

CAD/CAM manufacture of veneer structures using Rapid Layer Technology

Interview with Michael Tholey, Dipl.-Ing.

As team manager of VITA Research & Development, Dipl.-Ing. Michael Tholey made a decisive contribution to the development of this new technology. In the following interview he explains the innovative procedure "Rapid Layer Technology" and describes the advantages in comparison to the classical layering technique and other alternative procedures.

Mr. Tholey, please give us a brief description of the new VITA Rapid Layer Technology procedure!

With the VITA Rapid Layer Technology, it is now possible for the first time with the aid of CAD/CAM technology to manufacture fully anatomical bridge restorations consisting of a framework and a veneer (fig. 1). At the end of this procedure, both of these components are attached to one another using adhesive composite. This procedure brings a great economic and time advantage, and that is why I consider it to be a logical further development in the sector of CAD/CAM technology. The goal of VITA and Sirona was to develop a procedure by means



of which the highly efficient manufacture of aesthetic bridge restorations with long term durability is possible.

In your opinion, what advantages does the VITA Rapid Layer Technology offer in comparison to the classical veneering of frameworks using the manual layering technique?

The computer-aided procedure guarantees a clear time advantage over the classical layering technique, and what's more, the result is reproducible. Particularly in connection with the bioenergetic occlusal surface design, true-to-nature veneer structures can now be manufactured quickly and simply – not only by dental technicians. In addition to this, the bonding of framework and veneer with adhesive composite guarantees tension-free bonding. As a result, the monoceramic veneer structure made of VITABLOCS feldspar ceramic minimises the risk of chipping. Furthermore, the design data can be utilised directly for the manufacture of a temporary restoration.

What are the key differences of the VITA Rapid Layer Technology compared to other procedures for computer-aided CAD/CAM veneering?

One advantage has already been mentioned. Since the VITA Rapid Layer Technology requires no further firing, stresses within the veneer, such as can occur during the sintering of



veneers, can be avoided. A further advantage is that bonding with adhesive composite saves a great deal of time and is simple to put into practice (fig. 2). The adhesive technique is a familiar and well-established procedure – not only in the field of dentistry. In dental technology adhesive cementation is used primarily in the attachment technique.

You made a decisive contribution to the development of this technology: What has been your personal experience to date with the computer-aided manufacture of framework and veneer structures?

The computer-aided manufacture of framework structures is already a long-established procedure. What is new is the CAD/CAM manufacture of veneer structures. In the comparison of classically veneered bridge restorations and the restorations manufactured by us for test purposes using VITA Rapid Layer Technology, we succeeded in achieving comparable results.

Are any study results available to you on the bonding of framework and veneer structures?

There is no standardised test available on the bonding of all-ceramic restorations. In this case, I decided in favour of the shearing test. In this test, a veneer is fired to, or, as in the VITA Rapid Layer Technology, adhesively bonded to the substructure. My study results show that the veneers of both



metal ceramic and all-ceramic restorations demonstrate the same degree of strength as with restorations in the VITA Rapid Layer Technology.

For what indications does the use of the VITA Rapid Layer Technology make the most sense?

I can recommend this technology to every CEREC / inLab MC XL user without exception. The manufacture is possible with the multilayer software module of the inLab 3D software from version 3.80 and upwards.

Thank you very much for your time, Mr Tholey!

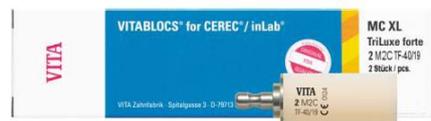


Fig. 1: VITABLOCS TriLuxo forte for manufacturing the veneer structure with VITA Rapid Layer Technology.



Fig. 2: The simple joining of framework



to veneer by means of adhesive cementation.



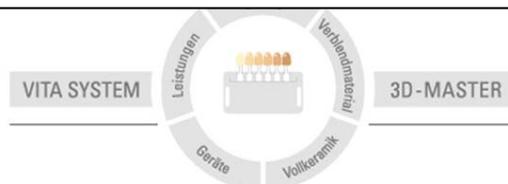
Fig. 3: Dipl.-Ing. Michael Tholey

VITA Zahnfabrik H. Rauter GmbH & Co. KG

Headquartered in Bad Säckingen/Germany, VITA Zahnfabrik H. Rauter GmbH & Co. KG has been developing, producing and marketing innovative solutions for dental prosthetics according to consistently high quality standards for over 85 years, and has been known from the very beginning as a pioneer and worldwide trendsetter. The VITA shade standard, for instance, is recognised internationally in the dental branch as a shade reference system. Users in 120 different countries benefit from the comprehensive range of products and services provided by VITA Zahnfabrik. These include analogue and digital tooth shade determination systems, acrylic and ceramic teeth, veneering and framework materials for conventional and computer-aided manufacturing procedures, dental equipment

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