

ICX-PROSTHETICS MANUAL 6.0



SIMPLE TO USE - EASY TO HANDLE.

For your prosthetic restorations medentis offers you all the products you need - simply and clearly. With only *two prosthetic lines* you cover the entire ICX spectrum.



September 2022/01

BE SMART. BE ICX.

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Explanation of signs and symbols

Explanation of signs and symbols on packaging and product information



LOT number



article number



item has been sterilised by y ray sterilisation



use before/expiry date



single use only



read the user manual carefully



ICX products comply with CE standards according to 93/42 EWG

Significance of the colour coding for ICX drills and implants



ICX-PROSTHETIC LINES FOR THE ENTIRE ICX SPECTRUM.



QUITE **SIMPLE**.



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General information

Each blister pack comes with a sticker containing all relevant information regarding the component to be used. This sticker is designed **to be added into the patient file** for future reference. In case components have to be replaced in the future they can be easily identified and reordered.

Article delivered



Sticker to be added into patient file

Cendres + Metmix SA	Welporzheimer Str. 48 - 52 53474 Bed Neuenehr - Ahrweiler
REF DP - 0558	390 CE 1250
Dalbo Plus Fe	emale TE elliptisch
LOT 20170714	- 08
- date -	-pos-

Impression taking for:

ICX-PREMIUM & ICX-ACTIVE MASTER 3.75mm · 4.1mm · 4.8mm

ICX-plus 3.45mm

ICX-mini 2.9mm





ICX-PREMIUM and ICX-ACTIVE-MASTER: la. Closed tray impression

The ICX-PREMIUM and ICX-ACTIVE-MASTER implant systems offers an easy and accurate way to take closed tray impressions.

All implants with **diameters 3.75mm, 4.1mm, 4.8mm and ICX-plus 3.45mm** use the same impression post (art. no. C-005-0200002) for closed tray impressions.

When ordering the 'ICX-impression post titanium, closed tray' (art. no. C-005-0200002) the following components are included:

- 1. Impression cap
- 2. Connecting screw
- 3. Impression post

Important:

Inform the dental technician if the impression was taken of an ICX-plus implant.

Instructions: closed precision impression



1: ICX titanium impression post closed, 3-piece impression post closed, screw (1.4mm), impression cap.



3: Ensure the hexagonal connections of implant and impression post fit exactly.



2: Screw the connecting screw into the impression post to prevent the screw from falling out.



4: The impression posts are hand-tightened to the level of the implant plates on the implants with the connection screw and the ICX hexagonal instrument SW 1.4 (e.g. article no. C-015-100025).

Instructions: closed precision impression



 Ensure the hexagonal connections of implant and impression post fit exactly.



7: You can hear a 'click' when the impression cap is correctly connected to the impression post.



6: The impression post has two opposing, parallel surfaces, which can be found as positives in the impression cap. The surfaces must be on top of each other.



8: Completed preparation for closed tray impression.

For closed tray impressions always mark the impression cap used for each implant. The dental technician should use the same cap for the same site.

TIP:

We recommend that a gingival mask made of suitable material be fabricated for the standard model.

ICX impression caps are a consumable material. They are to be used only once for exact repositioning. They can be reordered under article no. C-005-040010 to always ensure an exact fit of the impression cap with the impression body.

ICX-PREMIUM and ICX-ACTIVE-MASTER: la. Open tray impression

The ICX-PREMIUM & ICX-ACTIVE-MASTER implant system offers you a simple and and exact possibility of the "Open Precision Impression".

With the open precision impression the implant diameters are 3.75mm; 4.1mm; 4.8mm and ICX-plus 3.45mm with the same impression post (article no. C-005-030001 or C-005-030002). impression.

The impression post is available in two different lengths.

Instructions: open precision impression



1: ICX titanium impression post open tray: 2 pices: impression post open tray, Screw (1.4mm).



2: Screw the connecting screw into the impression post. This serves to the screw from falling out.



3: Ensure the hexagonal connections of implant and impression post fit exactly.



4: The impression posts are placed at the level of the implant plates, on the implants, with the connection screw and the ICX hex instrument SW 1.4.

ICX hexagonal instrument SW 1.4 (e.g. article no. C-015-100025) hand-tight. connected.

ICX-PREMIUM and ICX-ACTIVE-MASTER: la. Open tray impression

Instructions: open precision impression



5: Ensure the hexagonal connections of implant and impression post fit exactly.



7: Completed preparation for open tray impression.



6: Place the sleeve over the impression post (to prevent the screw to be embedded in the impression material).

The impression post is available in two different lengths.

1. the impression is now taken with an individual impression tray with openings

for the connecting screws. Try on the customised impression tray in the mouth to ensure that the

in the mouth so that the openings are large enough in the area of the connecting screws. The tray material must not be in contact with the connecting screws.

Use a solid impression material. Polyether or silicone impression materials are excellently suitable.

Important:

The use of alginates or similar soft impression materials is strongly discouraged. strongly discouraged. 2.

3. Important:

Unscrew the impression posts fully before carefully removing the impression from the patient's mouth. The impression post(s) will remain in the impression material. Please ensure that all impression posts are correctly and firmly positioned in the impression.

