

X-ray templates

There are different kinds of X-ray guides, which are used with CT or CBCT scanners, subject to the clinical situation and the possibility to scan:

BC
(barium contrast)

DI
(dental impression)

MP
(marker points)



CT Study with radiopaque guide







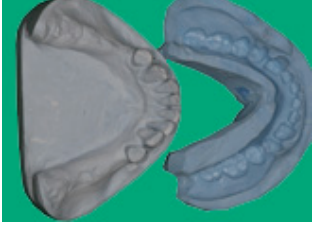


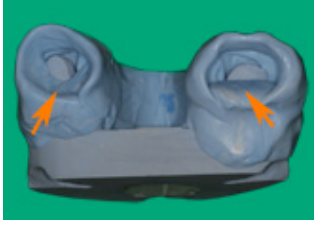
The CT Study is carried out when the Implant-Assistant® software is required to take pre-measurements of the gum at the place of implant installation, as well as viewing the location of future teeth or visualizing the location of antagonist-teeth (in occlusion), with the aim of finding the optimal arrangement of implants in the bone relative to these teeth, and also to make the Implant-Guide®, which is teeth-supported, mucosa supported or is a combination of the two.



X-ray templates

BC (barium contrast)

BC is used during single computed tomography scanning.







Making an X-ray guide using barium sulfate (BC-guide)			
<p>1. Make impressions of the upper and lower jaws. Define the central occlusion. Make plaster models using these impressions.</p>		<p>2. Make a wax base 3–4mm thick and model teeth from wax or install false teeth.</p>	
<p>2a. While making the wax base you should increase its boundaries if possible.</p>		<p>2b. The cervical area should be engraved for clearer isolation of tooth boundaries.</p>	
<p>3. Set up the models in a tooth articulator and check bite relations.</p>		<p>4. Take an impression with technical silicone using the plaster model and the wax guide.</p>	
<p>5. Make a silicone impression after hardening and remove the wax guide from the plaster model.</p>		<p>6. Formula ratio for radiopaque guide: plastic powder – 85%, barium sulfate powder – 15%.</p>	
<p>7. Grind mixture of plastic and barium sulfate in a blender until fully mixed.</p>		<p>8. Make a pouring channel.</p>	

If a patient uses dentures and they are functional, they can simply be converted into a BC-guide.



It is desirable to use cold hardening plastics with an extended aging phase. For example: Palapress Vario (Heraeus KuJzer GmbH), Villacryl SP (Zhermapol Sp. z o.o.)

X-ray templates

Making an X-ray guide using barium sulfate (BC-guide)

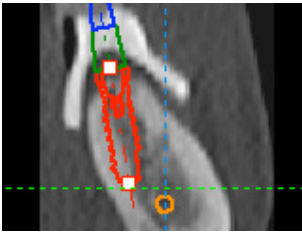
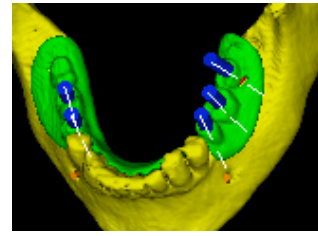
<p>9. Add monomer to the mixture of barium sulfate and plastic and stir.</p>		<p>10. Fill the prepared mould with the radiopaque paste.</p>	
<p>11. Make a silicone impression after the radiopaque paste has hardened.</p>		<p>12. It is necessary to remove barbs from the X-ray guide after removing the silicone impression.</p>	
<p>13. Make a separating gum shield from non-radiopaque bite registration material and glue it to the X-ray guide.</p>		<p>14. Before the CT Study the patient installs the radiopaque guide into the oral cavity.</p>	

When using the disconnecting gum shield made from non-radiopaque bite registration material (e.g. Regofix Transparent or Elite Transparent) we are achieving thorough contact between the radiopaque guide base and mucous, while preserving denture separation.

<p>15. The patient gently grips the jaws during the CT Study.</p>		<p>16. The CT Study is conducted by scanning</p>	
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17. The CT Study with radiopaque guide is analyzed in the Implant-Assistant CT software. The 3D model of the jaw and the X-ray guide is created.

Planning using Implant-Assistant Planner software during BC-guide study







<p>18. The implant is installed with consideration as to the bone tissue structure and the radiopaque shadow of the future crown.</p>		<p>19. The axis of implants and future teeth is checked using the 3D model of the jaw in a 3D-view window of the Implant-Assistant Planner software.</p>	
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The surgery option is selected subject to the thickness of mucosa and to the bone tissue structure in the place of implant installation: either minimal invasiveness or with the section and folding up of the mucoperiosteal flap.

X-ray templates

DI (dental impression)

DI is used during single computed tomography scanning. The DI-guide can only be used when there is absolutely no metal on the jaw.

Making a radiopaque guide using the base layer the dental impression mass			
We recommend using a hard base layer of the dental impression mass that is not susceptible to deformation.			
<p>1. This method is used with full or partial adentia without considerable convergence of teeth.</p>		<p>2. For example: the base layer of the dental impression mass Zetaplus.</p>	
<p>3. While making an impression an impression spoon with few perforations, and preferably without any, should be used.</p>		<p>4. A sufficient volume of dental impression mass should be used so that the future X-ray guide and Implant-Guide® will have the biggest possible contact surface with the mucous site.</p>	
<p>5. Check the boundaries of the impression in area where teeth are absent.</p>		<p>6. Take the impression off the impression spoon.</p>	

If there is no need to define antagonist teeth location in the state of occlusion, the patient is sent to CT study with the DI-guide.



