sirona.

The Dental Company

CEREC SW

Software version 4.6.x

Operator's Manual (not valid for USA)

English

Table of contents

1 Introduction

1.1 Dear CEREC user

Thank you for purchasing your CEREC SW software from Sirona.

In connection with the CEREC acquisition unit and grinding and milling unit, this software enables you to produce computer-assisted dental restorations, e.g. from ceramic material with a natural appearance.

Improper use and handling can create hazards and cause damage. Therefore, please read and carefully follow this manual and the relevant operating instructions. Always keep them within easy reach.

In order to operate the CEREC unit safely for the first time, you should train on the exercise model using the described examples.

To prevent damage to third parties and property, adhere to both the safety instructions provided in this document regarding the units and the instructions provided in the software.

Happy Milling!
Your Sirona CEREC Team

1.2 Contact information

Customer service center

For technical questions, use the contact form on the internet at the following address:
http://srvcontact.sirona.com

Manufacturer's address

Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany

Tel.: +49 (0) 6251/16-0
Fax: +49 (0) 6251/16-2591
e-Mail: contact@dentsplysirona.com
www.dentsplysirona.com

1.3 Copyright and trademark

Copyright

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The software and all related documentation are protected by copyright. You must therefore handle it in the same way as any other protected material.

Anyone who copies this software to any medium for any purpose other than his own personal use without the written permission of Sirona Dental Systems will be liable to prosecution.

Trademarks

Microsoft®, Windows 7®, and Windows 10® are registered trademarks.

Windows™ is a trademark of Microsoft Corporation.

All other trademarks are the property of their respective holders.

Notes on 3rd party code libraries must be stored in license.pdf in the installation directory.

2 General data

Please read this document completely and follow the instructions exactly. You should always keep it within reach.

Original language of the present document: German

2.1 Certification

CE mark

This product bears the CE mark in accordance with the provisions of the Council Directive 93/42/EEC of June 14, 1993 concerning medical devices (MDD).

2.2 General safety information

Only use original software

Only use original software or software which has been released by Sirona. To produce restorations and equipment, manipulated or non-released software components must not be used.

Software and software components must not be installed using incorrect data.

Please check that each installed component has been granted approval in its country. Contact your dealer for more information.

Checking the installed software version

You can check which version is installed during operation.

1. On the phase bar, click on *"CEREC"*.

2. Click on the arrow (**A**) in the window that opens.
3. The advanced window contains all information relating to the software CEREC.

Restoration to be checked by trained personnel

Each restoration which is performed with this software must be checked for suitability by a trained person (e.g. dental technician or dentist).

Observe the information from the material manufacturer

Please observe the processing instructions and combination options of the material/implant manufacturer applicable in your country.

For the USA only

CAUTION: Federal law (USA) restricts sale of this device to or on the order of a physician, dentist, or licensed practitioner.

2.2.1 Indication of use

Creation or import of optical impressions of dental situations (intraoral or from stone models). Construction or import of dental restorations. Export of dental restorations and models. Creation of dental restorations or stone models out of ceramic and plastic materials. Creation of dental surgical guides or drill bits as part of dental surgical guides. Data export of optical impressions for planning and creation of orthodontic devices.

2.3 Accessories

In order to ensure product safety, this device may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user is responsible for any damage resulting from the use of non-approved accessories.

2.3.1 Accessories for implant measurement

Manufacturer / Implant	Implant Diameter	Platform	ScanPost	REF	Connection	Abutment Screw	REF
Dentsply Sirona Implants							
AstraTech Osseospeed EV	3	3.0	AT EV 3.0 S	6586353	S	AT EV 3.0	6586262
	3,6	3.6	AT EV 3.6 S	6586361	S	AT EV 3.6	6586270
	4,2	4.2	AT EV 4.2 L	6586379	L	AT EV 4.2	6586288
	4,8	4.8	AT EV 4.8 L	6586387	L	AT EV 4.8	6586296
	5,4	5.4	AT EV 5.4 L	6586395	L	AT EV 5.4	6593714
AstraTech OsseoSpeed TX	3.5 S / 4.0 S	3.5 / 4.0	AT OS 3.5/4.0 L	6431055	L	AT OS 3.5/4.0	6460344
	4.5 / 5.0 / 5.0 S	4.5 / 5.0	AT OS 4.5/5.0 L	6431063	L	AT OS 4.5/5.0	6460443
Ankylos	A, B, C, D	C/X	ANK S	6586569	S	Not available	
Frialit / Xive	3,4	3.4	FX 3.4 S	6430891	S	FX 3.4, 3.8, 4.5, 5.5	6460476
	3,8	3.8	FX 3.8 S	6430909	S		
	4,5	4.5	FX 4.5 L	6430917	L		
	5,5	5.5	FX 5.5 L	6430925	L		
Biomet 3i							
Certain®	3,4	3.4	B C 3.4 S	6431212	S	B C 3.4, 4.1, 5.0	6460450
(Inner connection)	4,1	4.1	B C 4.1 L	6431220	L		
	5	5.0	B C 5.0 L	6431238	L		
Outer hexagon	3,4	3.4	B O 3.4 L	6431089		B O 3.4, 4.1, 5.0	6460468
	4,1	4.1	B O 4.1 L	6431105	L		
	5	5.0	B O 5.0 L	6431113			
BioHorizons							
(Inner connection) tapered internal,	3,0 / 3,8	3.0	BH 3.0 S	6532761	S	BH 3.0	6561240
tapered internal tissue level, tapered	3,0/3,5/3,8/4,0/4,6	3.5	BH 3.5 L	6532886	L		
plus, internal dental implant, single stage	4,0/4,6/5,0/5,8	4.5	BH 4.5 L	6532944	L	BH 3.5, 4.5, 5.7	6561257
dental implants	5,0/5,8/6,0	5.7	BH 5.7 L	6536234	L		
Nobel Biocare							
Replace	3,5	NP	NB RS 3.5 L	6430933		NB RS 3.5	6460526
(Tri-channel inner connection)	4,3	RP	NB RS 4.3 L	6430941	L	NB RS 4.3, 5.0, 6.0	6460534
	5	WP	NB RS 5.0 L	6430958			
	6	6.0	NB RS 6.0 L	6430982			
Nobel Active	3,5	NP	NB A 4.5 L	6431279	L	NB A 4.5	6460484
(conical connection)	4,3 / 5,0	RP	NB A 5.0 L	6431287		NB A 5.0	6460492
Branemark®	3,3	NP	NB B 3.4 L	6431006	L	NB B 3.4	6460500
(Outer hexagon)	3,75 / 4,0	RP	NB B 4.1 L	6431022		NB B 4.1	6460518
Osstem							
Osstem TS	3,5	Mini	O TS 3.5 L	6534197	L	O TS 3.5	6561208
	4,0/4,5/5,0/6,0/7,0	Standard	O TS 4.0 L	6536846		O TS 4.0	6561232
Straumann							
Bone Level	3,3	NC (3.3 mm)	S BL 3.3 L	6431246		S BL 3.3, 4.1	6460542
	4,1 / 4,8	RC (4.1 mm / 4.8 mm)	S BL 4.1 L	6431253	L		
Standard	3,3	NN (3.5 mm)	S SO 3.5 L	6431162		S SO 3.5	6460559
(Tissue Level)	3,3 / 4,1 / 4,8	RN (4.8 mm)	S SO 4.8 L	6431170	L	S SO 4.8, 6.5	6460567
	4,8	WN (6.5 mm)	S SO 6.5 L	6431196			
Thommen Medical							
SPI Element, SPI Contact, SPI Element	3,5	3,5	TM 3.5 S	6544386		TM 3.5	6561265
Inicell, SPI Contact Inicell	4	4	TM 4 S	6544394		TM 4.0, 4.5, 5.0, 6.0	6561273
	4,5	4,5	TM 4.5 S	6544402	S		
	5	5	TM 5 S	6544410			
	6	6	TM 6 S	6544428			
Zimmer							
Tapered Screw-Vent	3,7 / 4,1	3,5	Z TSV 3.5 L	6431139		Z TSV 3.5, 4.5, 5.7	6460575
	4,7	4,5	Z TSV 4.5 L	6431147	L		
	6	5,7	Z TSV 5.7 L	6431154			

2.3.2 Hub

Hub is a network-based data center for CAD/CAM data in the practice. Hub stores CEREC AC data and enables data exchange between CEREC devices.

If a Hub is connected to the network, it is detected automatically.

The Hub logo appears in the top bar in the CEREC SW.

The CEREC SW must be set so that it can save data on the Hub. For more information refer to the Hub Operator's Manual.

1. In the system menu, click on the *"Patient Database"* button in the *"Configuration"* area.
   - ⇨ The *"Database Settings"* menu appears.
2. Activate the *"Hub Patient Database"* option.

Setup and commissioning of the Hub is described for users in the Operator's Manual. For more information, refer to the Hub Service Manual.

2.4 Structure of the manual

2.4.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these operating instructions. Such information is highlighted as follows:

⚠ DANGER
An imminent danger that could result in serious bodily injury or death.

⚠ WARNING
A possibly dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION
A possibly dangerous situation that could result in slight bodily injury.

NOTE
A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT
Application instructions and other important information.

Tip: Information for simplifying work.

2.4.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✔ Prerequisite **1.** First action step **2.** Second action step or ➢ Alternative action ✥ Result ➢ Individual action step	Prompts you to do something.
See "Formats and symbols used [→ 16]"	Identifies a reference to another text passage and specifies its page number.
● List	Designates a list.
"Command / menu item"	Indicates commands, menu items or quotations.

2.4.3 Conventions

Example	Meaning
Click	Single pressing and subsequent release of the left mouse button or the left trackball button on the acquisition unit
Double-click	Double pressing and release in quick succession of the left mouse button or left trackball button on the acquisition unit
Moving the mouse in one direction	On the acquisition unit: Moving the trackball in the corresponding direction.
Seizing a point	Pressing the left mouse button (left trackball button on the acquisition unit) and keeping it pressed.
"Ctrl+N"	On the keyboard: Press the **Ctrl** and **N** keys simultaneously.
Drag & drop	. Press and hold an element (e.g. a pictograph) and drop / release it onto a potential destination.

2.4.4 Manual formats (assistance)

You can access the manual via the Help button or by pressing "F1".

The PDF-format user manual can be found on the supplied software DVD or on the Internet (http://www.sirona.com/manuals).

This format is page-oriented and is well suited for printing out the desired pages.

2.4.5 Odontogram used

The software can be adjusted to the international odontogram (FDI) or the USA odontogram (ADA) (ADA/FDI odontogram [→ 49]).

In this documentation teeth are named as follows:

Principle:	FDI	(#ADA)
Example:	13	(#6)

2.5 User interface
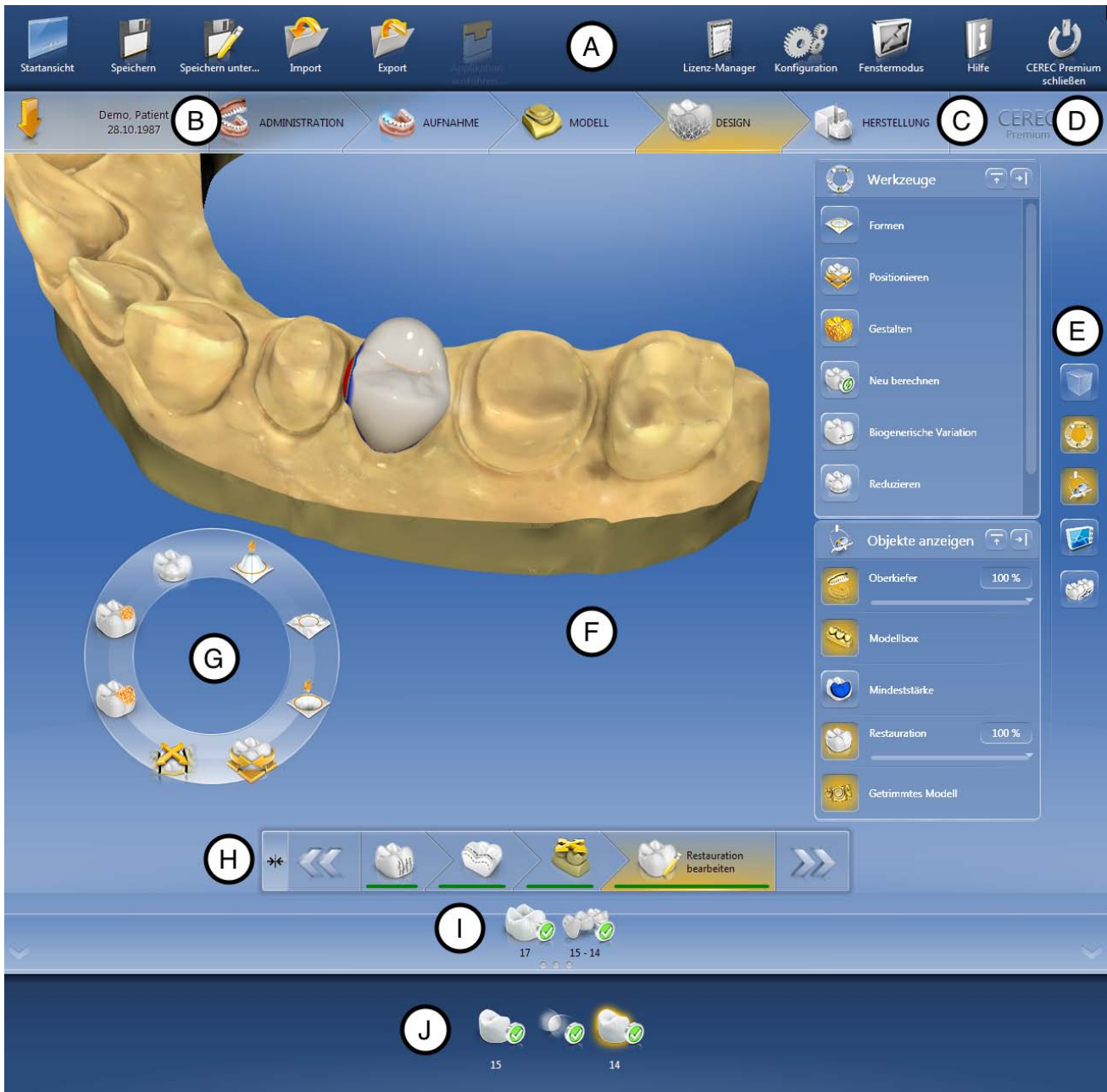
Overview of the user interface

A	System menu	F	Main window
B	Phase bar	G	Context menu
C	Information dialog	H	Step menu
D	Opens a Sirona Connect chat	I	Object bar
E	Page palette	J	Restoration selector

2.5.1 Phase bar

The workflow is illustrated in the software in 5 phases.