4. If the impression is satisfactory, send the impression and connecting screw(s) to your dental laboratory.

Important

Please advise the dental technician if the impression was taken of an ICX-plus implant.

5. Dental technician

The dental technician connects the impression post(s) to the analogue(s) (i.e. art. no. C-006-010001 or for ICX-plus C-006-010002) with the connecting screw. The model can now be made from stone following the supplier's recommendation.

TIP:

We recommend a gingiva mask as a standard.

CX-SHOP!





THE FAIR PREMIUM IMPLANT-SYSTEM.

ICX

ICX- ICX-PREMIUM and ICX-ACTIVE-MASTER: la. direct precision impression

The ICX-PREMIUM and ICX-ACTIVE-MASTER implant systems offer an easy and accurate way to take direct impressions.

Instead of using impression posts to transfer to the dental laboratory, you also have the option of using a prefabricated final abutment made of zirconia or titanium. These are available in different angulations, gingival heights and as standard abutments or ICX-Aesthetic Line abutments.



 After choosing the correct abutment, remove the healing abutment and connect the abutment to the implant, tighten the connecting screw with the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001) to a torque of 30 Ncm.



2. Now the abutment can be reshaped to your individual requirements. The abutments can be reshaped similarly to a crown preparation. You have the option to change the margin of the preparation, change emergence profile and the height of the abutment.

Important

After reshaping the abutment please check again the correct positioning of the abutment and the torque level of the connecting screw of 30Ncm.

ICX-PREMIUM & ICX-ACTIVE-MASTER: la. direct precision impression

3. Now the abutment can be reshaped to your individual requirements. The abutments can be reshaped similarly to a crown preparation. You have the option of changing the margin of the preparation, emergence profile and the height of the abutment.



4. . Fill the access with composite avoiding overfill.





5. After confirming tight fit of the abutment and closing the screw access of the abutment, proceed to taking the impression. The impression is taken in the same way as you would take an impression of natural teeth prepared for crown or bridgework.

To ensure the accuracy required for the final restoration, a firm impression material such as polyether or silicone based materials should be used.

Important:

Soft impression materials such as alginates are not recommended

6. Dental technician

The dental technician manufactures the master model in the same way as for conventional crown and bridgework following the manufacturer's recommendations.

The ICX-mini-implant system offers an easy and accurate way to take direct impressions.

- A: For the use of ICX-t-ecco (art. no. T-13825) and ICX-Dalbo®-PLUS (please see page 44)
- B: For the use of ICX-mini-solid abutment (art. no. C-026-010501)
- A1. Instead of an impression post, choose the ICX-t bona screw (i.e. art. no. C-002-090002) with the correct heights (2mm or 3mm) or leave the ICX-t bona screw of 1mm in place. To connect the ICX-t bona onto the implant use the ICX-t bona placement tool (art. no. C-015-100007) together with the ICX ratchet (art. no. 960001) set to a torque of 25 Ncm.



A2. Now the impression can be taken in the same way as you would take an impression of natural teeth prepared for crown and bridgework.

To ensure the accuracy required for the final restoration, a firm impression material such as polyether or silicone based materials should be used..

Important:

Soft impression materials such as alginates are not recommended.

A3. Send the impression and the supplied lab analogues to your dental laboratory.



A4. Dental technician

The dental technician positions the laboratory analogues in the impression, ensuring exact positioning. The master model is now manufactured in the same way as for conventional crown and bridgework following the manufacturer's recommendations. **B1**. Instead of an impression post, place the ICX-mini-solid abutment (art. no. C-026-010501) onto the ICX-mini-implant following the instructions (page 42).



B2. Now the impression is taken in the same way as you would take an impression of natural teeth prepared for crown and bridgework.

To ensure the accuracy required for the final restoration, a firm impression material such as polyether or silicone based materials should be used.

Important:

Soft impression materials such as alginates are not recommended.

B3. Check the impression and send it to your dental laboratory.

B4. Dental technician

The dental technician manufactures the master model in the same way as for conventional crown and bridgework following the manufacturer's recommendations.

Overview: Prosthetic/dental laboratory

Prosthetic/dental laboratory	
with ICX-PREMIUM & ICX-ACTIVE-MASTER 3.75mm · 4.1mm · 4.8mm	
ICX-plus 3.45mm	
ICX-mini 2.9mm	
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2. with t-bona und t-ecco	43
3. with Dalbo [®] -PLUS	40
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Important note!

ICX-connection screw silver: 30Ncm, 1.4

For use with ICX abutments C-007 (ICX-titanium abutment) C-009 (ICX-universal abutment) C-0024 (ICX-plus abutment)



ICX-connection screw for laboratory use (blue): finger tight 1.4

For laboratory use with all ICX abutments (apart from: ICX-multi system and ICX-Maximus) DO NOT USE FOR FINAL RESTORATION – LABORATORY USE ONLY.

