



labline™

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EXCLUSIVE INTERVIEW

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"The good life is one inspired by love and guided by knowledge"

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Preservative prosthetic treatment with innovative zirconia

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CASES ON DIVERGENT IMPLANTS:

INNOVATIVE SOLUTIONS

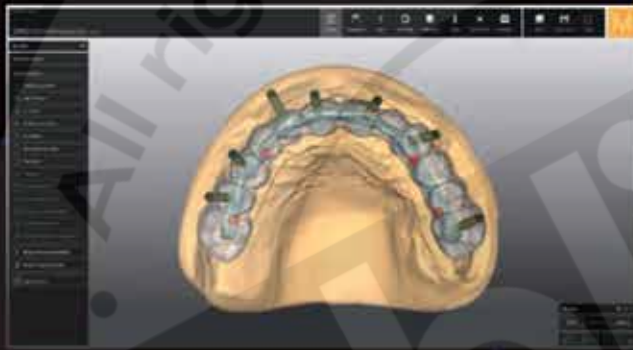
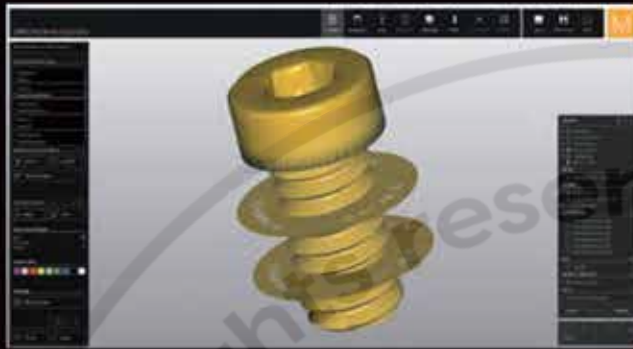
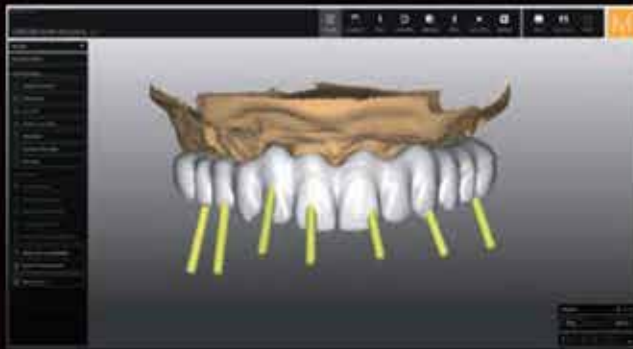
DOUBLE SCREW BAR, BARTPLATTE, INDIVIDUAL RAW-ABUTMENTS® AND TITANIUM BASES K80 ANGLED SCREW CHANNEL (ASC)

In cases of complete edentulism, a bar-retained restoration is the best solution. However, due to the many factors that influence both the cosmetic and the functional aspects of the rehabilitation, this kind of reconstruction represents one of the most difficult restorative tasks. In this context, divergent implants can complicate the treatment process even more. Traditionally, divergent implants are dealt with using two different methods: the first one consists of maintaining the vestibular orientation of the implant, whereas the second one involves changing teeth positions, moving them forward. In the first case, screw channels would still be visible on the vestibular

surfaces of the teeth, requiring composite filling; in the second case, screw channels would appear on the occlusal and palatal surfaces of the teeth, resulting in unnatural occlusion and possible musculoskeletal disorders. Both solutions require aesthetic or functional compromises.

This article addresses new implant components and working techniques available in Zirkonzahn.Modellier software that strike a balance between function, stability and aesthetics, making it possible to produce stable restorations in cases of divergent implants in edentulous patients.