Phase bar

- ADMINISTRATION
- SCAN
- MODEL
- DESIGN
- MANUFACTURE

2.5.1.1 ADMINISTRATION

In this phase, you can perform the following:
- Create restorations and determine their type
- Specify a production machine
- Select material

2.5.1.2 ACQUISITION
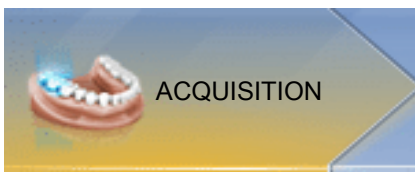
In this phase, you can perform the following:
- Create acquisitions with the CEREC Omnicam /
  - lower jaw
  - upper jaw
  - buccal bite registration
- View a 3D preview of the acquisitions
- Add additional image catalogs
  - BioCopy Lower
  - BioCopy Upper
  - Gingiva Mask Lower Jaw
  - Gingiva Mask Upper Jaw
  - Scanbody Lower Jaw
  - Scanbody Upper Jaw

2.5.1.3 MODEL

In this phase, you can perform the following:

● Edit the model
● Check or redefine the bite situation
● Align the models
● Check the trimmed model or manually re-trim
● Check, correct or re-enter the preparation margin
● Define insertion axes
● Define jawline and restoration positions
● Define restoration axes if necessary (abutments and telescopes only)

2.5.1.4 DESIGN

In this phase, you can perform the following:

● Select tooth form
● Position and scale restorations
● Individually change restoration parameters
● Have initial restoration suggestions generated
● Design restorations individually

2.5.1.5 MANUFACTURING

In this phase, you can perform the following for each restoration:

● Determine the color of the block which should be sintered with a connected CEREC SpeedFire sintering furnace.
● Specify a production machine
● Select the CEREC SpeedFire (if connected)
● Define manufacturing options (not possible for all materials)
● Determine the block size
● Check and adapt the positioning of the restoration in the block
● Define the sprue location of the restoration
● Start the manufacturing process
● Export restorations/models for the CEREC CAM SW.

2.5.2 Object bar

The buttons for restoration selection are located in the object bar.

Each restoration is represented by a tooth or a bridge icon with the corresponding tooth number. You can switch back and forth between the teeth by clicking on the corresponding icon.

Active elements are highlighted in orange.

If restorations span multiple tooth positions or two objects per tooth position are selectable for multilayer, the object bar is extended downwards. You can change between different active elements in the extended area.

During the restoration of multiple teeth or groups of teeth (e.g. bridge) it is necessary to complete mandatory steps (e.g. drawing the preparation margin) for all objects in order to proceed.

Corresponding notes on the objects provide information about the status.

2.5.3 Page palette

Various functions and options are offered to you in the page palette, depending on the restoration phase currently active.

You can open several page palettes at the same time. All page palettes are initially closed. Mandatory palettes are automatically shown as open upon entry in the respective step. Opened page palettes share the available height.

Should this display be inadequate for you, you can remove any page palette of your choosing from the fixed state of the magnet bar. To do this, press and hold the left mouse button on the header of the page palette and then drag the palette to the desired position within the main window.
Tip: If you are using CEREC SW in window mode or on multiple screens, then you can also pull the page palettes out of the application window and position them in any point on your screen.

All changes to a page palette (size and position) are saved separately for each step. You can therefore configure each work step as you want.

IMPORTANT
If a page palette is closed, the size and position are retained when next opened. If a page palette is stuck back on the magnet bar, however, the saved size and position are lost.

In order to affix a page palette back onto the magnet bar on the right side, drag any page palette over the magnet bar on the right side. The magnet bar lights up, suggesting various positions for the window. The window then snaps into place as soon as you release the left mouse

button. The page palette will now automatically put itself back in order with the other page palettes.

To close a page palette, click on the right button in the page palette header or once more on the respective right button in the magnet bar.

Minimize and maximize

Optimizing the space with the page palettes provides a compact view for palettes with a large number of functions. Only the tools and functions most frequently used are presented in this view. You can switch back and forth between both views by clicking the corresponding button (left next to Close).

2.5.4 Tool wheel

In the ADMINISTRATION, MODEL, DESIGN or MANUFACTURE phases, the tool wheel provides the most common tools for simplifying access. The tools available vary depending on the current step.

1. Right-click in the workspace.
   - ↳ The tool wheel opens.
2. Click with the right mouse button anywhere in the workspace.
   - ↳ The tool wheel moves to the position of the mouse pointer.
3. Select a tool.
   - ↳ The selected tool is available. The tool wheel closes automatically.

You also can close the tool by clicking in the workspace with the left mouse button.

2.5.5 Step menu

Each phase is divided into steps. They are shown in the step menu at the bottom edge of the screen. The step menu changes depending on which phase the current restoration is located in at the time.

This menu guides you through the process step-by-step. The system runs through all steps in a phase with the restoration(s). Changes in the individual steps are accepted by clicking on the next step.

The double arrow keys can be used to switch between phases.

A step is only shown with a symbol in the non-selected state. Hover over the step menu with your cursor in order to learn about the function. As soon as you have activated the step, the name of the function will be displayed.

Certain steps must be confirmed with a *"Ok"* or can be interrupted.

Status bar

All steps have a status and progress bar.

	Transparent bar:	The step is mandatory and has not been started yet.
	Red bar:	The step has been completed with errors.
	Orange bar:	The step has not yet been completed.
	Green bar:	The step has been completed successfully.

Mandatory and optional steps
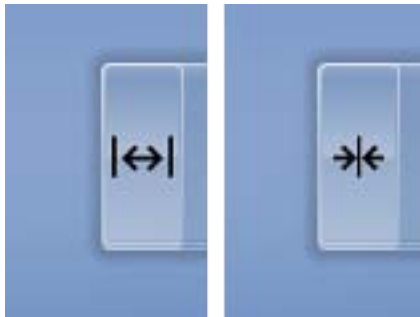
Optional steps can be shown or hidden using the button on the left of the step menu.

Optional steps are executed automatically and have a green status bar with immediate effect. However, the standards used can be modified. The automatic process stops at the next mandatory step. The user must then implement this separately.

The double arrow keys are presented with labels in the minimized step menu and provide information on the previous or next phase.

3 Getting started

3.1 Installing the software

The software requires at least the 2.00 firmware version of the USB license stick. Update the firmware version if necessary. For more information, refer to the "License manager [→ 55]" section.

A CEREC AC acquisition unit with at least hardware version LQ is needed for the software.

Use the version of the license manager provided with this version to import licenses from the license certificate provided.

3.1.1 Installation with DVD

Preparing the installation

✓ The USB license stick firmware is available in at least version 2.00.

✓ The PC is powered up and all programs are terminated.

1. Insert the DVD in the DVD drive.
   ↳ The setup program starts automatically.
2. If this is not the case, run the *"Setup.exe"* file in the root directory of the DVD.
   ↳ This installation program starts.

Installing the application

1. Select the language for the following installation and then click the *"Next"* button.
2. Read the information on copyright carefully and then click on the *"Next"* button.
3. In the next step, select the language and application region for the application and then click on the *"Next"* button.
4. In the next step you have the option of defining another folder for the installation of the application and, if necessary, an alternative folder for the patient data folder.
   Then click on the *"Next"* button. The path to the patient data folder can still be changed after the installation via the configuration menu.
5. In the next step, the license agreement appears. Read through the license agreement carefully.
   If you accept the license agreement, then check the *"I accept the terms in the license agreement"* option and subsequently click the *"Next"* button.
6. In the next step, your license is checked on the USB license stick. Make sure the USB license stick is inserted properly for this purpose before clicking on the *"Next"* button.
   Tip: You may skip this step. To do this check the *"Skip License Check and continue with application installation"* option and then click on the *"Next"* button. If the license check is skipped, the software will run in demo mode.
   ↳ The application is now installed. This may take several minutes.
7. Following successful installation, click on the *"Start"* button to complete the installation and to start the application immediately after this. At this point, you have the option to subscribe to a Sirona

newsletter.

Tip: If you do not want to start the application immediately, remove the tick from the *"Start application directly"* check box and then click on the *"Exit"* button. This installation program closes.

3.2 Uninstalling the software

✓ The program is closed.

1. Click on "Start / All Programs / Sirona Dental Systems / CEREC / Tools / Deinstallation" to uninstall the software.
   ↳ During the uninstall procedure, you will be asked whether you want to delete the patient data or the entries in the registration database (e.g. the calibration data).

2. Depending on your decision, click either the *"Yes"* or *"No"* button.
   ↳ The software is uninstalled.

3.3 Restore factory default settings

✓ The program is closed.

1. Uninstall the software (see "Uninstalling the software [→ 26]").
2. Install the software (see "Installing the software [→ 25]").
   ↳ The original factory default settings are restored.

3.4 Copy protection

The software can be started only when the USB license stick is plugged in. The USB license stick is included in the scope of supply of the units. If you require additional licenses, please contact your dealer.

Always keep the USB license stick near the unit.

All authorizations (software licenses) can be installed as electronic licenses on the USB license stick. You must enter a 25-digit license key for this purpose.
You will receive the license key along with the unit. Alternatively, you can order it separately from your dealer.

Following an update, you may require a new license that is not available on your USB license stick. For more information, refer to the section License manager [→ 55].

3.5 Downloading software

Auto-update, Sirona Connect Center

During the installation of CEREC SW, the auto-update function is also installed as a part of the Sirona Connect Center. You can conveniently download and install future software updates of CEREC SW in the form of service packs over the Internet.

Once an update is ready for download, you are notified of this automatically through a dialog box.

Update

You have to pay for major software updates, and these also require a license. If you do not have a new license, you can only work in the demo version.

Chargeable updates are distributed via DVD. Contact your specialist dealer if you wish to purchase an update.

3.6 Starting the software

✓ The CEREC SW software is installed. You will find the start icon on the desktop.

✓ The USB license stick is connected with a valid, current license.

1. Double-click the CEREC SW start icon.

or

➢ Click on "Start / All Programs / Sirona Dental Systems / CEREC / CEREC SW 4.6".

   ✎ The software is started.

4 Design mode

4.1 General information on Biogeneric

Biogenerics enable the CEREC software to reconstruct teeth in a natural way. Biogenerics is a biogeneric process based on the scientific understanding that there are morphological connections between the teeth that can be expressed in mathematical functions.

With CEREC SW 4.x, the suggestion process for biogenerics has undergone fundamental overhaul. For example, the positioning and the overall morphology are now also included in the analysis and suggestion. Consequently, the quality of the initial suggestions has been significantly further improved. This applies to individual teeth, but especially for multiple restorations and anterior teeth as well.

All teeth recorded by the camera are analyzed with respect to their position and morphology. Based on this analysis the relevant restoration can be produced in fully automated fashion.

For the biogenerics to deliver ideal suggestions, it is important that entries are correct and complete. This applies to the following steps in particular:

- Exposure
  The exposure should be good and complete. For single tooth provision, the neighboring teeth must also be recorded at a minimum. Scanning holes around the preparation and the proximal contacts should be avoided (see "Take a scan").
- Model axis
  The model axis should be aligned precisely (see "Set model axis").

