Aesthetic considerations are becoming more important in the restoration of front teeth. Until now dentists have been able to use the well-known freehand technique to correct the shade and the shape of a tooth or they could opt for the classic ceramic veneer. Now a completely new system gives dentists another option.

Coltène/Whaledent, the Swiss specialist in dental materials, is now introducing a completely new generation of front-tooth restoration with COMPONEER. It is a system of polymerised, prefabricated composite-enamel shells that improves and simplifies the time-consuming freehand technique for major front-tooth restorations. The basic anatomical shape allows dentists to work up to 40% more efficiently and at the same time they can improve the final quality.

Advantages
- Pre-fabricated, customisable composite shells
- Improved marginal adaptation
- 100% bond to processing composite
- Completely free from air inclusion due to machine manufacture
- Homogenous
- Material thickness only 0.3 mm

Process
Patients increasingly expect a perfect appearance, which means increasing demand for improved aesthetics. This can be difficult to achieve in direct restorative dentistry in many cases. The emphasis until now has been on the preparation of restorations that are invisible at normal speaking distance.

Three basic systems are used for restoration of front teeth:
- Direct freehand technique with composite
- Direct CAD/CAM technique (Cercon)
- Laboratory-fabricated veneers

Large-scale freehand restorations require time, skill and shaping. However, the direct technique is less invasive and more economical, which makes it attractive to many people. Even so, indirect techniques are often used for restorations because they are more likely to be successful. Major problems with the conventional direct technique are...
difficulties with shaping margins, management of the top enamel layer and anatomical shaping. Because of the nature of the materials microporosities are common, which often means faster discolouration and problems with appearance. The new COMPONEER direct veneering system with its combination of improved materials, specially designed equipment and detailed instructions broadens the range of indications for the direct technique. COMPONEER sets new standards for economy and quality. The composite shells represent a new category in direct front-tooth technique. The basic principles of the freehand technique have not changed. However, the technique has been simplified and improved. The following example shows some of the most important steps.

Application

After defining the indication and the diagnostic goal, the teeth that required restoration were defined. In this case the caries was to be treated from cuspid to cuspid in the maxilla and the shape, shade and axial tilts were to be corrected (Fig. 1 + 2).

The enamel shells are available in three sizes and two different translucent shades: a neutral “Universal” shade and a light “White Opalescent” shade, which is more suitable for a youthful mouth. With the appropriate dentine composite positioned behind the shells any desired combination of shades can be created.

The tooth shape is selected with the COMPONEER Contour Guide (Fig. 3). Thirty different shapes are available. The shape in the Contour Guide is placed over the tooth that is to be restored, with the blue-transparent colour offering an optimum contrast to the selected tooth. The enamel shells can also be test-fitted on the teeth or temporarily cemented with uncured composite to assess where and how much the COMPONEER requires customisation. Corrections that require grinding can also be marked at this stage. A rough disc at low speed without water-cooling is the best tool for correcting the shape of the shell. In general a larger shape is preferred to cover marginal regions and to allow as much scope as possible for customising the shape. The specially developed holder is ideal for handling the shell (Fig. 4). The label on the primary package (back) can be removed and filed with the patient file for documentation. Dry working is essential for the best results. The classical rules do not apply for preparation. The minimum coating thickness of 0.3 mm means that the surface only requires minimal reduction (Fig. 5). In some cases the enamel is simply roughened and there is no defined preparation. Etchant Gel S is applied to all enamel and dentine areas for bonding and evenly distributed with the brush. The curing time on enamel is 30–60 seconds and on dentine 15 seconds, then the area is sprayed for 20 seconds. In the
basic principle the Total Etch method is used with One Coat Bond, which is easily filled and offers better wetting with a nano-hybrid composite. The One Coat Bond is applied evenly on enamel and dentine and left to cure for at least 20 seconds. Then transparent matrices are placed in the interdental spaces to prevent adhesion of the teeth. The bonded surfaces are pre-cured for 10 seconds. The unique microretentive surface of COMPONEER (2 μm) (Fig. 6) reduces the conditioning on the inside of the shell, because additional processes such as grit-blasting and silanisation are not required. One Coat Bond is applied directly with the brush and does not require light-curing. The result in combination with the fixing composite is a 100 % bond, which means that there is only one homogenous coating of composite on the tooth, thereby increasing the strength of the final result and reducing the tendency to discoulour. For the appropriate aesthetic success we recommend using SYNERGY D6, which is ideally matched in shade to COMPONEER. It can also be used with other systems, in which case we recommend testing the shade result before use.

If it is necessary to remove fillings first, COMPONEER can be applied with the corresponding dentine mass and filled from the palatal direction after the initial light-curing. This can also be done for tooth extensions or diastema closure. On the other hand, cavities can be filled beforehand with dentine mass to establish a homogenous base. Enamel mass can be used for shape corrections or simple shading corrections (Enamel Universal or Enamel White Opalescent).

Too much enamel will make the restoration grey and too transparent. The composite is applied to the side of the composite shell that is to be fixed with a suitable instrument (included MB5 spatula) (Fig. 7). The composite is also applied to the tooth to prevent air inclusions. Then the COMPONEER is carefully placed in its final position with constant gentle pressure by the placer (Fig. 8).

The placer has been specially developed for positioning veneers. The working tip is a silicone knob, which provides ideal force distribution. For complete front-tooth restorations, I recommend starting with the two central incisors. With the COMPONEER held in position, large residues are removed and the composite is shaped to match the margins. The light-curing process is not started until the correct position of the veneer has been verified. Then obvious residues are removed or the preliminary contouring is carried out. Finishing and polishing strips can be used for the proximal regions. Flexible discs are the best tools for shaping Interincisal angles. The basic shape of the COMPONEER is a smooth anatomical structure, which at this point makes it possible to individually characterize the surface or to adapt the shape.

**Initial and final situations of anterior restorations with COMPONEER**
to the face, bipupillary plane or lip line (Fig. 9 + 10). Microbrushes used without water are ideal for the final polishing to achieve the optimum high gloss (Fig. 11). The complete homogeneity of the composite shells means that the final finishing is in no danger of bringing unwanted porosities to the surface (Fig. 12 + 13). A glossy composite surface of the highest quality for long-lasting aesthetics is the final result (Fig. 14). The COMPONEER, manufactured from high-quality composite, can be considered as aids for shaping. They are primarily used for making the complete anterior region of the teeth more attractive and guarantee an attractive, easily achieved and high-quality result. At the same time they promote efficient working and reduce treatment time by as much as 40%. This is good for the dentist and also more comfortable for the patient. The simplified direct restoration technique also extends the range of indications. In addition to simple restoration of an aesthetic appearance (Fig. 15), the direct technique can also be used for more complex cases, offering dentists and patients new treatment options (Fig. 16). Single-tooth restorations are also possible, with the time saved being available for perfecting the surface (Fig. 17).

**Conclusion**

COMPONEER are more than simple veneering shells, they are also a complete treatment system consisting of four modules: the module with composite shells, the module for the adhesive technique (Etchant Gel, bond, composite), the module with the specially developed tools and instruments (front-tooth spatula, holder, placer and trimming instruments), and the documentation module with a detailed DVD, extremely detailed user manual with colour illustrations, a help catalogue with frequently asked questions and answers etc. (Fig. 18).

COMPONEER optimises and simplifies restorative dentistry and offers new options for function, economy and aesthetics that benefit both patients and dentists.

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