THE DOUBLE SCREW BAR

The Double Screw Bar is a special technique consisting in the integration of additional screws in the bar design: the innovative concept is that the bar is screwed to the implants and the superstructure to the bar. This avoids non-aesthetic vestibular channels especially in the anterior region and, at the same time, improves post-operative maintenance and hygiene. In the case shown in the following pictures, the primary structure was designed with four additional screw channels specifically to fix the superstructure to the bar. The software is provided with a new function to perform the Double Screw Metal technique, where the user can visualise the screw positions as well as generate the screw threads within the bar design. Through the 3D rendering, it is possible to identify the optimal position of the screw channel in the primary structure, as well as the ideal fit of the screw head in the superstructure. The digital screws are provided with several discs indicating the ideal insertion depth, in order to avoid any ruptures in the zirconia framework. The software function also permits the design of the channel thread, which is milled in the Zirkozahn milling unit using special burs.

Initial situation with vestibular screw channels.

The two discs in the digital screw indicate the ideal insertion depth into the bar, to avoid zirconia breakage and to find the optimal screw seat in the zirconia framework.

The Double Screw channel (in red) and the original channels (in yellow).

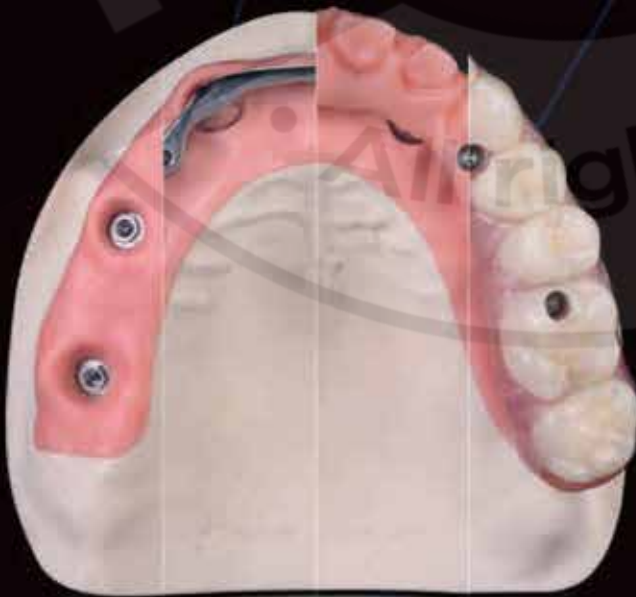
The screws are inserted according to the ideal insertion depth previously determined in the software, to avoid any ruptures in the zirconia framework.



The Double Screw software function permits the creation of the threads in the bar design, which are milled with high precision using the Zirkozahn milling unit.

The Double Screw Bar anodised in golden colour.

Example of restoration made with the Double Screw Bar technique: the bar is screwed to the implants and the superstructure is screwed to the bar.





THE BARTPLATTE

With the Bartplatte, it is now possible to produce aesthetic full arches on palatal-inclined implants. Through the advanced function of the Bars module in the Zirkonzahn.Modellier software, the primary structure can be adapted geometrically to the anatomy of the superstructure by means of the free-forming function. Further bar retentions can then be generated with the Attachment module before milling the bar.



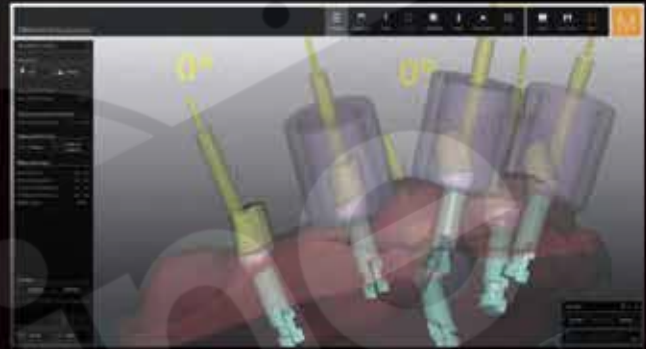
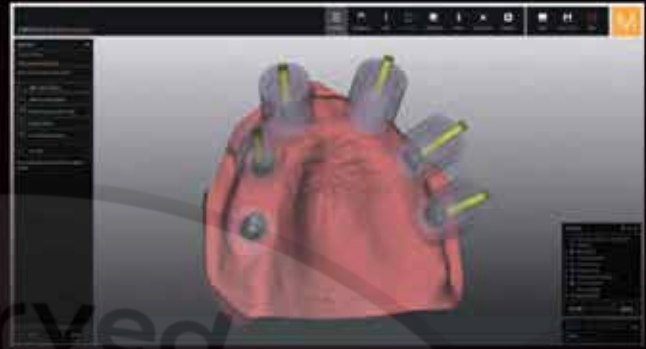
Through the advanced function of the Bars module in Zirkonzahn.Modellier, the primary structure can be adapted geometrically to the anatomy of the superstructure by means of the free-forming function.