ICX-connection screw solid (red): 30Ncm, 1.4

For use with all ICX abutments

Apart from:

C-007 (ICX-titanium abutment) C-009 (ICX-universal abutment) C-0024 (ICX-plus abutment) As well as ICX-multi system and ICX-maximus abutments

ICX-multi connection screw: 30Ncm, 1.2

For use with all angled ICX abutments ICX-multi abutments

ICX-multi connection screw prosthetics: 27Ncm, 1.2

For use with all abutments supporting removable prosthetics/dentures (the ICX-multi concept)



After impression and model making, dentist and dental technician have two prosthetic options to restore a single tooth:

- Screw retained crown
- Cement retained crown

Prior to implant placement it is recommended for the dentist to request a wax up from the dental laboratory as part of the treatment planning process. This ensures the best possible prosthetic results as it cannot only be used to make a surgical stent and a templet for the temporary restoration but also a silicone key that serves as a reference to judge the available space.

Material and abutment selection

After liaising with the dentist, the dental technician selects the best abutment for each implant. Possible options are:



1. Provisional abutments for screw retained restorations/occlusal access

Instructions: Provisional abutments



1: The provisional abutment is delivered in a blister pack. The laboratory screw is available separately.



3: Secure the provisional abutment with the enclosed laboratory screw the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-10025) onto the implant analogue in the master model.



2: Place the provisional abutment onto the analogue. Ensure exact fit.



4: The ICX-Peek abutment can now be individualised. You have the option of changing the margin of the preparation, emergence profile and the height of the abutment.

The provisional implant crown is now made in the conventional way. Once finished, drill into the occlusal/palatal region to reopen the connection screw canal. You can remove the remaining wax by carefully steaming it out.

The finished provisional implant crown is checked and sent to the dentist. The dentist can fit the provisional crown onto the implant with the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001) tightened to a torque of 15 Ncm. Close the screw access in the temporary crown using a composite material of your choice. Folded up PTFE tape is placed on the screw and closed provisionally. The provisional implant can be removed as required by re-accessing the screw canal.

2. ICX-solid abutment for cement retained restorations

This abutment offers the option to fit, individualise and take an impression in one visit. Several collar heights and shape options are available to suit the individual situation. Once a suitable abutment has been chosen and fitted onto the implant, it can be individualised by shaping it in the way you would shape a natural tooth intraorally (i.e. air turbine and diamond coated burrs). Once prepared, a conventional precision impression is taken.



Instructions: ICX-Solid abutments

1: Abutment delivered in a blister pack.



2: Place the abutment onto the implant.



3: The abutment has no predetermined orientation therefore, it can NOT be repositioned once removed.



4: Tighten to a torque of 30 Ncm Individualise/shape intraorally and do not remove once the impression has been taken.

Once prepared, a conventional precision impression is taken in the way you would for a natural tooth.

3. ICX-titanium abutments for cement retained restorations, straight

Measure the gingiva level on the master model to determine shape and angulation of the prefabricated abutment required. This will enable you to select the best matching abutment. Several collar heights and shape options are available.

Please confirm whether an ICX-plus or standard implant has been used by the dentist.

Instructions: ICX-titanium abutments



1: Abutment delivered in a blister pack



3: Connect the abutment you have selected to the master model with the enclosed lab screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-10025).



2: For single tooth restorations the dental technician uses abutments with Hex only.



4: You can reshape the abutment to your individual requirements by modifying the margin of the preparation, emergence profile and the height of the abutment.

Once the abutment fits your requirements, you can make a crown in the material and the way you would do for a natural tooth. After a final check and cleaning, it is useful to make an insertion jig to help the dentist with the correct positioning of the abutment.

Dentist:

Insert the titanium abutment with the jig provided to ensure correct positioning and tighten the connecting screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001). Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place a cotton wool pellet or folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the crown in and, if accurate fit is confirmed, cement the crown with your preferred method and materials.

4. Titanium abutments for cement retained restorations

Measure the gingiva level on the master model to determine shape and angulation of the prefabricated abutment required. This will enable you to select the best matching abutment. Several collar heights and shape options are available.

Please confirm whether an ICX-plus or standard implant has been used by the dentist.

Instructions: Titanium abutments



1: The abutment is delivered in a blister pack. The laboratory screw is available separately.



3: Connect the abutment you have selected to the master model with the enclosed lab screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-10025). Mark heights, widths and gingival level using the silicone key made from the wax up. To customise the abutment, remove it from the master model and connect it to an additional, matching analogue.



2: For single tooth restorations the dental technician uses abutments with Hex only.



4: You can reshape the abutment to your individual requirements by modifying the margin of the preparation, emergence profile and the height of the abutment.

Master model:

Once the abutment fits your requirements you can make a crown in the material and the way you would do for a natural tooth. After a final check and cleaning, it is useful to make an insertion jig to help the dentist with the correct positioning of the abutment.

Dentist:

Insert the titanium abutment with the jig provided to ensure correct positioning and tighten the connecting screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001).

Overview: I. Single tooth replacement and implant supported bridges

Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place a cotton wool pellet or folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the crown in and if accurate fit is confirmed, cement the crown with your preferred method and materials.

5. Ceramic abutments for cement retained restorations

Measure the gingiva level on the master model to determine shape and angulation of the prefabricated abutment required. This will enable you to select the best matching abutment. Several collar heights, shape and shade options are available.

