Planmeca makes CAD/CAM easier than ever

Planmeca’s open-interface CAD/CAM solutions introduce, above all, quality, cost efficiency and precision to the daily workflow at dental clinics or laboratories. Petri Kajander, product manager of Planmeca’s CAD/CAM solutions, explains the revolutionary features of these new products in this article.

State-of-the-art solutions for dentists: Superfast Planmeca PlanScan

The new Planmeca PlanScan is a digital and powder-free intra-oral scanner that scans the patient’s dentition quickly and accurately. The scanner produces real-time digital impressions from one-tooth to full arch scans. Thanks to the open STL data, the scanned files can be sent to any dental laboratory for design work. This is the world’s first dental unit-integrated intra-oral scanner that can also be connected to a laptop.

“The scanner has only one cable, so it is extremely easy to move from one place to another, for example between different treatment rooms or clinics,” said Kajander. “In addition, the scanner is delivered with a laptop, so the device can be flexibly shared between different users. In other words, Planmeca PlanScan offers value for your investment: it is not a device for just one dentist but can be used by the entire clinic.”

The scanner uses the blue-laser technique. It projects a pattern on the surface of the teeth and then analyses it from different directions to calculate distances. In this way, the device is able to calculate a model that is extremely accurate. “You can view the result as a real-time video image. The video recording and the dental surface identification algorithm make the device extremely flexible to use. Thanks to these features, you can pause the scanning at any time and continue later on at any point from where data is already available.”

The scanner includes a range of exchangeable tips in various sizes, the smallest of which facilitates access to the posterior areas, particularly in small children and trauma patients. The tips can be autoclaved for efficient infection control. In addition, the scanner is extremely durable, since it has no internal moving parts other than a fan that removes warm air. “Thus, the device stays calibrated and is not subject to mechanical wear,” explained Kajander.

Planmeca PlanCAD Easy, an efficient design tool for prostheses

Planmeca also offers dentists a new kind of open software solution for 3-D design. Planmeca PlanCAD Easy is seamlessly integrated into Planmeca Romexis software, and it is a user-friendly design tool for the design of inlays, onlays, veneers, crowns and bridges.

“The software runs on a floating licence basis. This means that it is not tied to just one computer or workstation, but the work is saved on the Planmeca Romexis server. In this way, the scanning station can be used only for scanning, while another workstation is used for the actual design work. This is a truly unique feature, which allows work to be continued straight away on another computer, while the scanner is freed for more productive operation,” said Kajander.

Every dentist who designs his or her own prostheses will also face cases that require assistance from a dental laboratory. For this reason, Planmeca’s system utilises an open STL file format that allows the work to be sent immediately to a partner via the Planmeca Romexis Cloud service.

Since Planmeca PlanCAD Easy is integrated into Planmeca Romexis software, soft-tissue scans can also be conveniently paired with CBCT scans of the patient. This combined data provides valuable information for implant planning, for example, because it visualises the soft tissue and the crown that is designed for the occlusion. This facilitates the planning of the implant screw's location.

The Planmeca PlanCAD Easy workflow, from preparation to the finished result, includes just five easy stages: work description, scanning, marking of the margin line, automatic design, and sending the work...
to the mill. “Once the work has been sent to the mill, it is transferred there in its entirety and the mill’s computer finishes the work. In this way, the software and scanner are immediately freed for a new assignment.”

The software is very user-friendly. All design phases are saved automatically and previous phases can be returned to flexibly if further impressions are needed. The design software automatically takes into account the cusps and marginal ridges of the adjacent teeth, in addition to the contact strengths defined by the user. This creates a design that blends into its surroundings well.

**Planmeca PlanMill 40, a fast and precise milling unit for dental clinics**

Planmeca PlanMill 40 is an extremely precise four-axis milling unit controlled by its own computer. The device is suitable for all single-tooth indications, in other words for the milling of crowns, inlays, onlays and veneers. The mill can manage bridges of up to five units in the posterior area and three units in the anterior area.

Since the mill handles the milled pieces completely independently, as many as several dozen pieces can be sent to the mill at a time. In addition, the device determines which block size, colour and material should be used, so any member of the staff can place the block in the mill. “This saves everyone working time. The dentist does not need to put the block in himself,” said Kajander.

Planmeca PlanMill 40 has a six-tool exchange mechanism, and it changes tools independently according to different job requirements. In addition, the device mills different materials according to their properties. For example, it knows how to handle delicate ceramics gently in work phases that require precision. “If you force the material, it may break prematurely. Even the smallest hairline crack in the material can lead to a cemented piece breaking when pressure is applied to it.”

Also, the maintenance of the device is easy. The mill’s computer calculates the service life of the tools, monitors wear and reports on these via the user interface. It also calculates the time that milling will take and lets the user know when the tools or water should be replaced. “Similar to a car, a mill requires maintenance at certain intervals and notifies the user of this.”

**An ideal solution for laboratories too**

For dental laboratories, Planmeca offers a comprehensive solution that utilises the open STL file format. Planmeca PlanScan Lab is an accurate desktop scanner that uses blue light for scanning gypsum models and impressions. The device scans gypsum models quickly and effortlessly with an accuracy of 15 µm.

Design takes place in the open Planmeca PlanCAD Premium laboratory software, which can be used for the design of all prostheses, ranging from one-tooth units to full arch structures. The software can also be used to design for example individual abutments, night guards and bridge work and implant bridges and bars for cement-retained and screw-retained solutions.

The software has an order manager page that lends efficiency to the workflow by reporting each stage of work. In this way, several work orders can be entered into the software in one go. The last phase is always saved in the memory so that work can be continued freely at the most convenient time. In addition, precise values can be set for each workpiece to allow for cement space and the milling unit’s blade.

An open STL file is created from the design, and the design can be manufactured with any milling unit that supports the open file format, including Planmeca PlanMill 50. This milling unit can mill any soft, wet and dry materials and for example glass ceramics. In addition, the file can be sent to a milling centre, such as Planmeca’s own PlanEasyMill milling centre, for manufacture.

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