4.2 Biogeneric Individual

In the *"Biogeneric Individual"* design technique, the exposure taken is analyzed and the restoration suggestion is calculated on the basis of this information. The more information that is available, the more successful the calculation. A full image of at least one neighboring tooth should therefore be taken from the occlusal/incisal direction. For anterior and corner teeth, an image of the labial surface should also be taken.

For premolars or molars, the calculation is mainly based on the distal neighbor, for anterior teeth the mesial neighbor is used.

4.3 Copy and mirror

Select the *"Copy & Mirror"* design technique for user definition of the tooth to be used as a reference for calculating the restoration suggestion. The reference tooth can be any tooth of the same class (anterior/posterior tooth), e.g. the antagonist or the contralateral tooth.

4.4 Biogeneric Copy

Select the *"Biogeneric Copy"* design technique in the case administration in the case details to transfer parts of an existing occlusal surface to the restoration and enhance the rest using the patented Biogeneric technique.

To do this, acquire the status separately in the *"BioCopy Upper"* or *"BioCopy Lower"* image field prior to the preparation.

This technique can be used for inlays, onlays, partial crowns, crowns, and bridges.

4.5 Bio jaw

The suggestion system for *"Bio Jaw"* restorations offers the option of adjusting the position and morphology (only the anterior teeth and premolars) prior to the first actual suggestion. In other words, in this step the restoration is not yet adapted to the preparation margin and only very roughly to the contacts with neighbors and antagonists. The adjustments are only made with the calculation of the initial suggestion.

If the initial suggestion does not match your intentions in terms of its position or shape, you have the option of adapting this via an additional step.
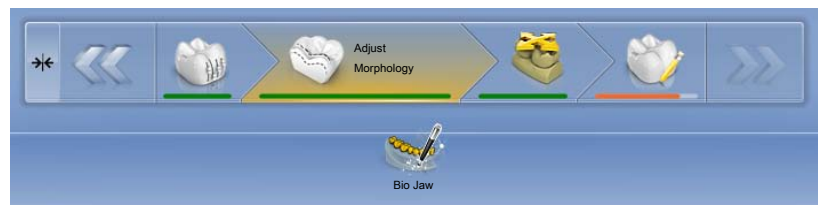
Step Morphology

The optional *"Morphology"* step is available to you in the extended step menu. In this option you can choose whether the teeth should be calculated completely by the biogenerics (standard) or whether you want to specify the shape of the teeth. Then the biogenerics calculates an initial biogeneric suggestion for you with the defined tooth shape. Click on Tooth Shape for this and select the appropriate tooth shape.

Step Positioning

In the *"Positioning"* step, you can modify the position of the teeth. The *"Position and Rotate"* and *"Scale"* tools are available to you for this purpose. The new positioning can be performed for each tooth, or you can group neighboring restorations (Ctrl/shift key + left mouse button) and thus process several teeth simultaneously. When you group the teeth, the software takes account of the contact situation of the selected teeth. For example, this means that if one tooth in a group is enlarged, the others are reduced in size. The same mechanism applies when positioning the teeth. The teeth are adjusted in size to the modified conditions here, too.
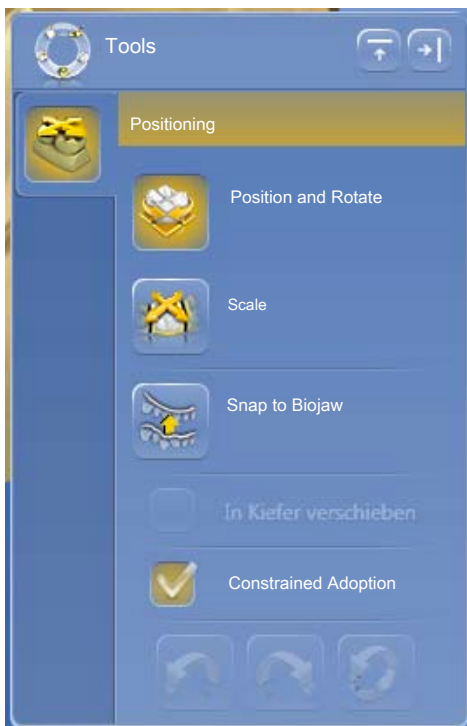
5 Configuration

The *"Configuration"* menu contains the following submenus:

- Parameters
- Devices
- Options
- Settings
- Apps

5.1 Parameters

The *"Parameters"* menu is structured by restoration type. You can make the settings for each of the following restoration types.

The changes in the values are displayed graphically.

The parameter values set here are used as standard values for all initial proposals.

Tip: If you want to change the parameter values only for one restoration, do this in the DESIGN phase in the step *"Restoration Parameters"*.

Parameter profiles

You can define parameter profiles. Through this menu you can define and save different parameter sets for all restoration types.

1. Duplicate the default settings with the manufacturer specifications by clicking on the tick icon.
2. Give the profile a unique name and confirm the entry with the tick icon.
3. Adjust the parameters to your needs and then save them.
   - ↳ You can then use these default settings both as global and local parameters.
4. You can select the newly created profile as a favorite by clicking on the star icon.

Accepting settings

➢ Click on the *"Ok"* button.

Discarding settings

➢ Click on the *"Cancel"* button.

Resetting settings

➢ Click on the *"Reset All Group Parameter"* button.
   - ↳ The settings for this restoration type are reset to the factory settings.

Crown, inlay, onlay and veneer

Parameter	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Spacer (radial)	• Possibility for setting the space for the fastening material below the restoration. Acts up to the preparation margin. A different spacer for radial and occlusal can set for crowns.	120 µm	120 µm	120 µm
Spacer (occlusal)		120 µm	-	-
Marginal Adhesive Gap	• Adjust width of space on preparation margin. • The value of the adhesive gap cannot exceed the spacer value.	-	60 µm	-
Veneer Thickness	• Set to minimum thickness. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MANUFACTURE phases: The value is displayed as a semitransparent geometry on the preparation. Areas where the thickness falls short of the minimum level in the design phase are thus made visible.	-	-	500 µm
Occlusal Milling Offset	• Apply or remove material in the occlusal direction over the entire occlusal surface. • This value concerns only the milling result. • DESIGN and MANUFACTURE phases: The effects are not visible.	0 µm	0 µm	0 µm
Proximal Contacts Strength	• Set the thickness of the proximal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	25 µm	-
Occlusal Contacts Strength	• Set the thickness of the occlusal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm	25 µm	-
Dynamic Contacts Strength	• Define the thickness of the occlusal contacts. Only works when using the virtual articulator.	25 µm	25 µm	-

Parameter	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Minimal Thickness (Radial)	• Set the minimum wall thickness in the horizontal direction. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MANUFACTURE phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum occlusal thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Observe the material manufacturer's recommendations when setting the minimum thickness. • Can be switched on and off	500 μm ON	500 μm ON	-
Minimal Thickness (Occlusal)	• Set the minimum wall thickness in the occlusal direction. • The software tries not to fall below this thickness when calculating the restoration suggestions. • DESIGN and MANUFACTURE phases: The value is displayed on the preparation as a semitransparent geometry together with the minimum radial thickness and the instrument geometry setting. Areas where the thickness falls short of the minimum level in the design phase are thus made visible. • Observe the material manufacturer's recommendations when setting the minimum thickness. • Can be switched on and off	700 μm ON	700 μm ON	-

Margin Thickness	• Reinforce restoration margins with additional material.
	  – Simplifies handling of the restoration
	  – Prevents splitting of the material
	• The additional material can be milled off manually before inserting the restoration.
	• Can be switched on and off
		50 μm
		ON
			50 μm
			ON
				50 μm
				ON

"Margin Ramp Angle"	Specifies the angle at which the restorations rise from the edge.	60°	60°	60°
"Margin Ramp Width"	Specifies the length of the edge with which the restoration rises from the preparation margin.	150 μm	150 μm	150 μm

Parameter	Description	Default value		
		Crown	Inlay/ Onlay	Veneer
Regard Instrument Geometry	Considers the instrument geometry in the bottom of the restoration. Areas of the preparation that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	YES	YES	YES
Remove Undercuts	Undercuts within the preparation margin are blocked out in the restoration bottom.	YES	YES	YES
"Block Out Undercuts Virtually"	If active the preparation margin is raised in the event of undercuts.	-	YES	-

Abutment (multi-layer framework)

Parameters	Description	Default values
Gingival Depth	• Determines how far below or above the preparation margin the gingiva lies in reference to the gingival line.	0 µm
Gingival Placement Pressure	• Determines how strongly the initial suggestion for the abutment penetrates the gingiva in order to build up pressure on the gingiva.	0 µm
Shoulder Width	• Width of the shoulder of an abutment or telescope.	1,000 µm
Telescope Angle	• Telescope angle of an abutment or telescope.	7°
Minimal Thickness (Radial)	• Determines the minimum radial wall thickness in the horizontal direction. • Manufacturer specifications can be changed.	NO 500 µm
Minimal Thickness (Occlusal)	• Determines the minimum radial wall thickness in the occlusal direction. • Manufacturer specifications can be changed.	NO 2,400 µm

Abutment, crown facing structure

Parameters	Description	Default values
Spacer	• Increase or decrease space for adhesive underneath crown (not on the preparation margin).	120 µm
Occlusal Milling Offset	• Apply or remove material in the occlusal direction over the entire occlusal surface. • This value concerns only the milling result. • The effects are not visible in the DESIGN phase or in the preview. • Change this parameter as compensation if the occlusal surfaces of your restorations are generally too high or too low in practice.	0 µm
Proximal Contacts Strength	• Set the thickness of the approximal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm

Parameters	Description	Default values
Occlusal Contacts Strength	• Set the thickness of the occlusal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm
Dynamic Contacts Strength	• If activated in the options (see "Articulation [→ 48]"), the software attempts to achieve these saved thicknesses with the restoration suggestions.	25 µm
Minimal Thickness (Radial)	• Set the minimum material thickness on steep preparation walls. • The software tries not to fall below this material thickness when calculating the restoration suggestions. • The value is displayed on the preparation as a semitransparent cover together with the minimum occlusal thickness in the DESIGN phase. Areas where the thickness falls short of the minimum level in the design phase are thus made visible.	500 µm
Minimal Thickness (Occlusal)	• Set the minimum material thickness on the surfaces of the preparation in the occlusal direction. • The software tries not to fall below this material thickness when calculating the restoration suggestions. • A high value can lead to a flat morphology if deep fissures would strongly violate the minimum thickness. • Observe the material manufacturer's recommendations when setting the minimum thickness.	700 µm

Pontic (anatomical)

Parameter	Description	Default value
Gingival Spacing	• Space between pontic and preparation geometry/gingiva.	0
Lingual Opening Angle	• Increase of pontic for the basal area in the oral direction.	0
Proximal Contacts Strength	• Set the thickness of the proximal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm
Occlusal Contacts Strength	• Set the thickness of the occlusal contacts. • The software tries to achieve this stored thickness in the restoration suggestions.	25 µm
Dynamic Contacts Strength	• Define the thickness of the occlusal contacts. Only works when using the virtual articulator.	25 µm
Consider Intersections Outside Baseline	• Also adapt the pontic design outside the baseline to the gingiva.	-

Model

Observe the information supplied concerning the pins, model holders and base plates.

Parameters	Description
Segmentation Cut Width	• Set the width of the saw-cut.
Baseplate Distance	• Adjust the distance of the base plates from each other.

Parameters	Description
Pin Diameter	• Set the diameter of the pins.
Pin Spacing	• Set the distance of the pins from each other.

Articulator

The preset parameters are mean values which can be used without alteration for an average articulation.

Parameter	Setting	Mean value
"Arms"	Side of the Bonwill triangle	105 mm
"Base"	Intercondylar distance	100 mm
"Balkwill Angle"	Balkwill angle	23°
"Sagittal Angle Left" and *"Sagittal Angle Right"*	Sagittal condylar path inclination	35°
"Bennett Angle Left" and *"Bennett Angle Right"*	Bennett angle	15°
"Immediate side shift left" and *"Immediate side shift right"*	Initial Bennett movement	0 µm
"Include Restorations"	If activated, available restorations are taken into consideration for the calculation of the FGPs as if they were already inserted. This means reconstructed cuspid guidance can be considered for the other restorations in the case, for example.	YES

Gingiva

Parameters	Description	Default value
"Gingiva Cleaning Spacer"	Specifies the distance between the gingival element and the gum. The gap is also produced at the edge of the gingival element.	0 µm
"Gingiva Spacer"	Specifies the distance of the gingival element and the gums between the edges of the elements. The edges are always on the gum.	50 µm
"Gingiva Implant Spacer"	Specifies the space between the gingival element and the cemented cap of the abutment.	100 µm
"Gingiva Minimal Thickness"	Specifies the minimum wall thickness of the element	700 µm
"Gingiva Margin Thickness"	Specifies the material thickness at the edge of the element. Prevents the splitting of the material.	50 µm

Parameters	Description	Default value
"Regard Instrument Geometry"	Considers the instrument geometry in the bottom of the restoration. Areas of the element that are smaller than the diameter of the instrument geometry are calculated in the bottom of the restoration so that they increase with the instrument geometry.	Yes
"Remove Undercuts"	Undercuts within the preparation margin are blocked out in the restoration bottom.	Yes

CEREC Guide Drilling Template

Parameter	Description	Default values
Thickness	Template body thickness.	4 mm
Spacer	Gap between the contact surface on the remaining teeth and the interior of the template body.	60 µm

Preparation analysis

Parameters	Setting	Default values
Tolerance	Distance between prepared stump and antagonist. The tolerance indicates the range between the minimum material thickness and the set standard value.	200 µm

5.2 Devices
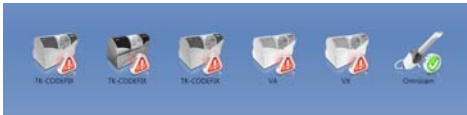
All connected devices can be displayed and configured under the menu item *"Devices"*.