Instructions: ceramic abutments



1: The abutment is delivered in a blister pack. It also contains the laboratory screw.



3: Connect the CERIX abutment you have selected to the master model with the enclosed lab screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025). Mark heights, widths and gingival level using the silicone key made from the wax up. To customise the abutment, remove it from the master model and connect it to an additional, matching analogue.



2: For single tooth restorations the dental technician uses abutments with Hex.



4: You can reshape the abutment to your individual requirements by modifying the margin of the preparation, emergence profile and the height of the abutment.

5. Ceramic abutments for cement retained restorations

Once the abutment fits your requirements, place it back on the master model with the laboratory screw. You can now make a crown in the material and way you would do for a natural tooth. After a final check and cleaning, it is useful to make an insertion jig to help the dentist with the correct positioning of the abutment.

Important

To customise the ceramic abutments only use suitable, fine diamond coated burrs and follow these guidelines:

- Use low pressure only
- Use a fast speed handpiece only
- Ensure sufficient water spray for cooling to avoid development of excessive heat
- Do not reduce any of the abutment walls beyond minimum thickness of 0.5mm

Dentist:

Insert the ceramic abutment with the jig provided to ensure correct positioning and tighten the connecting screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001). Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place a cotton wool pellet or folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the crown in and, if accurate fit is confirmed, cement the crown with your preferred method and materials.

ICX-SHOP!



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6. Gold and burn-out abutment

Measure the gingiva level on the master model to determine shape and angulation of the prefabricated abutment required. This will enable you to select the best matching abutment. Several collar heights and shape options are available.

Instructions: Gold and burn-out abutment



1: The abutment is delivered in a blister pack. It also contains the laboratory screw.



2: For single tooth restorations, use abutments with Hex only. The resulting two options available are ICX gold abutment (art. no. C-008-010001) or IXC burn-out abutment (art. no. 008-030001). The choice of abutment will be determined by the alloy to be used for the final restoration.



3: Connect the abutment you have selected, finger tight to the master model using the ICX hexagon screw driver SW 1.4 ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025).



4: Shorten the abutment according to the silicone key. Customise the abutment by adding modelling wax/resin aiming for a reduced shape of the final tooth shape required.



- 5: Please ensure to maintain a minimum thickness along the screw channel of 0.7mm to avoid complications during the casting process.
- Keep the screw canal open and do not model over the shoulder of the abutment. Cast in the usual way following manufacturer's recommendations.

6. Gold and burn-out abutment

Important:

Please ensure NEVER to sandblast the connection area of the abutment as this will compromise fit.

You can now layer porcelain onto the abutment using the same techniques you would for a conventional crown made of the alloy used.

Dentist:

Insert the metal ceramic single tooth restoration and ensure correct positioning. Tighten the connecting screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001).

Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice.

It is possible to re-access the connection screw by removing the composite material from the screw canal if this should be required in the future.



ICX-SHOP!



7. ICX-CAD/CAM abutments screw retained

Two options to manufacture ICX-CAD/CAM abutments are available:



A: The ICX CAD/CAM abutment will serve as a base to bond the crown to. The abutment can be scanned with any modern scanner.



B: If you have access to a scan software with an abutment module you can use the ICX-scanabutment (art. no. C-030-000001)

Instructions: ICX-CAD/CAM



1: Ensure inner and outer Hex fit exactly.



3: The model is ready for scanning.



2: Tighten the scanbody finger tight.



4: Scan with your normal scanner and software.

7. ICX-CAD/CAM abutments screw retained

Instructions: ICX-CAD/CAM





5 and 6: You are free to choose your preferred material for milling. When bonding the crown to the ICX-CAD-CAM abutment, ensure the screw canal remains open. Remember to first finish the crown fully before bonding it to the abutment.



7: For single tooth restorations use abutments with Hex only.



8: Connect the CERIX abutment you have selected to the master model with the enclosed lab screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025). Mark heights, widths and gingival level using the silicone key made from the wax up. To customise the abutment, remove it from the master model and connect it to an additional, matching analogue.

Overview: I. Single tooth replacement and implant supported bridges

8. Cerec[®] abutments for cement retained restorations

Instructions: Cerec® abutments

The same steps as bonded CAD-CAM abutments



1: The abutment is delivered in a blister pack. The laboratory screw is available separately.



3: Tighten red screw with SW 1.4.



2: Depending on gingival height you can either scan the abutment base or use a scanpost (art no. C-030-00052). In cases with high gingiva a scanpost is preferable.





5: Place scan cap.



6: For better reproducibility the mark points buccally. To scan use CEREC NB4.5 data.

Further steps are equivalent to bonded CAD-CAM abutments

Dental technician:

For single tooth restorations use abutments with Hex only. The two options available are ICX CAD/CAM abutment (art. no. C-029-000002) or ICX CAD/CAM abutment (art. no. C-029-000004). The ICX CAD/CAM abutment GH 0mm is not compatible with ICX-plus implant therefore please confirm with the dentist the type of implant used.

The chosen CAD/CAM abutment will serve as a base to bond the custom abutment onto that you will manufacture.