INDIVIDUAL RAW-ABUTMENTS®

Raw-Abutments®, made of a high-quality medical titanium alloy (Ti-6Al-4V ELI according to ASTM F136 and DIN EN ISO 5832-3), are prefabricated titanium abutment blanks conceived for the production of individual abutments. Their industrially prefabricated implant connection ensures high precision and fit accuracy. In cases of edentulous maxilla with divergent implants, Zirkonzahn.Modellier permits to generate a consistent insertion direction for all abutments, designing the abutment geometry individually. In this way, it is possible to prevent the vestibular orientation of the screw channels.

Depending on their application, Raw-Abutments® are available with a diameter of 10 mm or 14 mm, the latter being particularly suitable for the molar region. During the design phase, the 3D rendering permits to identify the precise diameter needed. If the dental technician is short of the necessary Raw-Abutments®, he/she can order them directly in the design software via Zirkonzahn.Webshop. The use of special milling strategies and burs ensure a particularly smooth surface structure and by means of specially conceived holders – with a diameter of 95 or 125 mm – up to three or six Raw-Abutments® can be milled in one milling cycle. Raw-Abutments® are equipped with anti-rotation device and are ideal for single-unit as well as multi-unit restorations.



In the software, consistent insertion directions for all abutments can be generated when the vestibular orientation of the screw channels is revealed by the situ scan or the virtual tooth setup.

The abutment design must take into consideration the two available blank sizes (Ø 14 or 10 mm). For this reason, the virtual abutments are provided with a double housing reproducing the two blank sizes.

The RAW-ABUTMENT® HOLDER 6 TELESKOP (Ø 125 mm) permits the milling of up to six Raw-Abutments® in just one process with the extra-large Teleskoper Orbit.



After milling, the implant abutments have been detached from their holder and high-gloss polished with the Diamond Polishing Paste.

In this case made with Abro® Basic Multistratum® resin, the individual Raw-Abutments® could correct the vestibular orientation of the implants and, thanks to the golden anodisation, helped to reduce the gray value of final restoration, for a more aesthetic result.



