

■ From 12 to 16 March 2019, the Japanese high-tech company PreXion will be celebrating the world premiere of its new CBCT system PreXion3D EXPLORER at the International Dental Show in Cologne in Hall 2.2, Booth B081. Georg Isbaner, Editorial Manager of Implantologie Journal (OEMUS MEDIA AG), spoke to Kazuhito Tomii, Chief Technology Officer at PreXion, about the distinctive features of a modern CBCT system.

Mr Kazuhito Tomii, you are Chief Technology Officer of PreXion, a company specialised in CBCT systems. In your opinion, what are the most important requirements for a CBCT system and why is 3-D imaging so important?

Two of the most important points are the lowest possible radiation exposure and simultaneous high-resolution digital imaging in 3-D. Three-dimensional imaging is a decisive advantage compared with conventional 2-D radiography, as the dentist can spatially examine the oral conditions according to the various medical aspects. Considering the image information obtained with a CBCT scan and with a 2-D radiographic image, the radiation exposure of the latter is disproportionately high. In addition, the volume structure of the hard and soft tissue is incomparably better represented than in 2-D radiographs. Three-dimensional digital imaging is ultimately also the basis for the planning software, which is ideally integrated into the system. On the one hand, patient safety must be in the foreground; on the other hand, the relevant diagnostic basis, in this case the high-resolution 3-D image, must provide as much information as possible and must subsequently be usable for digital therapy planning. This can only be achieved by combining the best technologies available to us in a single device. In addition to the hardware, the software plays a decisive role.

The PreXion3D EXPLORER was developed especially for the European market. You say it is one of the most advanced CBCT systems on the market. What are highlights in terms of its technical specifications?

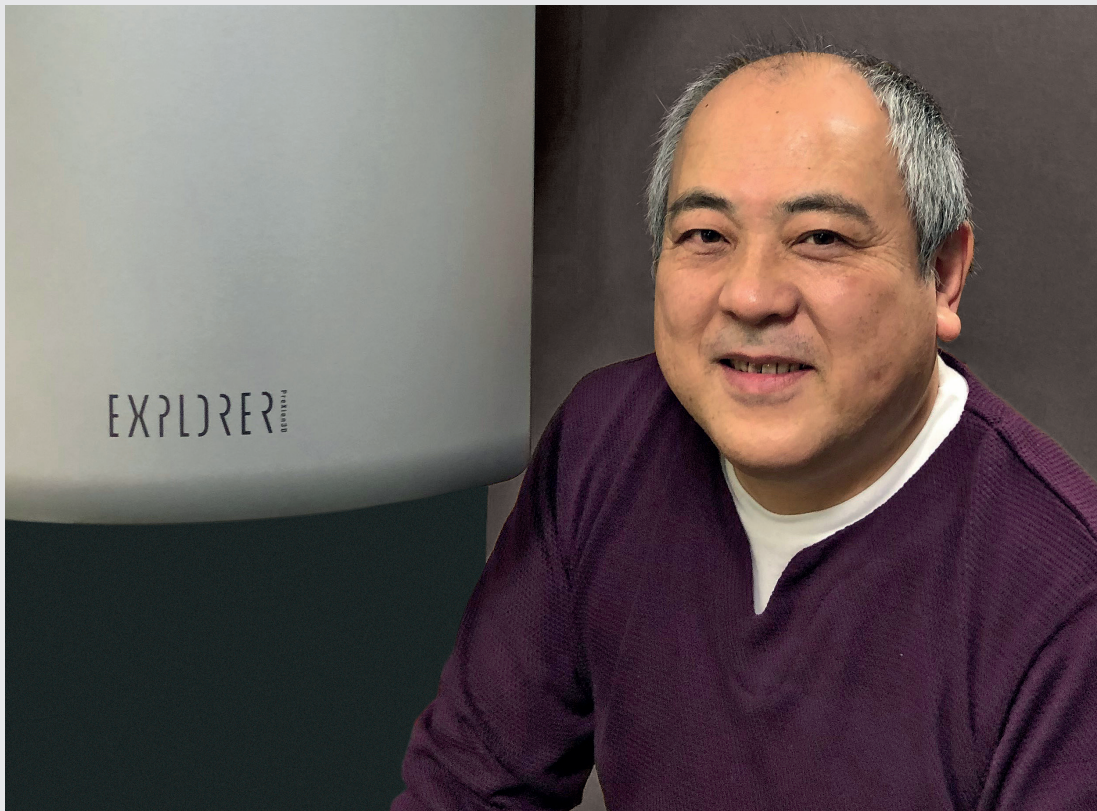
In fact, with the PreXion3D EXPLORER, we have succeeded in minimising the radiation exposure in relation to comparable devices. With a specifically controllable pulse generator, radiographs are only generated when they are crucial for imaging. Immediately after image capture, an automatic stop function interrupts the radiation. Of course, this is due to a high software development effort. At the same time, the image quality and the maximum image section size of 150×160mm are outstanding, allowing for all important anatomical structures of the skull to be displayed in detail. The technical basis for the precision is, among other things, the very small focal spot of 0.3mm and a voxel size of only 75 µm.

Would you please explain this in more detail?