You can scan your abutment or with some systems, use the ICX-scanabutment (art. no. C-030-000001). You are free to choose your preferred material for milling. When bonding the custom abutment to the abutment base, ensure the screw canal remains open. After the custom abutment is bonded to the base, close the screw canal with wax. You can design the crown in the usual way and after a final check and cleaning it is useful to make an insertion jig to help the dentist with the correct fit of the custom abutment.

Dentist:

Insert the restoration that your dental lab has made ensuring correct positioning. Tighten the connecting screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001).

Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the crown in and if accurate fit is confirmed, cement the crown with your preferred method and materials.





ICX-SHOP!





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After impression taking and model making, the dentist and dental technician have several abutment options for a precision coping supported overdenture.

- 1. ICX-universal abutments
- 2. ICX-gold and burn-out abutments
- 3. ICX-CAD-CAM bonded abutments

It is recommended for the dentist to have a mock up denture made by the dental technician in the treatment planning stage to achieve a predictable, functional and cosmetically pleasing result.

The mock up denture can later be used to make a surgical stent for implant placement. In the prosthetic phase an impression with a silicone putty can be taken of the mock up denture or the surgical stent to make a silicone key. The silicone key then provides an indication of the space available.

1. ICX-universal abutments

Instructions: ICX-universal abutments





1/2: For single tooth restorations use abutments with Hex only. Use hights of 9mm, 9.5mm or 14.5mm and diameters of 5.2mm or 7mm.





3: Universal Abutment.

4: Coping meso-abutment.

NOTE: Telescopic crowns present a way of anchoring an overdenture onto implants without the need for transversal connectors like bars. Slightly conical abutments (primary copings) which are all aligned parallel to each other are connected onto the implants. Thin cap like secondary copings are made to fit tightly over those abutments. These are incorporated into the denture to provide retention. The principle is similar to a cement retained implant bridge being fitted onto the abutments without cementation.

Overview: II. Telescopic crowns for overdentures









7/8: Connect the abutment you have selected to the master model with the enclosed lab screw using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025). Mark heights, widths and gingival level using the silicone key made from the wax up. To customise the abutment, remove it from the master model and connect it to an additional, matching analogue.



9/10: The universal abutments can now be milled.



Now you can customise the ICX-universal abutments to your individual requirements and change emergence profile and the height of the abutment as needed.

Use the silicone key taken of the mock up denture to help to determine space and the joint milling angle for all abutments. Proceed with milling the abutments, cover the screw canal with modelling wax and manufacture an overdenture with the secondary copings to fit the milled abutments.

After a final check and cleaning, it is useful to make an insertion jig to help the dentist with the correct positioning of the milled abutments.

1. ICX-universal abutment

Dentist:

Insert the milled primary abutments with the jig provided to ensure correct positioning and tighten the connecting screws (not the lab screws) using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001).

Tighten to a torque of 30 Ncm and confirm accurate positioning. Now place folded up PTFE (Polytetrafluorethylene) tape on the screw to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the fit of the overdenture and if the fit is as expected, deliver the overdenture.

2. ICX-Gold and burn-out abutments

The process is identical to the one for single crowns and bridge described on page 27/28.

3. ICX-CAD/CAM abutments

The process is identical to the one for single crowns and bridge described on page 29/30.



After impression taking and model making, the dentist and dental technician have several abutment options for a bar retained overdenture.

- 1. Direct barPage 38
- 2. Passive bar....Page 40

It is recommended for the dentist to have a mock up denture made by the dental technician in the treatment planning stage to achieve a predictable, functional and cosmetically pleasing result.

The mock up denture can later be used to make a surgical stent for implant placement. In the prosthetic phase an impression with a silicone putty can be taken of the mock up denture or the surgical stent to make a silicone key. The silicone key then provides an indication of the space available.

1. Direct bar

Dental technician:

For cases with direct bars, use abutments without Hex. Agree with the dentist the material best suited for the case.



Overview: III. Bar retained overdentures

- High gold content alloys use ICX-bar-system gold abutments which can be cast onto or soldered to. The abutments are connected to the master model using the lab screw with the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025). You can now model the bar by using prefabricated bars that are cast, soldered or lasered onto the abutments.
- The ICX-bar-system burn-out abutments burn out fully together with the modelling wax in the casting process. The burn-out copings are connected to the master model using the lab screw with the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025). You can now model the bar. Please ensure a minimum layer of 0.3mm of wax on the burn-out copings. The abutment can be cast in a material of your choice. Please confirm that the connection area is cast well.
- The ICX-bar-system titanium abutments are available in heights of 9mm and 13.5mm. The abutments are connected to the master model using the lab screw with the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025).
 Prefabricated bars can now be customised to fit and laser them onto the abutments.

After finishing the bar and confirming tension free fit on the master model you can manufacture the bar retained prosthesis in the conventional way.

Dentist:

Fit the bar manufactured by the dental technician onto the implants. Ensure good and tension free fit and tighten the connecting screws (not the lab screws) using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001). Tighten to a torque of 30 Ncm and confirm accurate positioning.

Now place folded up PTFE (Polytetrafluorethylene) tape on the screws to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

Try the fit of the overdenture and if the fit is as expected, deliver the overdenture.