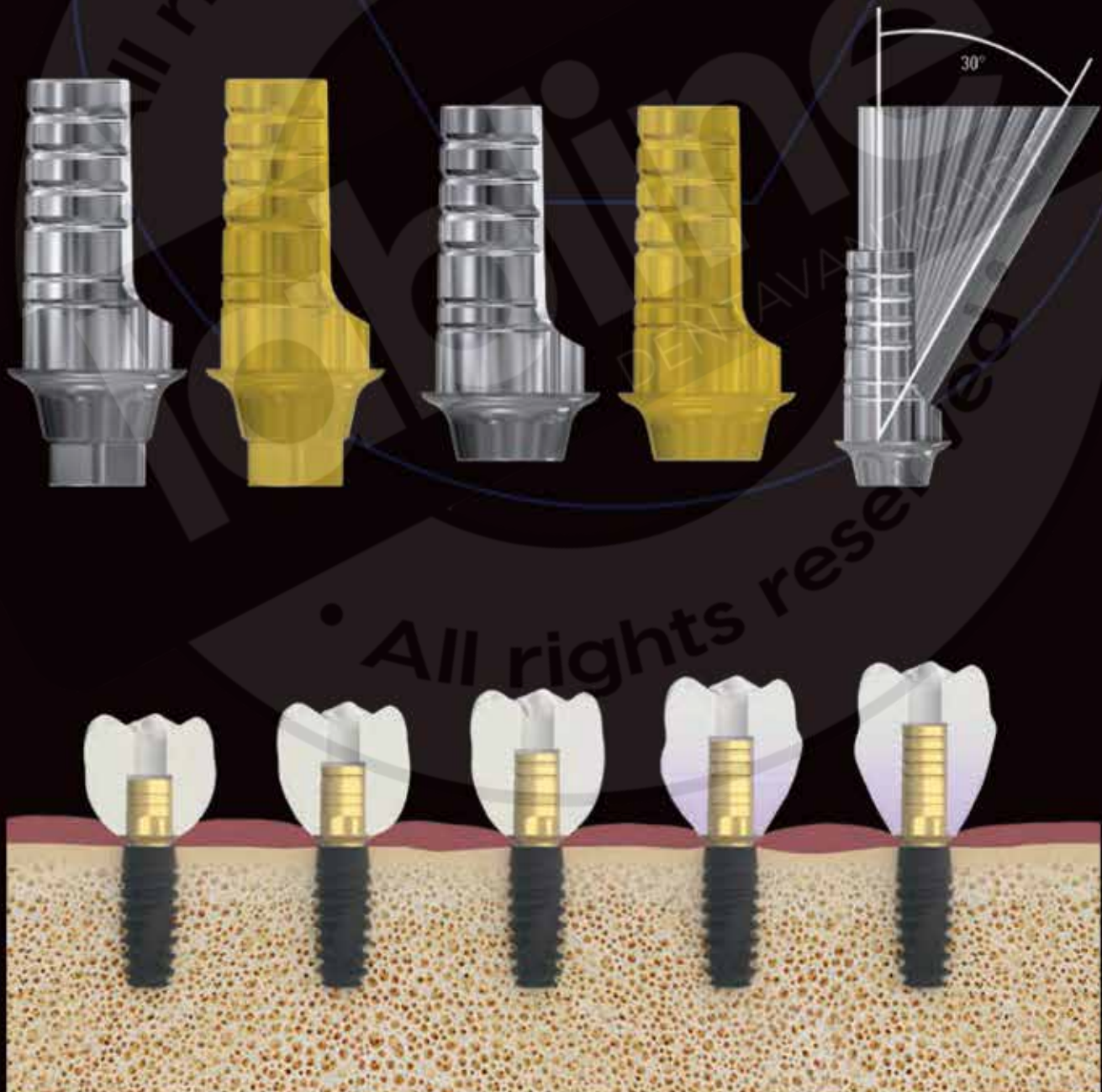
TITANIUM BASES K80 ANGLED SCREW CHANNEL (ASC)

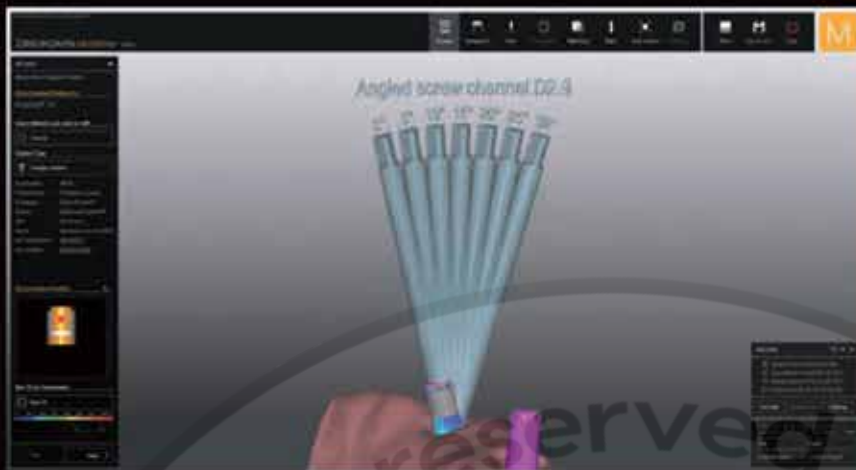
The new Titanium Bases K80 Angled Screw Channel combine two advantages in one product. On the one hand, the chimney height can be shortened individually according to the patient's specific tooth height. The chimney can be changed or adapted to the reconstruction only after the design is finished. On the other hand, these titanium bases are provided with a side opening permitting to tilt the access channel individually between 0°-30° according to the implant inclination. This permits to compensate for non-optimal implant positions with no impact on the final

