Digital integration from beginning to end

Breaking down boundaries between clinician and technician

By DTI

Nobel Biocare recently introduced an expanded CAD/CAM portfolio, designed to enhance flexibility and connectivity between treatment partners. This new offering is made possible through the company’s close collaboration with KaVo. Bringing complementary areas of expertise to the partnership, these two leading dental innovators are now developing fully integrated digital equipment and software solutions designed to bring about seamless beginning-to-end treatment workflows for clinics and laboratories. New KaVo imaging equipment and DTX Studio software are part and parcel of the two companies’ joint efforts.

Nobel Biocare is expanding its CAD/CAM offering with new flexibility and connectivity.

New imaging device

The KaVo LS 3 desktop scanner starts the digital journey for the clinician and laboratory technician with speed, colour and precision. Designed to enhance efficiency, it seamlessly connects to DTX Studio design software for fast restoration planning. Even when working on the most complex cases, dental technicians can save time without compromising quality: a complete jaw scan...
can be performed in under 60 seconds with an accuracy of up to 4 μm, according to the ISO 12836 standard for assessment.

The scanner is equipped with an advanced optical system that captures the fine textures and colours of the dental model for true visualisation; and scans can be managed directly on the scanner itself, using its intuitive 5 in. touch-screen interface. Designed with an awareness of the virtue of mechanical simplicity, its spacious, open measurement field provides easy access to the case and makes it possible to mount a full articulator, thus further increasing efficiency at the dental laboratory.

**Connectivity for everyone**

The DTX Studio suite offers exciting new solutions to connect the dental professional with the entire treatment team at each stage of dental implant treatment. It integrates the very latest technologies and equipment, from patient imaging acquisition to post-treatment follow-up—including diagnostics, treatment planning, implant surgery and restoration design.

Furthermore, it is now possible to manage 2-D and 3-D data from radiographic and optical sources in a single software application throughout the practice. DTX Studio for clinics processes data in dentistry-relevant workspaces and is geared towards daily use in both Windows and macOS environments. It provides users with tools for ease and efficiency, such as online collaboration between NobelClinician and DTX Studio for laboratories, allowing the production of a TempShell provisional restoration in-house for same-day, immediate screw-retained provisional restorations.

For dental laboratories, the DTX Studio suite provides a new opportunity to become the go-to laboratory of the future, facilitating flexibility in the choice of workflow and business model. The design software will accept intraoral scan files from systems such as TROIOS (3Shape), iTero (Align Technology), True Definition Scanner (3M) and CS 3600 (Carestream Dental), as well as files from other desktop scanners. Furthermore, laboratory owners will benefit from the best of two worlds: direct access to premium NobelProcera centrally manufactured products, including bars; and open output with the option to produce cement-retained restorations in-house.

**Authentic restorations made for precision fit**

Using the new KaVo LS 3 in combination with DTX Studio, dental technicians can access the full portfolio of NobelProcera restorations. With the resulting smooth, fast workflows, they can choose to produce authentic, precise-fitting NobelProcera CAD/CAM solutions outsourced to state-of-the-art facilities in Mahwah in the US and Chiba in Japan.

Prostheses are manufactured in accordance with an ISO 13485-compliant quality management system and cleared by the U.S. Food and Drug Administration where required, and the output quality of each is monitored. This results in products demonstrating a high degree of precision fit, mechanical stability, and years of safe and reliable performance. When assistance is needed, direct local support is available from Nobel Biocare specialists fully trained on the workflow.

**Digital production on demand**

NobelProcera Scan and Design Services help laboratories consistently meet increasing demands for high-quality implant-based restorations without requiring substantial investments in new equipment and staff training. The dental professional can send a case from any one of the 25 approved scanners to NobelProcera Scan and Design Services and then receive precision-fit bars, abutments and implant crowns, or a 3-D printed model. Whether using an intraoral or desktop scanner, the process is simple, and within a matter of days, the precisely manufactured restoration is shipped to the laboratory with a material authenticity certificate and a five-year product warranty.
Laboratory scanning with Maestro MDS 500

Dr Terence Whitty, Australia

The digital dental workflow has three components: scanning or acquiring data, computer-aided design (CAD) and computer-aided manufacture (CAM). All components are very important, but just as in the analogue world, the acquisition of data, namely scanning, is arguably the most important.

The introduction of accurate intraoral scanners has really increased the popularity of digital dental data acquisition; however, these devices are still expensive and some come with outrageous compulsory annual fees for both the dental surgery and the dental laboratory, just about holding them to ransom just to use the device. The alternative has been used for years and that is the humble laboratory scanner.

Laboratory scanners were traditionally only for upmarket laboratories, as these devices were originally pricey. They were also often inaccurate, especially when used for implant-retained prostheses. The dental model was poured and the dies sectioned and then these were scanned separately and recombined in software as a virtual model. Impression scanning was only a wish with the early scanners and some tried, but had poor results.

A great deal has changed in only a few years, and with the introduction of the fifth-generation scanner from Maestro 3D, it is apparent that the laboratory scanner has definitely come of age with an accurate, reliable, fully programmable scanner. With this new release, there is an emphasis on major improvements in scanning in general and especially...
impression scanning, with the MDS 500 scanner able to scan any type of impression, be it of polyvinylsiloxane or of various rubbers or alginate, most without any scanning spray. The scanning software instantly inverts the scan, ready for export to any dental CAD software, including Maestro 3D’s own comprehensive Dental Studio package.

The technology behind the MDS 500 is an advanced variant of structured light, or striped light as it is commonly known, and this is the technology Maestro 3D has always adopted, as it has always been superior to laser stripe scanners. It is interesting to note that other companies are just catching up in adopting this technology.

The scanner is a closed-case-type scanner, contrary to popular designs at the moment, and this has been purposely done to achieve the highest standard of accuracy, precision, resolution and repeatability that only this type of design can offer. This is especially true in light of the high-precision demands for implant-retained prostheses.

There is a conjecture by some companies about the colour of the light that needs to be projected by a structured light scanner and they assure their customers that blue light is superior. The facts are that scanner cameras are monochrome greyscale; therefore, the only effect that blue light brings is a lower contrast of the image. If the goal to be pursued is the highest precision, accuracy and resolution 3-D scan, white light is better than blue light.

The MDS 500 is a well-thought-out, affordable scanner capable of incredible accuracy. Furthermore, it, of course, saves files in industry standard STL and various other formats. My advice is to check it out today.

contact

Dr Terence Whitty is a well-known dental technology key opinion leader and lectures nationally and internationally on a wide variety of dental technology and materials science subjects. He is the founder and owner of Fabdent, a busy dental laboratory in Sydney in Australia specialising in high-tech dental supply and manufacture. Using the latest advances in intra- and extraoral scanning and CAD/ CAM, including milling, grinding and 3-D printing technologies, most applications are covered, including orthodontics, fixed and removable prostheses, computer implant planning and guidance, temporomandibular joint dysfunction syndrome, as well as oral and maxillofacial, sleep and paediatric dentistry. He has published articles in various international journals. He can be contacted on +61 2 93137971 or via www.fabdent.com.au.