2. Passive bars

Dental technician:

For cases with passive bars use abutments without Hex. Agree with the dentist the material best suited for the case. You can choose from all available ICX-bar-systems and ICX-bar-bases.



art. no. C-029-001001

Abutments with Hex can be customised. Abutments without Hex must not be customised as there is no reference for correct positioning onto the implants. Please provide a jig for the dentist to ensure correct positioning onto the implants for all individualised abutments. Also please ensure that the abutments are parallel to each other so that the bars can be bonded to the abutments intraorally. Before sending the work to the dentist, please condition bar and abutments to achieve maximum bond strengths.

Dentist:

Fit the bar abutments onto the implants (for all individualised abutments use the jig provided to ensure correct positioning). Ensure good fit and tighten the connecting screws (not the lab screws) using the ICX hexagon screw driver SW 1.4 (i.e. art. no. C-015-100025) and the ICX ratchet (art. no. 960001).



tioning. Now place folded up PTFE (Polytetrafluorethylene) tape on the screws to prevent the screw head from being filled and close the screw access using a composite material of your choice avoiding overfill.

The next step is the bonding of the bar onto the abutments. Once accurate and tension free fit of the bar onto the abutments is confirmed, bond the bar onto the abutments using your preferred method and materials. Remove access cement.

Now try the fit of the overdenture and if the fit is as expected, deliver the overdenture.



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Overview: IV. ICX-mini



ICX-mini

After impression taking and model making the dentist and dental technician have several restorative options:



It is recommended for the dentist to have a mock up denture made by the dental technician in the treatment planning stage to achieve a predictable, functionally and cosmetically pleasing result.

The mock up denture can later be used to make a surgical stent for implant placement. In the prosthetic phase an impression with a silicone putty can be taken of the mock up denture or the surgical stent to make a silicone key. The silicone key then provides an indication of the space available.

1. ICX-mini-solid abutment

- a1) The ICX-mini solid abutment is a cap that is cemented onto the ICX ball abutment implant. This abutment is best suited for a direct impression method. Here the abutment is cemented directly onto the ball abutment implant using a dual curing resin cement (i.e. Panavia F 0.2 (kuraray), please refer to the manufacturer's manual for details of use.
- a2) After the cementation, the abutment can be individualised by shaping it in the way you would shape a natural tooth intraorally (i.e. air turbine and diamond coated burrs). Once prepared, a conventional precision impression is taken.

art. no. C-026-010501

Dental technician:

Manufacture a crown in the way you would for a natural tooth.

Overview: IV. t-bona

2. t-bona

By using the t-bona system also ICX-Premium, ICX-plus and ICX-ACTIVE-MASTER implants can be restored using ball abutments.

H = height from implant level: choice of 1mm, 2mm, 3mm or 4mm Material: titanium grade 5 Diameter of ball abutment: 2.25mm

Instructions: t-bona

1: The abutment is delivered in a blister pack.

3: Ball abutment on the t-bona instrument.

2: place the ball abutment onto the t-bona instrument (art no. C-015-100007).

4: Screw the t-bona abutment onto the implant.

Overview: IV. t-ecco

2. t-ecco

The t-ecco ball anchorage system consists of:

t-ecco female and ICX-Analog

Instructions: t-ecco

1: The abutment is delivered in a blister pack.

2 and 3: Cast a master model with the t-bona analogue. Place the t-ecco female including the golden inner and the red plastic band on the outside onto the analogue.

4: Check correct positioning and engagement of the t-ecco female.

5: If more than one implant is to be restored, it is essential to determine a common path of insertion for the overdenture and align all t-ecco females exactly parallel in this direction.

The females are cured into the acrylic of the denture. Make sure all undercuts are blocked out, no resin will enter under the female or into the slots of the female. Use the enclosed plastic ring to protect the precious metal inner of the female. Following this, the preparation to finish the denture can be started as usual.

Overview: IV. t-ecco

Fitting the Female(s) to the denture chairside

The overdenture has to have a large enough space to fit the female freely when inserted. Punch a hole in a small piece of rubber dam and fit it over the ball abutment and the surrounding gingiva. Place the female onto the ball abutment.

If more than one ball abutment is involved, determine a common path of insertion for the overdenture. The t-ecco females all have to be aligned exactly parallel in this direction. Ensure that no resin will be able to enter under the female or into the slots of the female therefore undercuts and voids under the female have to be blocked out.

Place some chairside denture resin into the space for the female(s) inside the denture and place the denture into the patient's mouth. After the resin has set, remove the denture from the patient's mouth and fill in any remaining voids with additional resin and/or remove any excess material.

Activating the female

6 and 7: To activate the female, place the denture on a secure surface. With the activator apply gentle, axial pressure to the female in the denture whilst rotating the activator slightly. This will tighten the arms of the female and therefore tighten the hold of the denture. To check the tightness, use a spare abutment or lab analogue.

Deactivating the female

8 and 9: To deactivate the female, place the denture on a secure surface. With the deactivator apply gentle, axial pressure to the female in the denture. This will push apart the arms of the female slightly and loosen the hold of the denture. To check the tightness, use a lab analogue. **Attention:** Deactivation requires less force than activation.