aesthetic result. The screw channel can be cut out from 0 to 30° in the Attachment module after matching with the desired inclination. The connection between the titanium base and the screw channel is perfectly fitting and does not cause imprecisions during milling. The titanium bases are screwed onto the implant using specific tools, the Ball Head screwdriver, the Torque Ratchet Wrench and a special adapter. They are available with either conical or parallel chimneys as well as with or without an anti-rotation device according to the restorative indication.

Titanium Bases K80 Angled Screw Channel (ASC) are provided with an access channel that can be tilted from 0°-30°.

The chimneys height can be shortened individually to be adapted to the patient's specific tooth height.





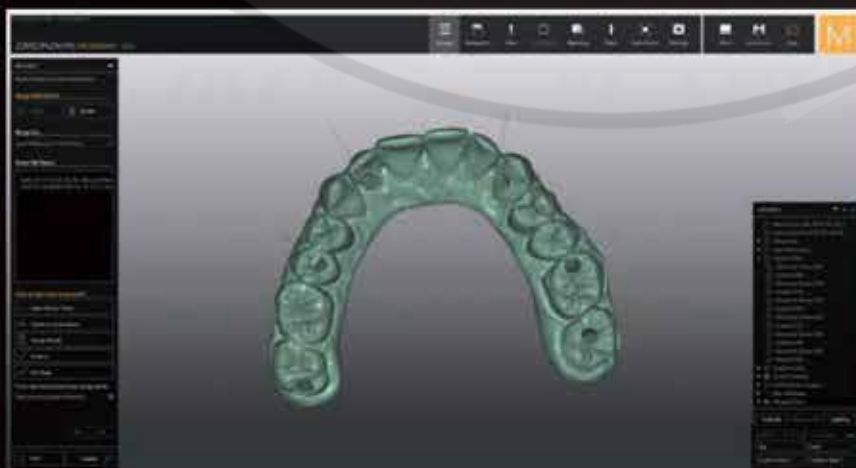
The screw channel can be moved individually according to the implant inclination.



The right attachment is selected from the library in the Attachment module.



The screw channel is matched with the desired inclination. Then, it is cut out.



The restoration's screw channels are visible on the occlusal surface, with no influence on the final restoration aesthetic.