A green check mark on a device indicates its availability.

A red warning triangle with an exclamation mark shows that the device cannot be reached.

Adding devices automatically

You can add additional devices with the *"Scan for New Devices"* function.

✓ The unit is connected to the PC.

1. Click on the *"Scan for New Devices"* button.
   ↳ All units connected to the PC are recognized. In the case of new units, you will be prompted to enter a name.
2. Enter a name for the new unit.

Adding devices (manual)

You can add devices manually with the *"Add Device (Manual)"* function. This is mandatory for units which cannot be operated at the maximum speed of 115,200 baud. This concerns devices with long cable connections or when certain radio modules (e.g. Futaba, 19,200 baud) are used.

1. Click on the *"Add Device (Manual)"* button.
2. Choose whether the device should be connected via the network or a serial connection.
3. Network: Enter the network address.
   Serial: Enter the COM port and the baud rate.
4. Click on the *"Ok"* button.
   ↳ The software attempts to contact the device.

If the connection fails, check the connection. If necessary, ask a qualified technician.

Refresh Devices

With the *"Refresh Devices"* button you can:
- Refresh the status display; e.g. check whether a grinding and milling unit has finished milling/grinding
- Check the current availability of a device.

5.2.1 CEREC Omnicam

Audio feedback

Using the *"Sound:"* selection box, you can switch the audio feedback for acquisitions on or off. You can control the volume using the slide bar. You are able to choose from three different sounds.

Acquisition Hints

"Acquisition Hints" provides visual feedback to the user.

The red arrows show that an insufficient amount of information is available between individual areas. You can improve the precision of the model by scanning the camera in the direction of the arrows. To do so, connect both ends of the arrow with one scanning motion.

Wait briefly after the scanning motion is complete until the calculation has been made and repeat if necessary if the arrows are displayed in red. During the calculation, the arrows will change color to orange.

5.2.1.1 Resetting settings

➢ Click on the *"Reset Camera Settings"* button.
  ⮡ The settings are reset to factory settings.

5.2.1.2 Calibration

The measurement procedure used by the system requires the use of a calibrated CEREC Omnicam. The CEREC Omnicam is factory-calibrated. Then calibrate the CEREC Omnicam after every reinstallation and after every transport. The calibration set supplied with the CEREC Omnicam is available for the calibration process.

In order to achieve optimum results, the CEREC Omnicam must be allowed to warm up for 15-20 minutes before calibration.

Recalibrate the CEREC Omnicam in the following cases:

● following transport (shaking stress) or during first commissioning,

● after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C)

● with temperature differences of over 15°C between the last calibration and operation

● In general, carrying out a calibration is the correct process in the event of errors in the acquisition process (such as poor image quality or the lack of a 3D preview). In many cases, the errors can be corrected in doing so.

● As the system may be exposed to vibration loads without knowledge of this, it should be calibrated once a month.

Starting calibration

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Click on the *"Devices"* button.
3. Click on the *"Omnicam"* button.
4. Click on the *"Calibrate"* button.
   ↳ The camera view is displayed in one window.
5. Enter the 8-digit Sirona ID. You can find this ID on the sticker on the calibration set.

Calibrate the camera

1. Remove the protective cap from the calibration set.
2. Mount the calibration set on the tip of the camera until it locks into place.
3. Secure the CEREC Omnicam in the calibration set using one hand. Ensure that the external calibration set screw is fully screwed in a clockwise motion until it gently locks into place.
4. Click on the *"OK"* button.
   - ⮡ The measuring process starts.
   - ⮡ The software prompts you to proceed to the next latching.

5. Turn the screw counter-clockwise until you reach the next latching point.
6. Click on the *"OK"* button. In doing so, ensure that the CEREC Omnicam does not move.
   - ⮡ The software confirms the calibration process.
   - ⮡ The software prompts you to proceed to the next latching.
7. Execute steps 5 and 6 a total of **11** times.
   - ⮡ The software provides status updates on the calibration and informs you once the procedure is complete.
   - ⮡ You will be prompted to measure the position of the exit window.

Measuring the position of the exit window

1. Mount the bottom side of the calibration set to the tip of the camera.
2. Click on the *"OK"* button.
   - ↳ The calibration process is continued.
   - ↳ Once the calibration is complete, a message is displayed indicating this.
3. Confirm the message by clicking the *"OK"* button.
- ↳ The CEREC Omnicam is calibrated.

Error message during calibration

The software indicates if an error occurs during calibration. If the calibration process resulted in errors, restart the process.

End calibration

- ✓ The software indicates that the calibration was completed successfully.
- ➢ Click on the *"OK"* button.
  - ↳ The CEREC Omnicam is calibrated.

5.2.1.3 Color calibration

General information

> **NOTE**
>
> **Faulty color analysis**
>
> The color analysis can be negatively impacted due to strong light incidence and it can lead to varying results.
> ➢ Set the model CEREC Omnicam up so that it is not located directly in the beam path of an extreme light source (e.g., the treatment light) and not exposed to direct sunlight.

A color-calibrated Omnicam must be used for the color analysis.

The color analysis can only be carried out with a CEREC Omnicam from a particular serial number. In order to test the CEREC Omnicam, use the Omnicam test tool on
my.cerec.com -> CEREC SW 4.5 - > Shade Detection.
You can find the serial number of the Omnicam on the upper side on the optics tube (see arrow **E** in the figure below).

This is only relevant for first generation cameras. For new systems, the serial number of the Omnicam does not need to be determined.
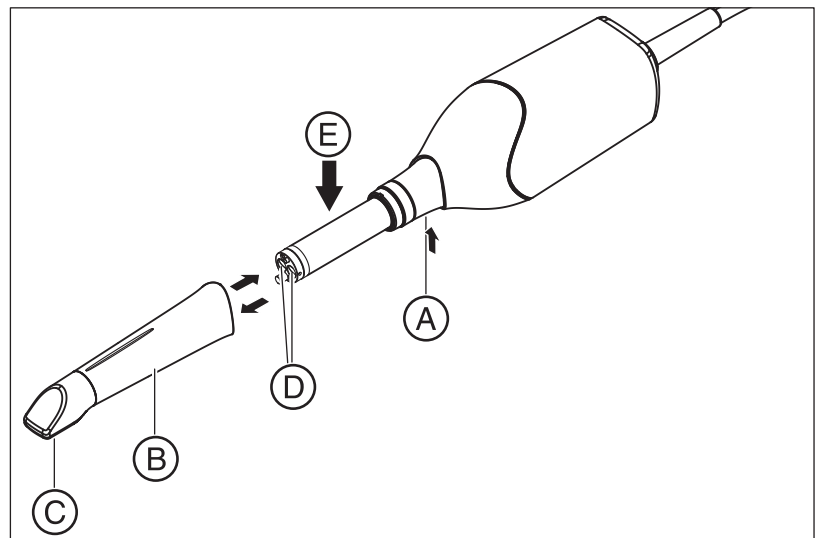
1. Press the mirror sleeve (**B**) against the camera body.
2. Press detent (**A**).

> **NOTE**
>
> Risk of damaging the camera window (**D**) or the coated sapphire glass (**C**).
> ➢ Push the mirror sleeve straight toward the front; do not tilt it.

3. Pull off the mirror sleeve.

In order to achieve optimum results, the CEREC Omnicam must be allowed to warm up for 20 minutes before calibration. The CEREC Omnicam must be color calibrated every two weeks in order to carry out a reliable color analysis. You will achieve the best results if the CEREC Omnicam is color calibrated immediately before scanning a new case.

Carry out a color calibration also after changing a mirror sleeve.

Heavily scratched mirror sleeves may not be used for a color analysis.

Storing a color-calibration set

The color-calibration set must be stored in its packaging in a dry place which is protected from light. It must be used with a disinfected Omnicam as the color-calibration set must itself not be disinfected. If dust accumulates on the inside of the color-calibration set, it must be carefully removed using compressed air.

Switch on the color analysis

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Click on the *"Devices"* button.
3. Click on the *"Omnicam"* button.
4. Select the *"Shade Detection"* option.
   - You can choose between various color systems (*"Shade Guide Selection"*).
   - You can decide whether you would like to be notified in 14 days when the color calibration is needed again.
   - If color analysis is not possible with your camera, a corresponding notice will appear. A color calibration is also not available in this case.
5. Confirm the changes below with *"Ok"*.
6. Click the *"Color Calibration"* button and carry out the color calibration.

Color-calibrating the camera

1. Make sure that the CEREC Omnicam is clean, disinfected and dry.
2. Remove the color-calibration set from the packaging.
3. Use the CEREC Omnicam to scan the QR code on the underside of your color-calibration set. In order to do this, you must hold the CEREC Omnicam still in front of the QR code so that it is completely visible in the picture. If the QR code appears to be shiny, hold the camera at more of an oblique angle in order to avoid any glaring light and to make it easier to scan the codes. If the QR code is recognized, the next *"Please mount color calibration set"* step appears.
   This step of the QR code scan is skipped during the subsequent color calibration and the serial number of the color-calibration set is thus displayed. If this does not match the serial number printed on your color-calibration set, click on the *"Rescan QR Code"* button and scan the new QR code.
4. Mount the color-calibration set on the tip of the camera until it locks into place.
5. Click on the *"Ok"* button.
   - ↳ The measuring process starts. Do not move the CEREC Omnicam or the color-calibration set during this time.
   - ↳ The software provides status updates on the calibration and informs you once the procedure is complete.

Ending the color calibration

✓ The software indicates that the color calibration was completed successfully.
1. Click on the *"Ok"* button.
   - ↳ The CEREC Omnicam is now color calibrated.
2. Remove the color-calibration set from the camera and place it back in the packaging.

Error message during color calibration

The software indicates if an error occurs during color calibration. If the color calibration contained an error, ensure the following:

- The color-calibration set is free of dust
- The color-calibration set was mounted correctly
- The CEREC Omnicam exit window is clean
➢ Then restart the color calibration.

Do not continue using a damaged color-calibration set; instead, contact your distributor to purchase a new one.

Replacing the color calibration set

Please note that the color calibration set

- can only be used with CEREC SW software ≥ 4.5 or Sirona Connect SW ≥ 4.5 or CEREC Premium SW ≥ 4.5.
- can only be kept for use for a maximum of 2 years. You can find the expiry date at the bottom of the color calibration set container. Previous storage may mean that the period for use has been reduced to less than 2 years.
- can only be used for one year after the container has been opened. Write the date that the container was opened on the container after "Opened on _____" using a waterproof pen and do not use after one year.

The color calibration set may no longer be used once either of the two periods has expired.

The software notifies you that the color calibration set needs to be replaced with a new set before the color calibration expires.

Once the color calibration set has expired the software notifies you that a color analysis can only be carried out based on old calibration data.

Please contact your dealer for replacements for the color calibration set.

5.2.1.4 Camera heating settings

You can access the dialog for the temperature settings of the Omnicam via the *"Camera Heater Settings"* button. Using the slider, you can set the temperature at which the camera's mirror sleeve is preheated in five stages to prevent the optics from potentially fogging up. Confirm your settings with *"Cancel"* or discard them with *"Ok"*.

> ⚠ **CAUTION**
>
> **Hot surface!**
>
> The coated sapphire layer of the CEREC Omnicam is preheated in the camera cradle. When removing the CEREC Omnicam from its cradle, the surface temperature of the mirror sleeve can be up to 51°C. This may cause an unpleasant heat sensation on contact with a person's skin or mucous membrane. These temperatures will not damage the skin or mucosal membrane.
>
> After removing the CEREC Omnicam from the camera cradle, the temperature of the mirror sleeve drops within a few minutes (< 5 minutes) to less than 43°C. The CEREC Omnicam is therefore suitable for use in the patient's mouth for an unlimited period of time.
>
> At an ambient temperature from 30°C, only select the three lower heater settings.

5.2.1.5 Updating the firmware

You can start the camera software update directly through the *"Update Firmware"* button.