The focal spot determines the sharpness of the image: the smaller the focal spot, the sharper the image. The situation is similar with the voxel—the word is composed of the terms “volumetric” and “pixel”—which is the 3-D unit of measurement in 3-D radiographic diagnostics that represents the varying radiation density. Again, the smaller the voxel, the more detailed the representation.

In order to be able to operate a CBCT system economically, the work processes in the practice must be well coordinated. Which interfaces and software solutions are integrated in the PreXion3D EXPLORER?

We have more than 15 years of experience in the development of imaging and planning software. This makes us one of the pioneers in this high-tech field. The PreXion3D EXPLORER has versatile and power-



▲ Kazuhito Tomii, Chief Technology Officer, PreXion

ful software modules for all areas of modern dentistry. The precise and high-resolution display of hard and soft tissue enables outstanding diagnostics and planning, whether in periodontics, endodontics, implantology or maxillofacial surgery. The better the planning can be adapted to the diagnostics, the better the unit can be integrated into everyday practice. Our patient management system is designed for secure and networked communication of patient data across various practice rooms. Another advantage is that it can be integrated into the existing infrastructure.

Apropos your new European headquarters, what makes Germany the perfect choice?

The dentists here are excellently trained and want to offer their patients the best possible therapy with the

best products and procedures. Personal contact persons and on-site training opportunities are crucial. We can ensure this with our team here in Germany. Other European countries can also be reached very easily thanks to the central location. In addition, the safety standards here are extremely high. Thorough diagnostics and careful consideration of therapy options are particularly pronounced here. Many practitioners already rely on 3-D imaging and planning in order not to endanger the success of the therapy unnecessarily, but also to ensure legal protection through complete documentation. It is obvious that a modern device like ours is ideally suited for this modern dentistry.

PreXion is exhibiting at IDS 2019 in Cologne. What can trade fair visitors expect at the company's booth?

We want to talk to people directly and show them the capabilities of our devices and software. They can see for themselves the outstanding imaging capabilities of the PreXion3D EXPLORER.

When will the PreXion3D EXPLORER be available in Germany? Where can dentists obtain more information about the system?

The device will be installed in the first German practices starting in June.

Further information can also be found on our new website www.prexion.eu. ◀

PreXion Europe, Germany
www.prexion.eu
Hall 2.2 Booth B081

ENTWERFEN UND GESTALTEN MIT GC TEMP PRINT DESIGN AND CREATE WITH GC TEMP PRINT

■ Der 3D-Druck gilt weithin als Technologie, welche die Produktion verändern wird und viele Vorteile bietet, die in der Zahnmedizin auf großes Interesse stoßen. GC hat sein Portfolio nun um GC Temp PRINT erweitert, ein 3D-druckbares, lichterhärtendes Composite für temporäre Kronen und Brücken. Mit diesem neuen biokompatiblen Material lassen sich sehr starke temporäre Restaurationen drucken, selbst solche mit großer Spannweite und komplexer Morphologie. Sie können mit herkömmlichen CAD-Programmen entworfen und sofort mit minimalem Materialverlust gedruckt werden.

Das Material ist dank der einzigartigen DCR-Technologie hochgefüllt und extrem stabil. Für eine homogene Dispersion reicht es aus, die Flasche per Hand zu schütteln, wogegen andere Materialien mehrere Stunden lang mit Spezialgeräten aufbereitet werden müssen. Die Antisedimentationsmittel in Temp PRINT bilden eine Hülle um die Pigmente und Füllstoffe und verhin-



dern, dass sich diese absetzen. Auf diese Weise bleibt das Produkt stabil und bietet über einen langen Zeitraum neben hoher Präzision auch reproduzierbare Ergebnisse.

Die Festigkeit und Härte sind wesentliche Vorteile gegenüber konventionellen direkten Restaurationen. Diese 3D-gedruckten temporären Restaurationen eignen sich besonders

gut für größere temporäre Restaurationen (z.B. großspannige Brücken), die länger halten müssen. Das Material ist in zwei Farben erhältlich und lässt sich mit OPTIGLAZE color, einer abrasionsstabilen Oberflächenbeschichtung für indirekte Restaurationen, noch weiter anpassen. ◀

■ Three-dimensional printing has been acclaimed as a technology that will change manufacturing, offering many benefits that make it a subject of great interest in dentistry. GC has now expanded its portfolio with GC Temp PRINT, a 3-D printable light-cured composite for temporary crowns and bridges. With this new biocompatible material, very strong temporary restorations can be printed—even those with a large span and complex morphology. They can be designed with standard CAD software and immediately printed, with minimal material waste.

The material is highly filled and extremely stable due to the DCR technology. Hand shaking the bottle

is sufficient to obtain a homogeneous dispersion, whereas other materials need to be placed in special devices for several hours. Antisedimentation additives in GC Temp PRINT form a shell around the pigments and fillers, preventing it precipitating. That way it remains stable, with high precision and reproducible results over time.

Its strength and hardness are significant advantages in comparison with conventional direct restorations. These 3-D printed temporary restorations are especially well suited for larger temporary restorations (e.g. long-span bridges) that need to remain in the mouth for a longer time. It is available in two shades and can be further characterised with OPTIGLAZE color, a wear-resistant coating for indirect restorations. ◀

GC Europe, Belgium
www.gceurope.com
Hall 11.2
Booth N010-0019