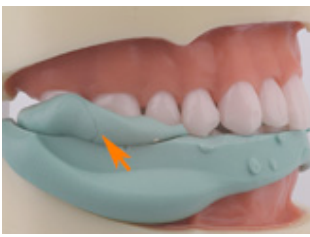



It is very important that there was thorough contact with no gaps between the DI-guide and mucous during CT Study!

After analyzing the study and installing implants in the Implant-Assistant Planner software, it is possible to make an order for the fabrication of the Implant-Guide®.

X-ray templates

Making a radiopaque guide using the base layer the dental impression mass

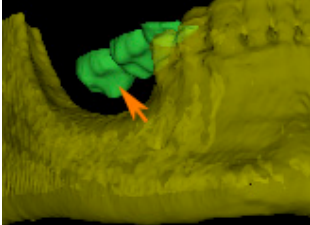
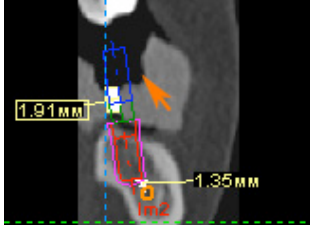
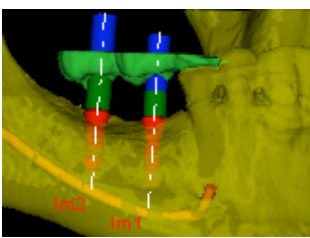
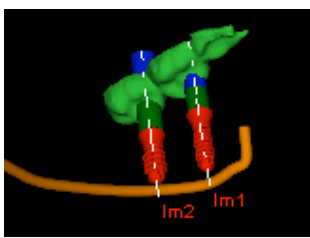
Defining antagonist teeth location in the state of occlusion.

<p>7. Cut off the dental impression mass until the occlusive surface of teeth is visible.</p>		<p>8. Check the absence of dental impression mass contacts with antagonist teeth in occlusion.</p>	
<p>9. Add the dental impression mass in the positions of absent teeth to make an impression of the occlusive antagonist teeth surface.</p>		<p>10. Check the impression of the occlusive surface of antagonist teeth.</p>	
<p>11. Remove surplus dental impression mass.</p>		<p>12. Separate the radiopaque guide from antagonist teeth using the non-radiopaque bite registration material.</p>	

When using the separating gum shield made from non-radiopaque bite registration material (e.g. Regofix Transparent or Elite Transparent) we are reducing the possibility of disturbance arising in the location of the X-ray guide from the teeth that are not under the study.

13. When the CT Study using the radiopaque guide made from the dental impression material base layer is completed, the analysis of the scan in the Implant-Assistant CT software consists of making 3D models of jaws, antagonist teeth and the future Implant-Guide® surface that is mucous-supported, bone supported or a combination of the two.

Planning using Implant-Assistant Planner software during DI-guide analysis





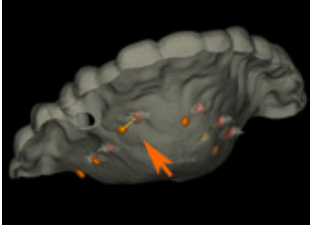

<p>14. Planning the location and choosing the implant is done in view of the antagonist teeth location in the state of occlusion.</p>		<p>15. A cross-sectional view clearly shows the distance to the antagonist teeth, as well as the thickness of mucous in the place of implant installation.</p>	
<p>16. Choosing the place and location for implants is done in view of the location of antagonist teeth fissures and tubercles.</p>		<p>17. Optimal distribution of the implant load is achieved with the correct balancing of the axes of antagonist teeth.</p>	

The surgery option is selected subject to the thickness of mucosa and to the bone tissue structure in the place of implant installation: either minimal invasiveness or with the section and folding up of the mucoperiosteal flap.

X-ray templates

MP (marker points)

MP is used during double computed tomography scanning.

Making an MP-guide			
To make a guide, transparent acrylic plastic should be used.			
<p>1. Take impressions from upper and lower jaws. Define the central occlusion. Make plaster models using these impressions.</p>		<p>2. The X-ray guide must be prepared with the restoration of future teeth that are supported on the existing teeth and mucous; the thickness of the guide base should be 3–4mm. A separating gum shield should be made as well.</p>	
<p>3. Make the hollows outside the dentition using a globular drill of 2mm diameter, and fill them up with gutta-percha that has been warmed up.</p>		<p>4. Teach the patient to set up the X-ray guide correctly in the oral cavity in order to obtain thorough contact of it with teeth and mucous surface during the analysis.</p>	
<p>5. Double scanning should be undertaken. First scan: Scanning of the patient with MP-guide that has been put in the oral cavity together with separating gum shield. Second scan: Scanning of MP-guide alone (without separating gum shield), its position should be as close as possible to the first scan.</p>			
Analysis of scans in the Implant-Assistant software using MP-guide			
<p>6. In the Implant-Assistant CT software two scans are overlapped using markers.</p>		<p>7. The Implant-Guide® is created in the Implant-Assistant Planner after standard planning.</p>	
<p><i>The surgery option is selected subject to the thickness of mucosa and to the bone tissue structure in the place of implant installation: either minimal invasiveness or with the section and folding up of the mucoperiosteal flap.</i></p>			



Implant-Assistant®

*Implant-Assistant team
wishes you accurate
diagnostics!*