NOTE
The firmware update is mandatory for operating the CEREC Omnicam in conjunction with the CEREC SW. When starting phase ACQUISITION, the firmware must be updated. The firmware update takes around two minutes.

5.2.2 Grinding and milling unit

5.2.2.1 Editing settings

CEREC MC / CEREC MC X / CEREC MC XL / CEREC MC XL Premium Package

You can subsequently edit the following settings via the relevant menu item:

- Description (name)
- Connection settings
  - Retrieve IP settings automatically
  - Specify IP settings manually
- Manual block fixing
  - If you use manual block fixing, a check mark must be placed in front of *"Manual Block Chuck"*.
- Second motor set
  - If the optional second motor set is installed, you must set a check mark before *"Two Bur Sets"*.
- Barcode reader
  - If the grinding and milling unit has an integrated scanner (optional) a check mark must be placed in front of *"Scanner"*.
  - If a scanner is retrofitted, your service engineer must place a check mark in front of *"Scanner"*.
- Extraction Unit
  - Place checkmark if dry milling is desired. A separate suction unit must be connected for this purpose.
- Firmware Update
  - Button is visible if firmware is not up-to-date.
  - Manually starts the upload of the firmware on the grinding and milling unit.
- External water tank
  - If the 25-liter canister (optional, Order No. 60 56 217) is connected and the check mark has been placed, you will not be reminded to change the water until a later point in time.
  - This option is only available for CEREC MC XL or CEREC MC XL Premium Package (not for CEREC MC or CEREC MC X).
  - If the 25-liter canister is retrofitted, your service engineer must place a check mark in the box in front of *"Large Water Tank"*.

5.2.2.2 Calibration

1. Click on the *"Calibrate"* button.
2. Then simply proceed as prompted by the software.

5.2.2.3 Changing instruments

1. Click on the *"Change Instruments"* button.
2. Then simply proceed as prompted by the software.

5.2.2.4 Removing the grinding and milling unit

1. Click on the *"Delete Device"* button.
2. Then simply proceed as prompted by the software.

5.2.3 Furnace

5.2.3.1 Editing settings

CEREC SpeedFire

You can subsequently edit the following settings via this menu item:

- Name
- Connection settings
  - Retrieve IP settings automatically
  - Specify IP settings manually

5.3 Options

5.3.1 Bite registration

Here you can set whether the image catalog is offered for bite registration.

Setting	Description
Activate	The image catalog is offered for bite registration. You can carry out bite registration in the MODEL phase.
Deactivate	The image catalog is not offered for bite registration. The buccal bite registration must be used.

5.3.2 Articulation

Use Articulation:

Setting	Description
Activate	The articulator is displayed to the right-hand side of the page palette during the construction. It can be activated at any time for constructing the restorations.
Deactivate	The articulator is not displayed to the right-hand side of the page palette during the construction.

Use Articulation for initial proposal:

Setting	Description
YES	The dynamics calculated by the virtual articulator are considered for the calculation of the initial suggestion.
NO	Only the static contact points are taken into consideration in the initial suggestion. The dynamic contacts are identified by color (occlusal compass acc. to Schulz).

5.3.3 Smile Design

Setting	Description
Activate	The Smile Design function is available during the ADMINISTRATION / *"Indications"* phase for the respective case and can be activated under *"Options"*.
Deactivate	The Smile Design function is not offered in the ADMINISTRATION phase.

5.4 Settings

The menu item *"Settings"* has the following subitems:
- *"ADA/FDI Notation"*
- *"Warning messages"*
- *"Sirona Server"*
- *"Patient Database"*
- *"Language"*
- *"MC XL Milling"*
- *"Favorite Materials"*

5.4.1 ADA/FDI odontogram

You can set the odontogram using *"ADA/FDI Notation"*:
- International (*"FDI Notation"*)
- USA (*"ADA Notation"*)

5.4.2 Warning messages

Warnings may appear in pop-up windows when using the software. Many of these messages can be deactivated by clicking on the *"Don't show this message again"* check box. If this check box is already selected or if a new user uses the software, all warnings can be reset here. All warning messages are displayed once again by clicking the *"Reset"* button.

5.4.3 Sirona server

You can implement the settings for connecting to the server in the *"Sirona Server"* menu item. The IP settings may be automatic or may be entered manually with the corresponding IP address and port.

Information on the connection status is provided on the right half of the screen.

5.4.4 Patient database

In the menu item *"Patient Database"*, you can determine where patient data and cases are saved.

You have the option to rename patients and cases in the patient overview table (accessible via the start view).

You can specify a folder for this data. This allows you, for example, to save all data on a secure server on the practice network.

Alternatively, you can manage patient data with Sirona SIDEXIS software and save cases in a database created in SIDEXIS.

You can export a support container (*.zip) that contains all the data for analyzing problems: rst file, image data, log files, etc.

5.4.5 Language

Here, you can set the language of the software.

5.4.6 Milling

You can activate and deactivate the grinding manufacturing option for zirconium oxide, plastic, and metal here.

When this option is activated, you can choose between the milling and grinding manufacturing processes for plastic, metallic and zirconium oxide materials in the *"Select Material"* step.

Grinding of zirconium oxide, plastic, and metal is possible using machines from the following serial numbers onward:

Machine type	Serial number (wet milling)	Serial number (dry milling also with retrofit)
CEREC MC XL	129001	Not possible
CEREC MC XL Premium Package	302001	304801
CEREC MC X	231001	236001
CEREC MC	202001	202501

Other machines must be equipped with the milling starter kit, Design 2011 (REF: 64 48 893) or with the milling starter kit for connected motors (REF: 64 51 079) (only for wet milling).

5.4.7 Preferred materials

You can define up to three favorite materials in this menu item.

1. Click in the top line on one of the three material favorites to be defined.
2. Click in the center line on one of the available material producers (e.g. SIRONA).
3. Click in the bottom line on one of the materials offered (e.g. CEREC blocks).
   Tip: Clicking on the material one more time deselects it. You can then opt for another material or remove the check of the favorite materials in question in the top line.
4. Once you have defined all the favorite materials you want, click on *"Ok"* in the step menu.

5.5 App Center (applications)

Via the Sirona App (Application) Center, you have access to various apps (applications) for our CAD CAM products. Furthermore, you have access to a website that shows you the apps available. The website also contains additional information on where you can download the apps.

6 System menu

In the system menu the following sub-menus are offered:

"Start Screen"	Switch to the start window to start a new case.
"Save"	Saves currently opened case.
"Save As..."	To save a case under a different name or dentist.
"Import"	Imports case from the file system.
"Export"	Exports currently opened case.
"Run Application..."	Opens app center to start plug-ins.
"Sirona Connect"	Sends the current case via the Sirona Connect portal.
Sirona Connect Chat	Opens the Sirona Connect chat window.
"License Manager"	Opens the license manager.
"Configuration"	Configure hardware and software.
"Window Mode"	Toggles between full-screen and window mode.
"Help"	Open help information.
"Exit CEREC"	Closes the CEREC software.

Opening system menu

1. Move the mouse cursor to the top of the window.

or

➢ Click the Start view button.

✎ The system menu is displayed.

Closing system menu

1. Click the Start view button.

or

➢ Click into the main window with the left mouse button.

↳ The system menu is closed.

6.1 Save case

In this dialog, you can save the actual case.

➢ Select *"Save Case"* in the system menu.

↳ The current processing status of the case is saved.

Tip: How to save individual restorations is described in the section "Exporting a restoration".

6.2 Save case as

This dialog allows you to save the current case under a new name or assign it to a different patient.

1. Select *"Save Case As..."* in the system menu.

↳ The patient list is opened.

2. Select the appropriate patient.

or

➢ Create a new patient via *"Add New Patient"*.

3. You can give the case a new name in the *"Case"* column via the pencil icon.

6.3 Import case

1. Click the *"Import Case..."* button in the system menu.

↳ The *"Import Case..."* dialog box opens.

2. Select the folder where the case is located.

3. Select the relevant file.

4. Click the *"Open"* button.

↳ The case is then imported and opened.
Depending on the type of restoration, only the optical impression is opened.

6.4 Exporting a case

You can store a case in any location.

✓ You have opened a case in the software.

1. Click the *"Export Case..."* button in the system menu.
   ↳ The *"Export Case..."* dialog box opens.
2. Select the target folder to which you want to export the case.
3. Assign any name to the case.
4. Click on the *"Save"* button.
↳ The case is exported as a CLAB file.

If you would like to transfer the optical impression to another PC, you can use a USB stick or a network drive for this purpose.

6.5 Exporting scan data

You can export scan data as STL in order to process

- in the inLab SW or
- in another compatible

system.

IMPORTANT
Sirona will not be held liable for the further processing of *.stl data in other/external software.

6.6 License manager

The license manager is used for the installation of new software licenses on the USB license stick. To do this, start the license manager via the system menu and follow the instructions on the screen. Keep the license certificate with 25-digit license key ready, which you either obtained with the unit or ordered separately from your dealer.

Tip: You can also start the license manager via "StartAll Programs / Sirona Dental SystemsCERECToolsLicense Manager".

To activate the license you must have an Internet connection and the USB license stick must be connected.

Licenses and code libraries

For information on licenses and code libraries from other providers, see licenses.pdf. The file is in the installation directory under "C:/Programs/ Sirona Dental Systems/CADCAM".

6.7 Configuration

The configuration is described in the section "Configuration [→ 31]".

6.8 Window mode

The *"Window Mode"* function can be used to exit full-screen mode or enter it again. You can also activate/deactivate the window mode via `F11`.

6.9 Current program version

If you click on the lettering *"CEREC"* in the phase tab, you obtain information on the current program version.

6.10 Exit program

The *"Exit"* function can be used to close the software.

7 Start view

In the start view you can perform the following functions:

- Patient search
- Open patient database.
- Create a patient.
- Open the Sirona Connect portal.

Switching to the start view

You can switch to the start view at any time.

1. Open the system menu.
2. Click on the *"Start Screen"* button.

7.1 Create a new patient

In the data structure, a patient is uniquely identified by one of the following two entries:

- Surname, first name and date of birth
  or
- Patient ID
  Tip: We recommend that our customers work solely with one reference number. Please observe the data protection regulations applicable to you.

Add patients

1. Click on the *"Add New Patient"* button.
   - ✎ An empty patient card is opened.
2. Enter a surname, first name, and date of birth. A real-time search function is active during the input which should prevent duplicate entries.

or

➢ Enter the patient ID.
   - ✎ Once you have entered enough information, the bar in the *"Edit Patient"* step turns from red to green.
3. Click on the *"Add New Case"* button.
   - ✎ The program switches over to the *"ADMINISTRATION"* phase.

7.2 Patient search

Displaying all patients

The *"Show All Patients"* function can be used to display all patients.

Searching for individual patients

You can view individual patients by searching for them.

1. Click into the search text box.
2. Enter the surname or the patient ID.
3. Click the magnifying glass to start.
   ↳ The program now shows all the search results.

7.3 Editing patient data

7.3.1 Editing a patient card

✓ You have found the patient with the search function.
1. Click on the patient card.
2. Click the *"Edit Patient"* button in the patient row.
   ↳ The patient data in the row can be edited.
3. Carry out the changes.
4. Confirm your changes by clicking the *"Save"* button.
   ↳ The changes are saved in the memory.

7.3.2 Deleting patients

✓ You have found the patient with the search function.
1. Click on the patient card.
2. Click the *"Delete Patient"* button in the patient row.
3. Confirm the deletion by clicking the *"Save"* button.
   ↳ The patient is deleted.

7.3.3 Deleting a case

✓ You have found the associated patient with the search function.
1. Click on the patient.
2. Select the case.
3. Click the *"Delete Case"* button in the case row.
4. Confirm the deletion by clicking the *"Save"* button.
   ↳ The case is deleted.

7.3.4 Opening a case

✓ You have found the associated patient with the search function.

1. Click on the patient card.
2. Select the case.
3. Click the *"Open Case"* button in the case row.
   As an alternative, you can also double-click the case row or the thumbnail.
   ↳ The case opens.

7.3.5 Add a new case

✓ You have found the associated patient with the search function.

1. Click on the patient.
2. Click the *"Add New Case"* button above the case list.
   ↳ The program switches over to the *"ADMINISTRATION"* phase.

7.4 Restoration types and design mode

7.4.1 Restoration types

Single tooth restoration

Symbol	Restoration type	Design mode
	Automatic detection	-
	Missing	Click on the teeth in the odontogram which are not created.
	Crown	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Inlay/Onlay	• Biogeneric Individual • Biogeneric Copy
	Veneer	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror

Bridge restoration

Symbol	Restoration type	Design mode
	Crown	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Inlay/Onlay	• Biogeneric Individual • Biogeneric Copy
	Veneer	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Pontic	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Missing	Click on the teeth in the odontogram which are not created.