3. Dalbo[®]-PLUS

The Dalbo®-PLUS ball anchorage system consists of:

The Dalbo®-PLUS-female and the ICX-Analog

i.e. art. no. DP-055890

It is hard to imagine the field of implantology without ball anchor systems.

They are cost effective, easy to clean for the patient and they usually have a long lifespan. A great number of patients found their quality of life significantly improved by this type of therapy.

The concept

Due to its unique performance, the Dalbo[®]-PLUS basic and Dalbo[®]-PLUS elliptic can be considered an exclusive product for retaining hybrid dentures on natural teeth and implants. Screwing in the lamellae retention insert into the housing with the screwdriver/activator closes the four lamellae and adjusts the unit exactly.

The special thread and full length slots in the lamellae retention insert compress and wedge it slightly while being screwed in to prevent inadvertent adjustment. The range of retentive forces varies between approx. 200 grams and 1200 grams.

Indications

Removable, rigidly or resiliently retained restorations supported on implants and root caps.

Examples:

- Hybrid dentures
- Unilateral free-end dentures locked transversally
- Insertion/free-end dentures

The Dalbo®-PLUS female part elliptic

is indicated for direct (chairside) fixation. Experiments have shown that resin quality is reduced by direct (chairside) integration and that under high stress -loads, the female part may get extracted from the denture. Our solution is an elliptically shaped female part which significantly increases the retentive force in the denture's body.

Dalbo®-PLUS Female TE elliptic - complete art. no. DP-055890

Dalbo®-PLUS female tuning insert (no indentation) art. no. DP-055643

Overview: IV. Dalbo®-PLUS

The Dalbo®-PLUS female part elliptic

is indicated for direct (chairside) fixation. Experiments have shown that resin quality is reduced by direct (chairside) integration and that under high stress-loads, the female part may get extracted from the denture. Our solution is an elliptically shaped female part which significantly increases the retentive force in the denture's body.

The tuning lamellae retention inserts

Two special tuning retention inserts with reduced inner diameter provide an extraordinarily wide range of friction options and allow retention to be restored to the exact level needed.

Restrictions of use

Unilateral denture without support in the opposite quadrant of the same jaw.

Condition for correct processing

Ideally, a simple parallelometer should be available for determining the best direction of insertion.

Compensates diverging implant axis of up to 40°

The Dalbo[®]-PLUS can compensate diverging implant axis of up to 40° making it possible to restore even extremely challenging cases. (Ludwig K.; Kern M.; Hartfill H.: Analysis of the wear of ball attachments with 50'000 fittingwithdrawal cycles in a water bath and eccentric end loading. Quintessenz Journal of Dental Technology, 02/2006).

The 2.25 mm diameter ball anchor introduced by Cendres+Métaux over 40 years ago has become a benchmark.

Which female insert to choose?

Dalbo®-PLUS female tuning insert (one indentation) art. no. DP-055687

Dalbo[®]-PLUS female tuning insert (two indentations) art. no. DP-050068

Dalbo®-PLUS screwdriver/activator art. no. DP-072609

Overview: IV. Dalbo®-PLUS

3. Dalbo[®]-PLUS

Instructions: Dalbo®-PLUS

1: Cast a master model with the t-bona analogue. Place the Dalbo®-PLUS female including the golden inner of the female onto the analogue.

3: Adapt the foil around the implant (intraorally) or around the analogue (model).

5: Check correct positioning and engagement of the Dalbo®-PLUS female.

2: The female comes with a foil to prevent resin from getting pressed into any undercuts.

4: Place the Dalbo®-PLUS female onto the implant/analogue.

Adjustment of the retention

The integrated Dalbo[®]-PLUS can be identified by the titan-coloured edge of its gold yellow lamellae retention insert. It is activated by rotating the special screwdriver-activator (art. no. DP-072 609) clockwise and deactivated by rotating it counter clockwise. The highest level of activation is obtained after one and a half clockwise rotation.

The neutral «Zero Position» is when the lamellae retention insert is level with the edge of the housing. The retention strength then increases/decrease by approx. 200g with each 1/4

Overview: IV. Dalbo®-PLUS

rotation. If needed, the lamellae retention insert can be exchanged, or in case of advanced wear of ball abutment, replaced with a tuning lamellae retention insert without removing the female from the denture's body.

7: Adjustment of the retention with the activator.

9: Following wear of ball abutment, the retention insert can be replaced.

8: Each 1/4 rotation increases/decrease retention strength by approx. 200g.

Fitting the female(s) to the denture chairside

The overdenture has to have a large enough space to fit the female freely when inserted. Punch a hole in a small piece of rubber dam and fit it over the ball abutment and the surrounding gingiva. Place the female onto the ball abutment. If more than one ball abutment is involved, determine a common path of insertion for the overdenture.

The Dalbo[®]-PLUS females all have to be aligned exactly parallel in this direction. Ensure no resin will be able to enter under the female or into the slots of the female therefore undercuts and voids under the female have to be blocked out.

Place some chairside denture resin into the space for the female(s) inside the denture and place the denture into the patient's mouth. After the resin has set, remove the denture from the patient's mouth and fill in any remaining voids with additional resin and/or remove any excess material.

