxide with CNC machines which operated on a CAD/CAM basis. What can you tell us about this material, the machining process and your experience with it?

Hölldampf: Yes, that was very exciting back then. Zirconium dioxide was still in its infancy, and when 3M, then ESPE, came to us to test this new process, we were initially quite sceptical about whether it would work. In the test phase, we realised that the material zirconium dioxide was unique and functioned really well and that it would, therefore, be possible to do quite a lot with it. Of course, zirconium dioxide has its pitfalls, and there are a few things to consider when preparing and machining it. At the end of the day, zirconium dioxide is a ceramic. This means that you have to carefully investigate factors like stability values, connector cross sections for bridges and the creation of the correct substrate for subsequent veneering ceramics. There are many factors that come into play. Extremely precise processing must be ensured over all the manufacturing steps. In the past, full-ceramic

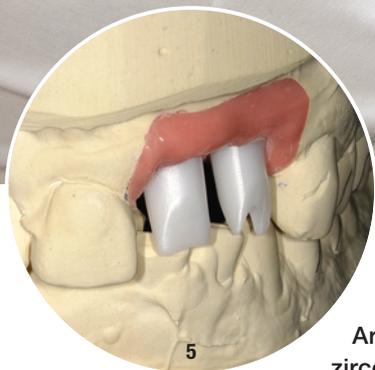
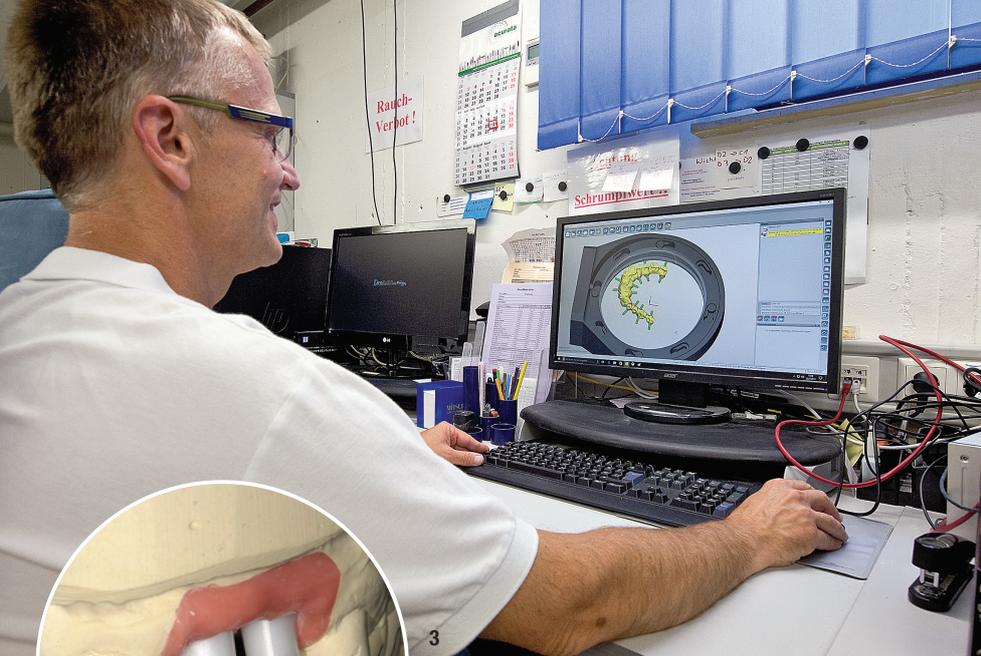
restorations were really only possible using pressed ceramics or the hot isostatic pressed variant. Milling in the green state, however, was a complete innovation. This new approach was gentle on the material, the machine and the milling tool. In addition, it was possible to achieve much more detailed and precise results.

It is said that stability is still an issue with zirconium dioxide. You have been working with this material for over 20 years. What is your opinion about its stability?

Hölldampf: Zirconium dioxide is a very hard material. If we take a gold crown for comparison, it is much more forgiving in terms of chipping. This is because gold is much more malleable than ceramic. For the ceramic process, this means that an absolutely perfect impression is required in advance. If uncertainties are already present in the impression, this can lead to inaccuracies, and there is a risk of parts of it breaking off. Since pressure cannot be used to apply zirconium dioxide restorations, a perfect fit must be assured. A gold matrix is more forgiving. Because zirconium dioxide is such a hard material, the product has to be extremely precise and a perfect fit, as I said. The fit is the absolutely crucial. In the further course of machining, it is also important to process it carefully without pressure and with the right cooling. Especially in the area of the geometry of implant connections, it is important to use extremely stable ceramic material. The pressure on a natural tooth is simply very different from that on an implant. An implant is firmly anchored in the bone and allows practically no further movement.



Fig. 2: Peter Hölldampf is the laboratory manager at Geiger Dentaltechnik, one of the longest established machining centres in southern Germany.



Figs. 3–5: ZERAMEX Digital Solutions offers customised and completely metal-free abutments, crowns and even one-piece monolithic crowns.

Are there still problems with fitting with zirconium dioxide, and does this require a lot of reworking?

Hölldampf: Actually, this is no longer really the case. Above all, owing to improvements in the software in recent years, it is now possible to work much more precisely in scanning and then digitally designing the implant. As a result, significantly less reworking has been required in recent years.

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Zeramex Digital Solutions offers customised and completely metal-free abutments, crowns and even one-piece monolithic crowns. To what extent have you, in the laboratory, been able to benefit from these innovations?

Hölldampf: The issue is really the connection geometry of the abutment, that is, the prosthetic restoration of the dental implant. Milling this connection geometry in zirconium dioxide is highly problematic, since no manual post-machining should be carried out in this area. Only a perfect first-time fit in the transition area will provide a product that functions perfectly. Because this connection geometry is milled directly by the Zeramex Digital Solutions competence centre, you have to be able to simply count on it being a perfect first-time fit. And this means that we immediately get a super-functioning

product in original manufacturer quality that we can use to create our custom restorations.

Are there comparable products on the market with regard to customised abutments or customised monolithic crowns?

Hölldampf: In the past few years, we have had products from various zirconium dioxide implant manufacturers. I would say that there are comparable products, yes, but there have never been other products where you can safely assume there will never be complications when it comes to fitting in the patient’s mouth. In Zeramex, we have found a partner whose product simply works. The product is carefully considered and planned down to the last detail and perfectly harmonised with other components. The system is logically structured, all parts fit together perfectly, and the great thing for us is that we can rely on finding the best solution for every job, regardless of the size. We have never had any other product in our laboratory that comes close to the quality of Zeramex.

contact

Adrian Hunn

Dentalpoint
Bodenackerstr. 5, 8957 Spreitenbach, Switzerland
Phone: +41 44 3883636
info@zeramex.com

Peter Hölldampf

Geiger Dentaltechnik GmbH
Gottlieb-Daimler-Straße 3
73529 Schwäbisch Gmünd, Germany
Phone (laboratory): +49 7171 9806-11
Phone (milling centre): +49 7171 9806-29
info@geiger-dentaltechnik.de
millingcenter@geiger-dentaltechnik.de