Connector type

Symbol	Restoration type	Design mode
	Connector	• Intersection
	Connector	• Anatomic

Abutment

Symbol	Restoration type	Design mode
	Crowns screwed down directly	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Framework abutment	-
	Multi-layer abutment	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror

Abutment bridge

Symbol	Restoration type	Design mode
	Multi-layer abutment	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Pontic	• Biogeneric Individual • Biogeneric Copy • Copy & Mirror
	Missing	-

CEREC Guide

Symbol	Restoration type	Design mode
	CEREC Guide	Implant analog

7.4.2 Design mode

Biogeneric Individual

For more information, refer to "Biogeneric Individual [→ 28]".

Copy & Mirror

For more information, refer to "Copy and mirror [→ 29]".

Biogeneric Copy

For more information, refer to "Biogeneric Copy [→ 29]".

Anatomic / Intersection

The *"Anatomic"* and *"Intersection"* modes are available only for bridge connectors.

Anatomic
The connector is a separate element and can be edited.

Intersection
The connector is created by penetrating the neighboring teeth. It is not a separate element, and therefore cannot be edited.

Multilayer

However, the fully anatomical shape is broken down into a mesostructure with no undercut and the covering crown by this technique. The two parts can be milled from different materials.

8 Tools and functions of the page palette

The page palette offers you various different functions, depending on the current step.

8.1 View options

Different views are available to you in the *"View Options"* page palette. These view options are split into global and local views. The global views are based on the model axis of the upper and lower jaw.
Tip: You can adjust the global model axis in the *"Set Model Axis"* step.

The local views are determined by the element currently selected in the object bar. Each element in the object bar therefore has its own coordinate system. Depending on the current step, the following views are available to you:

Global views

- *"Top"*
- *"Bottom"*
- *"Right"*
- *"Left"*
- *"Front"*
- *"Back side"*

Local views

- *"Mesial"*
- *"Distal"*
- *"Buccal"* / *"Labial"*
- *"Lingual"*
- *"Cervical"*
- *"Occlusal"* / *"Incisal"*

8.2 Tools
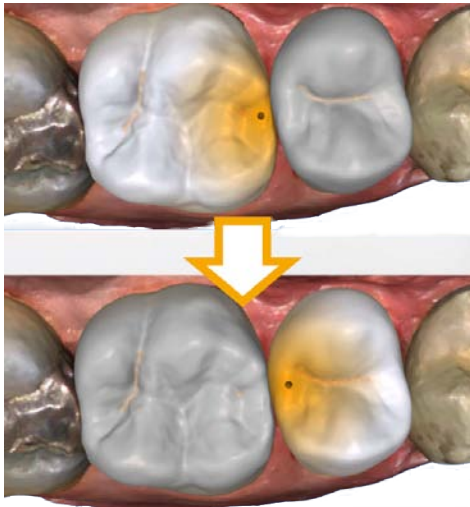
Tip: Automatic tooth change is possible when using the tools for several restorations. You do not have to make a selection via the restoration selector or by clicking.

Tools which can be used on the active restoration element are always active. The other tools are grayed out.

The most important tools are also offered to you in the tool wheel. You can find further information on the tool wheel in the section "Tool wheel [→ 78]".

You will find all tools as a sub-menu under *"Tools"*. The available tools are displayed for each step.

To change a tool, click on the button of another tool in the left column of the page palette.

To close a tool, click on the button of the active tool once more in the left column.

"Undo" and *"Reset"*

With the *"Undo"* button in the tools you can undo all changes made on the selected restorations since the tool was started.

With the *"Reset"* button in the tools you can undo all changes made on all restorations since the tool was started.

8.2.1 Buccal registration

Correcting buccal images

The buccal registration takes place automatically. If it is not correct you can do it manually.

1. Click on the *"Reset"* button.
   ⮡ The buccal registration is triggered and you have both jaws and the buccal exposure separated on the screen.
2. Click on the buccal image and displace it to the same region on the upper or lower jaw.
   ⮡ The image is accepted.
      Tip: If an image is not accepted, align the jaw to the buccal scan. This enables better overlaying.
      If registration is still not possible, check whether the buccal sections in the jaws and in the buccal image are sufficient.
3. If the image was accepted, move the image to the corresponding region of the opposite jaw.

Turn Buccal Impression

With the *"Turn Buccal Impression"* function, you can rotate the buccal image.

1. Click on the *"Buccal"* button.
2. Click on the *"Turn Buccal Impression"* button.
   - ↳ The buccal image is then rotated.

8.2.2 Buccal bite tools

You can adjust the occlusion using the following tools.

Move jaw

You can correct the buccal bite by positioning and rotating the upper jaw using the *"Align Jaw"* function.

➢ Click on the *"Align Jaw"* button.
   - ↳ The rotating/positioning tool will be shown.

8.2.3 Form

With the *"Form"* function, you can do the following to material

- apply
- smooth
- remove

Tip: If one of the shape tools is active, you can also switch to the following order using the space bar on the keyboard:
Add > Smooth > Remove > Add > ...

You can enter the *"Size"* and *"Strength"* properties with a slider or numerically in advance (see "Properties [→ 67]").

Apply material

1. Click the *"Form"* button.
2. Click on the *"Add"* button.
3. Click with the mouse cursor on the area you wish to shape.
4. Press and hold the left mouse button and apply the material to the surface location by moving the mouse.

Smoothing

When smoothing, you are able to smooth the surface locally.

1. Click the *"Form"* button.
2. Click the *"Smooth"* button.
3. Click with the mouse cursor on the location you wish to smoothen.
4. Press and hold the left mouse button and smoothen the surface location by moving the mouse.

Removing material

1. Click the *"Form"* button.
2. Click the *"Remove"* button.
3. Press and hold the left mouse button and remove the material from the surface location by moving the mouse.

(*"DESIGN"* phase, *"Edit Restoration"* step).

8.2.3.1 Properties

Modifying the size

You can use the *"Size"* slider to modify the size of the area affected. The area affected is shown as an orange-colored area on the current restoration in the 3D preview.
The size of the area affected can be modified for each shaping tool.

1. Click the *"Size"* slider and press and hold the mouse button.
2. Now drag the slider to the right or left to enlarge or reduce the area affected.
   ⮡ The orange-colored area (area affected) will be expanded or reduced in the 3D preview.

Tip: You can also change the size of the area affected by dragging the mouse up or down with the right mouse button held down on the restoration.

Adjusting thicknesses

You can use the *"Strength"* slider to modify the intensity of the area affected. The thicknesses of the affected area can be modified for each forming tool.

1. Click the *"Strength"* slider and press and hold the mouse button.
2. Now drag the slider to the right or left to increase or reduce the intensity.
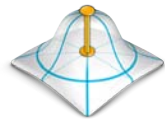
Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Clip Neighbors"* function. This option is only available as long as the jaw is shown.

Apply Symmetric

This function allows you to use the tool simultaneously on the associated symmetrical tooth (restoration). The check box can only be selected if a restoration has been created in the ADMINISTRATION phase.

8.2.4 Cut out model areas

(*"MODEL"* phase, *"Edit Model"* step)

With the *"Cut"* function, you can cut out model areas. The cut-out model areas are then discarded once you exit the *"Edit Model"* step. You cannot display discarded areas later on.

Removing the model area

The *"Discard Part"* function enables model areas to be removed.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

1. Click the *"Cut"* button.
2. Begin the cut line with a double-click.
3. Click to set additional points.
4. Finish the cut by double clicking.
   ↳ The model area is cut off.

Inverting the model area

With the *"Invert Selected"* function, the model area that is cut out can be inverted.

✓ The *"Cut"* tool is selected.

✓ You have created a cut.

➢ Click the *"Invert Selected"* button.
   ↳ The model area which was cut out is displayed.
      The rest of the model area is hidden.

Tip: You can invert the model area that is cut out by double-clicking on the semitransparent cut-out area.

8.2.5 Correcting defects

With the *"Replace"* function, you can correct defects and artifacts on the model (e.g. holes or elevations).

To do so, drag a line around the defect in your model and select the appropriate function.

1. Click the *"Replace"* button.
2. Set the starting point with a double-click.
3. Click to set further points in order to enclose the defect tightly. The line must be located completely on the model.
4. Set the line end by double-clicking.
5. Click on the *"Apply"* button.
   Tip: The tool can also be triggered by pressing the Enter key.
   ⮩ The software smoothens everything within the line by interpolation.

8.2.6 Resetting the model (MODEL phase)

With the *"Reset Model"* function, all changes will be reset.

1. Click the *"Tools"* button.

2. Click on the *"Reset Model"* button.
3. Confirm with *"Apply"*.

8.2.7 Trimming

(*"MODEL"* phase, *"Trim"* step)

With the *"Trim"* function, you can isolate the preparation. You can thus e.g. draw in the preparation margin more easily. Trimmed image regions can be optionally displayed and hidden later on.

Hiding image regions

The *"Discard Part"* function enables you to hide image regions.

The trim line can also be placed over the preparation line. Only the region underneath the preparation will then be hidden automatically. The prepared region remains fully intact.

1. Click on the *"Trim"* button.
2. Click on the *"Discard Part"* button.
3. Start by double-clicking in the vicinity of the model or on the model.
4. Click to set additional points. Draw the line close to the preparation around which you want to trim.
5. Finish the line by double clicking.
   - ✍ The smaller region of the model is hidden.

Inverting an image region

With the *"Invert Selected"* function, an image region which was hidden can be restored.

- ✓ An image region has been hidden using the *"Trim"* tool.
- ➢ Click on the *"Invert Selected"* button.
  - ✍ The hidden image region will be shown.
    The image region shown will be hidden.

Tip: You can invert the hidden image area by double-clicking on the semitransparent hidden region.

8.2.8 Drawing the preparation margin

More information on using this tool can be found in the section "Entering the preparation margin".

Automatic edge detection

With *"Margin"* / *"Auto"*, you can work with automatic edge detection.

1. Click on the *"Margin"* button.
2. Click on the *"Auto"* button.
   - ✍ Automatic edge detection is switched on.

Manual drawing

With *"Manual"* you can draw in the preparation margin manually. With this technique, you must place the individual points close together in order to clearly define the contour of the preparation margin even in difficult situations.

- ✓ The *"Margin"* tool is open.
- ➢ Click on the *"Manual"* button.
  - ✍ The manual technique is switched on.

Manual drawing with intensity image

With *"Manual with intensity image"* you can manually draw in the preparation margin on the intensity image.

✓ The *"Margin"* tool is open.
➣ Click on the *"Manual with intensity image"* button.
   ↳ The manual technique with intensity image is switched on.

Tip: As long as the *"Margin"* tool is activated, you can switch back and forth between the drawing options by pressing the space bar.

8.2.9 Enter baseline on gingiva

In the *"Edit Base Line"* step, you can select whether or not the gingiva is to be used for calculating the emergence profile.

The baseline for the pontic can also be entered on the gingiva. To do so, the corresponding option must be activated in the tool.

8.2.10 Positioning and rotating

With the *"Move"* function, you can displace, rotate, and scale the restoration.

Displacing and rotating

With the *"Position and Rotate"* tool, you can displace and rotate the restoration.

Displacing and rotating the restoration
➣ Left-click on an arrow symbol and hold the button down.
   ↳ You can displace or rotate the restoration in the corresponding direction.

Changing axes
➣ Right-click on an arrow symbol and hold the button down.
   ↳ You can change the axis on which the object is rotated or moved.
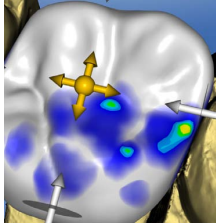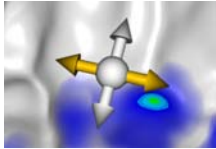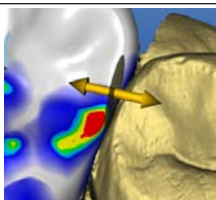
Scaling
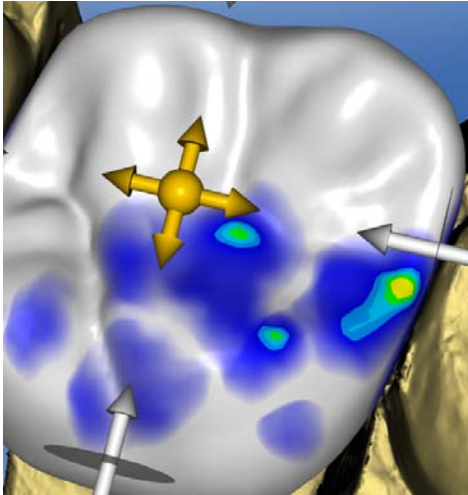
With the *"Scale"* function, you can change the size of the restoration. The area affected is shown as an orange-colored area.

1. Click on the *"Move"* button.
2. Click on the *"Scale"* button.
3. Use the mouse cursor to click with the arrow on the selected scaling direction.
   - ↳ The arrow is shown in orange.
4. Hold the left mouse button down and drag the mouse to enlarge or reduce the restoration.
   - ↳ The orange-colored area will be expanded or reduced.