4. Locator™/Maximus system overview

Locator™ males and denture cap

Locator™/Maximus impression cap

Locator™/ Maximus Core Tool

Locator™/ Maximus analogue

Self-aligning design:

During seating, while the LOCATOR[™] male pivots inside the denture Cap, the system's self-aligning design centers the male on the attachment before engagement. These two actions in concert allow the LOCATOR[™] to self-align into place. This enables patients to easily seat their overdenture without the need for accurate alignment and without causing damage to the attachment components. This self-aligning feature also increases the durability of the LOCATOR[™] attachment.

Increased retention:

LOCATOR[™] males include a unique dual Retention feature that includes inside and outside retention, which provides the LOCATOR[™] attachment with a greater retention surface area than ever before available with other attachments, providing greater resiliency to maximize stability and durability and is particularly useful in cases with space restrictions.

Flexible retention options:

The Locator™/Maximus system offers different retention inserts with the following retentive forces:

- · transparent: 2266 gram
- · pink: 1360 gram
- · blue: 680 gram

 $\label{eq:extended} \mbox{Extended range for implant with greater angulation:}$

- green: 1360-1813 gram
- · red 680 gram

Compensates diverging implant axis of up to 40°

With options of either LOCATOR[™] males or extended range males, the LOCATOR[™] attachment System provides maximum versatility in retention and angulation to suit each patient's needs. LOCATOR[™] males (transparent, pink and blue) allow implant divergences up to 10° per implant so that they can be used in cases where the implant axis of two implants diverge a maximum of 20°.

LOCATOR[™] extended range males (green and red) allow implant divergences up to 20° per implant so that they can be used in cases where the implant axis of two implants diverge a maximum of 40°.

LOCATOR[™] core tool

The LOCATOR™/Maximus Overdenture attachment System features a Core Tool.

The Core Tool contains 3 tools in 1:

This convenient tool is used to:

- Carry and place the LOCATOR™ abutment on the implant
- Remove the LOCATOR™ male from the LOCATOR™ denture cap
- Insert the male into the LOCATOR $\ensuremath{^{\mathrm{M}}}$ denture cap

ICX-Maximus abutments

The LOCATOR®/Maximus system offers two different abutment types:

a) ICX-Maximus abutment single piece

Gingiva height: Options of: 1mm, 2mm, 3mm, 4mm

Material: Grade 5 Titanium

Accessories:

Includes connection screw

The single piece ICX-Maximus abutment is an abutment that medentis medical has developed and is compatible with LOCATOR[™] abutments.

b) ICX-Maximus abutment two pieces

Gingiva height: Options of: 1mm, 2mm, 3mm, 4mm, 5mm

Material: Grade 5 Titanium

Two pieces, accessories:

Includes connection screw

The two piece ICX-Maximus abutment is an abutment that medentis medical has developed and is compatible with LOCATOR™ abutments.

Overview: LOCATOR[™]/ICX-Maximus-abutments

ICX-Maximus abutments

Instructions: ICX-Maximus abutment single piece

1: The abutment is delivered in a blister pack. Available as single or two pices.

2: Place the Maximus abutment onto the implant with the core tool.

3: Tighten finger tight.

4: Intraorally tighten Maximus abutment with torque wrench to 30Ncm.

5: Tightened LOCATOR™ abutment.

ICX-Maximus abutments

Instructions: ICX-Maximus abutment two pieces

6: The two piece Maximus abutment has a rotation lock.

7: After placing the abutment onto the implant, tighten the screw with a SW 1.4 screw driver to a torque of 30Ncm.

8: LOCATOR™ abutment fitted.

Direct impression taking

With impression cap

9: Place the impression cap onto the Maximus abutment.

10: Ready for the impression.

The impression is taken at implant level using the impression cap. The dental technician manufactures the model in the conventional way and orders the abutments depending on gingival heights. The denture is finished on this master model. To fit the denture, the dentist unscrews the abutments from the master model and fits them onto the implants. Now the denture can be delivered.

Direct impression

11: The male and the housing on the Maximus abutment.

12: Ready for cold curing into the denture.

The dentist selects the abutment depending on the gingival height. Once the healing phase is over, the healing caps are replaced by the abutments. The denture caps are placed onto the abutments. Now the denture is prepared to accommodate the protruding denture caps.

There must be no contact between the denture and the processing cap prior to the curing process. Using a lightcure acrylic resin or a permanent self-curing chair side acrylic, bond the denture caps in the denture.

Once the acrylic has cured, remove the denture from the mouth. We recommend having the denture finished in the dental lab.

ICX-PROSTHETIC LINES FOR THE ENTIRE ICX SPECTRUM.

QUITE **SIMPLE**.

DISCOVER THE ICX-

DIGITAL ICX-WORKFLOW.

FUTURE-**PROOFED**.

ICX-SHOP!

DIFFERENCE.

THE FAIR PREMIUM IMPLANT-SYSTEM.

ICX-<mark>SHOPI</mark>

BE SMART. BE ICX.

September 2022/01

ICX-PROTHETICS MANUAL 6.0

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