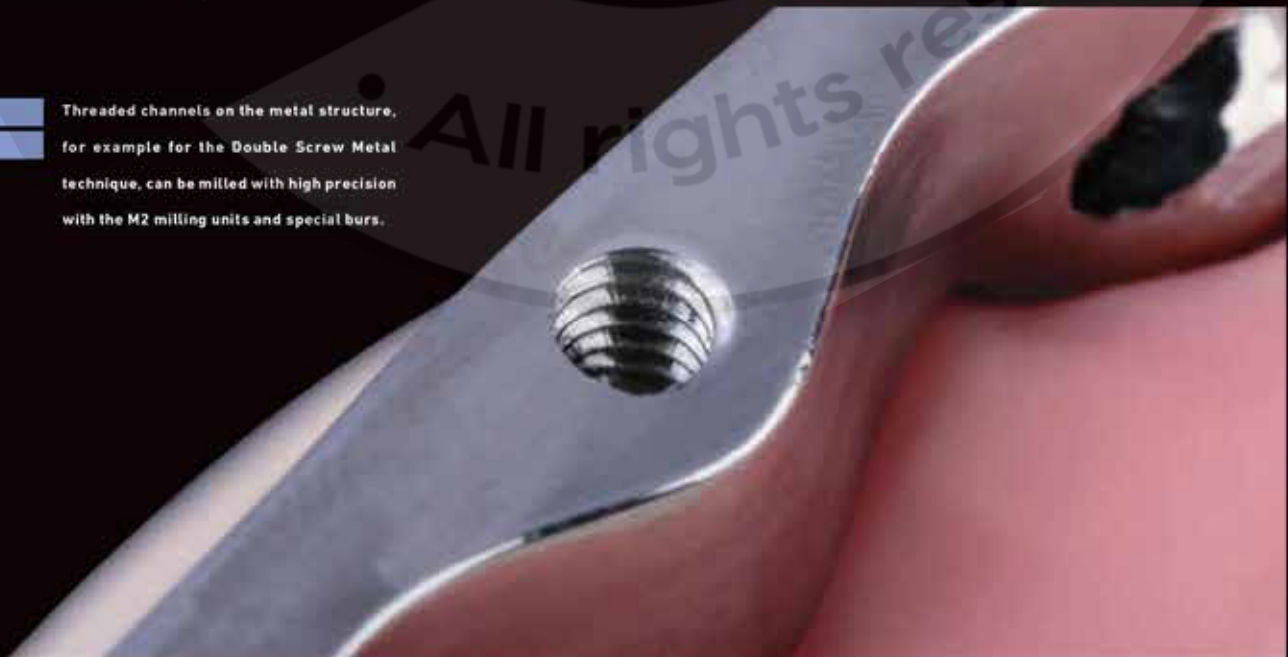
WORKING WITH METALS: HIGH-PRECISION MILLING AND ANODISATION FOR OPTIMAL AESTHETICS

'Wet Heavy Metal' milling units guarantee high precision milling of hard materials. The M1, M2, and M2 Dual Wet Heavy Metal milling units enable the processing of all types of dental materials. Thanks to the integrated wet processing function, they can process hard metals such as titanium, cobalt-chrome, Raw-Abutments® and, with both wet and dry processing, even glass-ceramics and disilicates can be milled. The M1 Wet Heavy Metal milling unit features high stability when milling metals thanks to its four-bearing orbit and high-torque spindle. The proven stability of the M1 has been further optimised in the latest generation of M2 machines, which are now fully vibration-resistant thanks to the particularly stable double bearing

suspension and the new, more powerful and compact spindle. The absence of vibrations allows the ability to mill very smooth surfaces, which is essential for the production of telescopic works. In addition, the coolant supply integrated into the milling spindle of the M2 milling units helps keep the milling chamber clean and optimally cools the milling burs and processed metals. After milling, all titanium frameworks can be anodised in one's own laboratory in the desired colour using the Titanium spectral-colouring Anodizer. For example, they can be anodised in golden, to avoid the grey colour of the metal structure to show through under the zirconia overstructure. This results in even more natural and individual aesthetics of the restoration.



Threaded channels on the metal structure, for example for the Double Screw Metal technique, can be milled with high precision with the M2 milling units and special burs.



Using the Raw-Abutment® Heider 4 Teleskoper, it is possible to wet-process six Raw-Abutments® in one milling cycle. With a diameter of 125 mm, it can be used in combination with the extra-large Teleskoper Orbit.

NEW WORKING TECHNIQUES AND PRODUCTS

are presented and showed LIVE in the many courses and webinars organised by "Die Zirkonzahn Schule" – The Zirkonzahn School; visit www.zirkonzahn-education.com to see all available courses.

To take part in webinars visit www.zirkonzahn.com/event!

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