Layout	Effect
	Click on the ball in the center to enlarge or reduce the entire restoration.
	Drag the mouse and click on the arrow to enlarge or reduce the restoration in the mesio-distal direction.
	Drag the mouse and click on the arrow to enlarge or reduce the restoration in the bucco-lingual direction.
	Drag the mouse and click on the arrow to enlarge or reduce the restoration in the direction shown. The restoration is enlarged or reduced to half-page size.

8.2.11 Recalculating restorations

The initial suggestion can be recalculated using the *"Recalculate"* tool.

8.2.12 Designing

(*"DESIGN"* phase, *"Edit Restoration"* step).

Anatomical

The *"Anatomic"* function is used to preselect regions of morphology, e.g. cusps or fissure lines, for designing.

Circular

The *"Circular"* is used to preselect a circular region for designing.

The *"Shape"* function enables you to shape a selected region.

You can shape the restoration in 2 ways:

Function	Description
2-Direction	The movement is possible along one axis orthogonal to the restoration surface.
4-Direction	The movement is possible along two axes parallel to the restoration surface.

8.2.12.1 Properties

Changing size
This option is available only for the circular variant.

You can use the *"Size"* slider to modify the size of the area affected. The area affected is shown as an orange-colored area on the current restoration in the 3D preview.

1. Click the *"Size"* slider and press and hold the mouse button.
2. Now drag the slider to the right or left to enlarge or reduce the area affected.
   ⮑ The orange-colored area (area affected) will be expanded or reduced in the 3D preview.

Tip: You can also change the size of the area affected by dragging the mouse up or down with the right mouse button held down on the restoration.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Clip Neighbors"* function. This option is only available as long as the jaw is shown.

8.2.13 Biogeneric variation

(*"DESIGN"* phase, *"Edit Restoration"* step).

With the *"Biogeneric Variation"* function, you can generate different variants of the possible morphology.

1. Click the *"Biogeneric Variation"* slider and press and hold the mouse button.
2. Drag the slider to the left or right.
   ⮑ The new morphology is shown as a 3D preview.
3. If you are satisfied with the morphology, release the mouse button.
   ⮑ The new morphology is applied to the current restoration.

8.2.14 Reduce

(*"DESIGN"* phase, *"Edit Restoration"* step).

With the *"Reduce"* function, you can anatomically reduce the restoration: You also can perform partial reductions.

8.2.14.1 Full reduction

1. Click on the *"Reduce"* button.
2. Set the reduction level using the slider. The value will be memorized for other reductions.
3. Click on *"Apply"* to execute the reduction.
   ↳ The restoration is reduced by the set value.

Tip: You can reduce several teeth at the same time by grouping them first with the following key combinations:

- *"Ctrl"* + left mouse button
- Shift key + left mouse button

Tip: You can edit the reduction line before the reduction and create festoons and back rest plates quickly and easily.
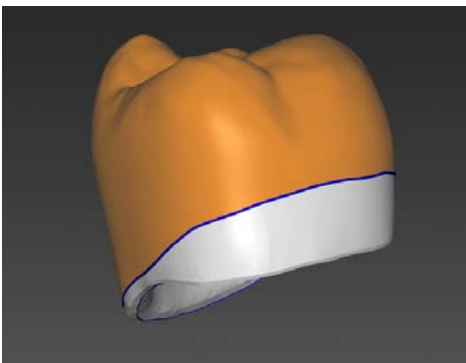
8.2.14.2 Partial reduction

1. Click on the *"Reduce"* button.
2. Double-click on the restoration and draw a closed line.
3. Set the reduction level using the slider.
4. Click on *"Apply"* to execute the reduction.
   ↳ The restoration is reduced by the set value.

Tip: You can use the space bar or *"Toggle area"* to switch the area to be reduced. It is displayed as an orange colored area.

8.2.14.3 Properties

Taking into account the minimum thickness during reductions

The *"Reduce"* tool enables you to choose whether the minimum thickness should be taken into account during reductions.

- If the corresponding option is selected in the tool, the minimum thickness is observed during reduction.
- If the corresponding option is not selected in the tool, the minimum thickness may not be reached during reduction.

Attaching the base of the pontic

If the *"Stick Pontic Base to Gingiva"* function is active, the base of the pontic is not reduced for a full reduction.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Clip Neighbors"* function. This option is only available as long as the jaw is shown.

8.2.15 Adjusting contacts

(*"DESIGN"* phase, different steps, *"Analyzing Tools"*)

If you modify the restoration, the contact surfaces also will be displaced. The *"Adjust Contacts"* tool is used to reset the contacts to the thickness set in the parameters.

1. Click on the *"Adjust Contacts"* button.
2. Click the *"Mesial"*, *"Distal"*, *"Occlusal"*, or *"FGP"* button.
   ⮡ The respective contact surface is then reset.

Hiding the neighboring restoration

You can hide the neighboring restoration with the *"Clip Neighbors"* function. This option is only available as long as the jaw is shown.

8.2.16 Adjusting sprue location

(*"MANUFACTURE"* phase)

The *"Sprue"* function enables you to rotate the position of the sprue location on the restoration in 2 ways:

● Step-by-step, by clicking on the arrow in the circle segment.
● Continuously, by clicking and holding the left mouse button inside the circle segment and moving the mouse.

8.2.17 Moving the block

(*"MANUFACTURE"* phase)

Move

The *"Position Block"* function enables you to displace the block surrounding the restoration in all spatial directions until the restoration strikes one of the block margins.

You can move the block in 3 ways:

● Step-by-step, by clicking on one of the arrows showing the movement axes on the semitransparent cube.
● Continuously in 2 directions, by clicking on one side of one of the cube surfaces, holding the button down and moving the mouse.
● Continuously in all 4 directions, by clicking in the center of a cube surface, holding the button down and moving the mouse.

Rotating

With the *"Position Block"* function, you can also rotate the restoration around the axis of the block.

You can rotate the restoration in the block in 2 ways:
- Step-by-step, by clicking on the arrow in the circle segment.
- Continuously, by left-clicking on or inside of the circle segment and moving the mouse.

8.2.18 Incisal variation

(*"DESIGN"* phase, *"Edit Restoration"* step).

Using the *"Incisal Variation"* function, you can generate mamelons (vertical structures) and growth lines (horizontal structures) on your anterior restorations.

Strength

Using the *"Strength"* slider you can set the intensity at which the selected structure acts on a restoration.

Variation

Using the *"Variation"* slider you can select the desired structure type.
- Items 1 to 4 stand for mamelons (vertical structures).
- Items 5 to 6 stand for growth lines (horizontal structures).

Positioning structures

If you have set the structure type and the desired intensity, you can now adjust the position of the structure.

1. To do this click on your current anterior restoration in the 3D preview and then hold down the left mouse button.
   - ✋ The tools effect area is colored in orange.
2. Now move the mouse to position the structure as you want it.

Applying structures

1. If you are satisfied with the structure created, click on the *"Apply"* button. The created structure is now saved.

IMPORTANT
Nature and source of the danger
In order to combine multiple structures together, first complete a structure and then save this with the *"Apply"* button.

2. Now create additional structures and save every other structure here once they are completed.

8.2.19 Using a gingival mask

In the *"Edit Base Line"* step, you can select whether the corresponding area of the jaw scan should be acquired for calculating the emergence profile. *"Use Gingiva Mask"* must be activated in this case (default setting). *"Use Gingiva Mask"* must be deactivated in order to have an emergence profile suggested independent of the scan.

The baseline for the pontic can also be entered on the gingiva. To do so, the corresponding option must be activated in the tool.

8.2.20 Splitting

(*"DESIGN"* phase, *"Edit Restoration"* step).

Using the *"Split"* function you can split a full-format *"Multilayer Abutment"* into a frame and veneer structure.

Using the *"Unsplit"* function you can join the frame and a veneer structure of a multi-layer abutment back together.

1. Select the desired option *"Split"* or *"Unsplit"* through the associated button.
2. Then click on the *"Apply"* button.
   - ⮑ The multi-layer abutment is split or joined together again.

8.2.21 Scaling

You can use this tool for frameworks and telescopes.

In the tool menu, you can select whether the tool is to be effective in the radial or the occlusal direction. You can toggle between these directions with the space bar or with the mouse.

1. Place the mouse pointer on an active restoration.
   - ⮑ Various design elements are then offered, depending on the restoration type.
   - ⮑ An arrow shows the direction in which the scaling will occur. The area affected is shown highlighted in orange.
2. Press and hold down the left mouse button.
3. Move the mouse to change the object.

Radial/occlusal

You can edit the edge of the crown caps and bridge frameworks for the restoration type *"Framework"* in radial or occlusal direction.

1. Click the *"Scale"* button.
2. Click on the *"Radial"* or *"Occlusal"* button.
3. Place the mouse pointer on an active restoration.
   - ⮑ The area affected is shown highlighted in orange.
4. Press and hold down the left mouse button.
5. Move the mouse to change the object.

8.2.21.1 Properties

Modifying the size

If a check mark is placed in front of *"Complete"* the area affected is maximized and applies to the entire design element. If no check mark is placed, you can determine the area affected individually.

You can use the *"Size"* button to modify the size of the area affected. The area affected is shown as an orange colored area. The size of the area affected can be modified for each shaping tool.

1. Click the *"Scale"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Drag the mouse cursor up or down.
   - ↳ The orange-colored area will be expanded or reduced. The size is displayed on the restoration.

Tip: You can also change the size by clicking on the restoration with the right mouse button and, while holding the right mouse button down, dragging the mouse up or down.

8.2.22 **Creating a cavity design**

If you click on this tool, the female part of the attachment in the restoration element to be mounted is calculated. The male part of the attachment must be finished for this purpose.

8.2.23 **Tool wheel**

In the ADMINISTRATION, MODEL, DESIGN or MANUFACTURE phases, the tool wheel provides the most common tools for simplifying access. The tools available vary depending on the current step.

1. Right-click in the workspace.
   - ↳ The tool wheel opens.
2. Click with the right mouse button anywhere in the workspace.
   - ↳ The tool wheel moves to the position of the mouse pointer.
3. Select a tool.
   - ↳ The selected tool is available. The tool wheel closes automatically.

You also can close the tool by clicking in the workspace with the left mouse button.

8.2.24 Adjusting connectors

(*"DESIGN"* phase, *"Edit Restoration"* step).

Various tools are available for designing the connectors. These are only applicable with the *"Anatomic"* connector type.

Scaling

With the *"Scale"* function, you can adjust the connectors.

1. Click on the *"Scale"* button.
2. Place the mouse pointer on an active connector.
   - ↳ The area affected is shown highlighted in orange.
3. Press and hold down the left mouse button.
4. Move the mouse to change the object.

If you have selected the *"Scale Whole"* option, you can adjust the entire connector.

Positioning

With the *"Move"* function, the connector can be displaced.

1. Click on the *"Move"* button.
2. Place the mouse pointer on an active connector.
   - ↳ The area affected is shown highlighted in orange.
3. Press and hold down the left mouse button.
4. Move the mouse to change the object.

If you have selected the *"Position All"* option, you can displace the entire connector. The neighboring elements are displayed transparently.

The adhesion sites are recalculated after displacement.

Editing lines

You can change the lines of a connector with *"Drag Line"*. The neighboring elements are displayed transparently.

1. Click on the *"Connector Edit Lines"* button.
   - ↳ *"Drag Line"* is activated automatically.
2. Move the mouse over the blue connector line displayed.
   - ↳ A sub-area is shaded yellow.
3. Drag the lines as required. The section of the line presented in yellow is moved in all cases.

You can redraw the lines of a connector with *"Edit Line"*.

1. Click on the *"Connector Edit Lines"* button.
2. Click on the *"Edit Line"* button.
3. Redraw the line at the required points by starting on the line with a double-click.
4. Click to fix the line at the corresponding point.
5. Continue the lines this way until you complete the change by double-clicking a different point on the original line.

8.3 Display objects

You can use these functions to display and hide the region of the model and that of the restorations.

1. Click on the *"View Options"* button.
2. Click the respective button.
   - ⇧ The affected region is then displayed or hidden.

	With the *"Upper Jaw"* button, you can display and hide the **upper jaw**.
	With the *"Lower Jaw"* button, you can display and hide the **lower jaw**.
	You can adjust the **transparency of the upper/lower jaw** seamlessly. 1. Click the slider of the "Upper/lower jaw" and press and hold the mouse button. 2. Now drag the slider to the right or left to increase or reduce the transparency.
	With the *"Minimal Thickness"* button, you can show and hide the **display of minimum thicknesses**. You can set the minimum thickness under *"Parameters"*. For more information, refer to the section on Parameters.
	The *"Restoration"* button enables you to display and hide the **restoration**.
	You can adjust the **transparency of the restoration** seamlessly. 1. Click the *"Restoration"* slider and press and hold the mouse button. 2. Now drag the slider to the right or left to increase or reduce the transparency.

	With the *"Trimmed Model"* button, you can display and hide the **trimmed region**.
	With the *"BioCopy Upper"* button, you can display and hide the **Bio-Copy upper jaw** region (only if the corresponding image catalog contains images).
	With the *"BioCopy Lower"* button, you can display and hide the **Bio-Copy lower jaw** region (only if the corresponding image catalog contains images).
	With the *"Gingiva Mask Upper Jaw"* button, you can display and hide the **Gingival mask upper jaw** region (only if the corresponding image catalog contains images).
	With the *"Gingiva Mask Lower Jaw"* button, you can display and hide the **Gingival mask lower jaw** region (only if the corresponding image catalog contains images).
	With the Implant button, you can display and hide **implants** (abutment only).
	With the TiBase button, you can display and hide the **TiBase** (abutment only).

8.4 Activating analysis

Activating Analyzing Tools

➢ Click the *"Analyzing Tools"* button to activate the analysis tools.

Contact surfaces on the virtual model

Using the *"Model Contacts"* button, the contact surfaces on the virtual model can be displayed or hidden.

➢ Click on the *"Model Contacts"* button.
  ↳ The contact areas on the model are displayed or hidden.

Penetration/pressure:		
	🟥	> 100 µm
	🟨	100 - 50 µm
	🟩	50 - 0 µm

Distance:		
	🟦	0 - 50 µm
	🟦	50 - 100 µm
	🟦	> 100 µm

Contact surfaces on the restoration

You can use the color palette button to check the occlusal contact points of the jaws.

The same color scheme is used as when displaying the contacts to the neighboring teeth or to the opposing jaw.

Penetration/pressure:		
	🟥	> 100 µm
	🟨	100 - 50 µm
	🟩	50 - 0 µm

Distance:		
	🟦	0 - 50 µm
	🟦	50 - 100 µm
	🟦	> 100 µm

Contacts

Through the *"Contacts"* button, the contact points of the restoration(s) of the shown jaw which are displayed in color can be switched on or off.

➢ Click on the *"Contacts"* button.
  ↳ The restoration is displayed with or without occlusal contacts.

Model Contacts

Through the *"Model Contacts"* button, the contact points of the entire model which are displayed in color can be switched on or off.

This function is only available when the upper and lower jaw have been scanned.

➢ Click on the *"Model Contacts"* button.
  ↳ The restoration is displayed with or without proximal contacts.

Restoration Color

Using the *"Restoration Color"* button, the restoration can be displayed in the model color.

1. Click on the *"Restoration Color"* button.
   - ✇ The virtual model is shown in white or the model color.
2. Click on the *"Restoration Color"* slider and hold the mouse button down.
3. Drag the slider to the right or left to show or hide the restoration color.
   - ✇ The restoration color of the respective object (or object group) is changed.

Slice (MANUFACTURE phase)

Using the *"Slice"* button, a cut can be created through the restorations and model in the screen plane.

1. Click on the *"Slice"* button.
   - ✇ A cut is created in the screen plane through the virtual model and all restorations.

2. Click on one of the drag points in the 3D preview and hold down the mouse button. By moving the mouse at the same time, you can move the height of the cutting plane or rotate the cutting plane.

Cursor Details (MANUFACTURE phase)

Via the *"Cursor Details"* button, you can have the height and thickness of the restoration displayed. The cursor details are displayed at the bottom left of the screen.

➢ Click on the *"Cursor Details"* button.
   ↳ The height and thickness of the restoration are displayed on the mouse cursor and updated in real time.

Depending on the type of restoration, the following information is displayed:

Height	Distance from this point to the bottom of the model
Fissure height	Minimum thickness in fissure
Material thick-ness	Thickness of the restoration at this point
Connector cross-section	Cross-section area
Width	Overall width of the restoration
Length	Overall length of the restoration
Height	Overall height of the restoration

Distance

You can use the *"Distance"* button to measure distances.

1. Click on the *"Distance"* button.
2. Click on the restoration to define the starting point and the end point.
   ↳ The distance is then displayed.

Grid Mode

With the *"Grid Mode"* function, you can display a grid comprised of vertical and horizontal lines. It serves as an orientation guide.

➢ Click on the *"Grid Mode"* button.
   ↳ The grid is displayed in the 3D preview.

Guidelines

(*"DESIGN"* phase, *"Edit Restoration"* step, Smile Design active)

The *"Guideline Mode"* function enables you to display and hide the Smile Design auxiliary planes.

➢ Click on the *"Guideline Mode"* button.
   ↳ The guiding lines are displayed in the 3D preview.

8.5 Case details

In the *"Case Details"* page palette, you can open all the information on a case during the construction (see also the section "ADMINISTRATION phase [→ 85]").

9 ADMINISTRATION phase

9.1 Restoration

Selecting a restoration type

1. Create a new case (see "Add a new case [→ 59]").
2. Select the restoration type in the page palette:
- *"Single Restoration"*,
- *"Bridge Restoration"*,
- *"Abutment"*,
- *"Guide"*

Single tooth restoration

✓ You have selected the restoration type *"Single Restoration"*.

1. Select the restoration type.
   ↳ The types of restoration available match the selected tooth number.
2. Select the design mode.
   Tip: For information on the design technique, see the section "Restoration types and design mode".
3. First select *"Manufacturer"* and then *"Material"* in order to determine the desired material for the restoration.
   - For some of the materials the two production types of grinding or milling are possible.
   - You must select 2 materials with the *"MultiLayer"* restoration type.
   - With the *"Abutment"* restoration type you must select the scanbody type and an implant type.
   - If there are multiple devices connected you can determine the corresponding device under *"Mill Device"*.
4. Click on the tooth for which the restoration must be set up with the information set.
   ↳ The selected tooth is marked.
5. If necessary, create further restorations.
   Tip: If you have selected *"Auto-Detect"* then the restoration type is identified in the further stages based on the scanned jaw and the existing tooth properties.

Bridge restoration

✓ You have selected the restoration type *"Bridge Restoration"*.

1. Determine the restoration type and the connector type as described in the "Single tooth restoration [→ 85]" section.
2. Select the positions of the abutment teeth of the bridge.
   ↳ The selected teeth are marked.
3. Determine the restoration type and the design mode for the intermediate teeth.
   ↳ The selected teeth are marked.
4. In the step menu click on the *"Select Milling Device"* step and select the desired production machine.
5. Optional: In the step menu, click on the *"Select Material"* step, in order to select the desired material for the restoration.
6. Click on *"Ok"* to confirm the settings.
   Tip: If you click on *"Cancel"*, the restoration will not be created and the program will return to the odontogram.
7. If necessary, create further restorations.

Editing the restoration

You can edit previously created restorations.

1. Click on the restoration in the object bar
   or
   Select the relevant restoration in the *"Case Details"* page palette.
2. Click on the pen symbol to access editing mode.
3. Amend the desired data.
4. Confirm the changes with the check mark or discard them with the cross.

Selecting the implant connection and scanbody type (only for implant-supported crowns)

1. Select single restoration or bridge restoration.
2. Select the tooth number from the odontogram.
3. Click in the *"Implant Connection"* step.
4. If you have selected single tooth restoration, you can choose between Ti-Base or implant level at *"Implant ConnectionType"*.
5. Then select the implant and, if necessary, the manufacturer.
6. Click on the *"Select Scanbody Type"* step.
   ↳ The scanbody type to be used is displayed depending on the implant connection.
7. In the step menu click on the *"Select Milling Device"* step and select the desired production machine.
8. In the step menu, click on the *"Select Material"* step, in order to select the desired material for the restoration.

IMPORTANT
Multilayer restorations can only be created in connection with Ti-Bases.

Closing the ADMINISTRATION phase

✓ All restorations to be attached are defined.

✓ The ACQUISITION phase can be selected.

1. Click on the ACQUISITION phase.

or

➢ Click on the double arrow.

    ↳ The program switches over to the ACQUISITION phase.

Case details

After creating a case, all information is displayed in the page palette.

The following information can be read there during the entire construction of the case.

● Indication

● Design mode

● Material

● Production machine

● For bridges: The indication for each element
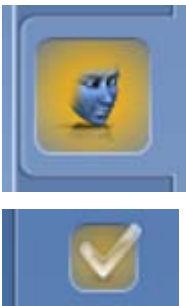
9.2 Smile Design

With Smile Design, anterior restorations can be designed with consideration of the mouth or face of the patient.

During the construction, it is possible to change between the jaw model and the view with the patient using the analysis tool.

Activating Smile Design

In the *"ADMINISTRATION"* phase under *"Indications"* you can activate the *"Smile Design"* function.

1. Click on *"Smile Design"* on the bottom left.

2. Place a check mark at the top in *"Smile Design"*.

    ↳ The function is listed in the *"Case Details"*.

3. You can deactivate the *"Smile Design"* function again in the selected state by removing the check mark.

Changing to Smile Design

✓ You have set the model axis in the *"Set Model Axis"* step in the MODEL phase.

➢ Click on the *"Initialize Smile Design"* function on the right edge of the screen.

Exiting Smile Design

✓ You are in *"Smile Design"*.

➢ In the step menu, click on *"Exit Smile Design"* in order to exit *"Smile Design"*.

9.2.1 Loading reference image

You must load an image of the patient's face for Smile Design. The image must be a head-on passport photograph of the patient smiling.

Approved formats	Resolution
• jpeg / jpg • bmp • png	Min. 2 megapixels

1. Click on the step *"Load Reference Picture"*.
   ↳ The *"Select Image"* dialog box opens.
2. Select the folder where the file is located.
3. Select the relevant file.
4. Click on the *"Open"* button.
   ↳ The software changes to the *"Define Feature Points"* step.
   ↳ The image is then imported and opened.

9.2.2 Setting reference points

You must set the reference points in the patient image in the *"Define Feature Points"* step. Then simply proceed as prompted by the software. The yellow point in the avatar image shows you where the next face point must be set.

If a magnifier is displayed automatically, you must set the point as precisely as possible.

You can undo each step using *"Undo"*.

9.2.3 Adjusting the canthi distance

Use a suitable measurement tool to measure the clearance between the two canthi points. Change to step *"Lateral Canthi Distance"*.

Adjust the value using the slider.

IMPORTANT
You have to perform this step to achieve a precise correlation between a 3D facial model and the jaw.

9.2.4 Aligning jaws

Align the model to the image.

Positioning the model

➢ Left-click on an arrow symbol and hold the button down.
   ↳ You can displace or rotate the model in the corresponding direction.

Use the *"Left"* or *"Right"* perspective or turn the facial model to the side using the *"Global"* view options. This enables you to align the facial model and the jaw model precisely.

Changing axes

➢ Right-click on an arrow symbol and hold the button down.
   ↳ You can change the axis on which the object is rotated or moved.
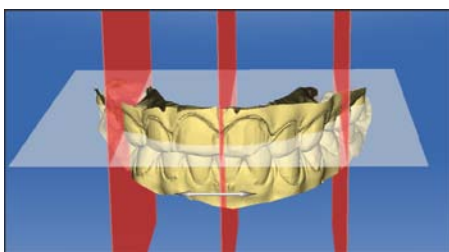
9.2.5 Auxiliary planes
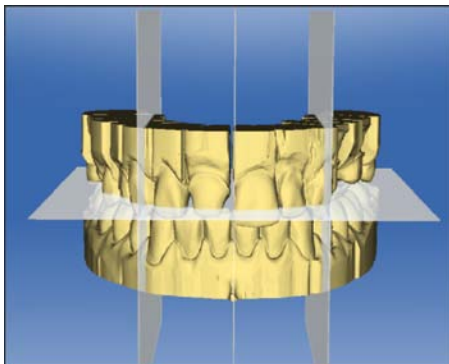
You can display the auxiliary planes in the *"Guideline"* step. The auxiliary planes help with positioning the jaw in the image of the patient.

You can also display the planes for the construction.
1. Double click on the plane you would like to adjust.
2. Adjust the plane using the arrow points.

Positioning the plane


➢ Click with the left mouse button on the arrow symbol and hold the button down.
   ↳ You can move the planes in the relevant direction.

If you only want to move one plane, remove the checkmark at *"Group Guidelines"*. You can activate the planes by double clicking on them.

9.3 Articulation

In order to display the *"Articulation"* function, you must have activated the articulator in the *"Configuration"* under the *"Options"*. This is then additionally shown in the ADMINISTRATION phase in the *"Case Options"* page palette.

Here you can activate the usage of the articulator for the currently opened case.
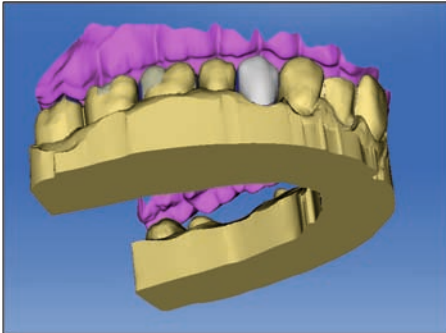
The *"Articulation"* function enables you to configure a restoration taking the dynamics into consideration.
Once the initial suggestion has been calculated, the dynamic contact points are displayed in color.

For the most accurate result possible, it is important that the acquisition of the jaw meets the following conditions:

● The canine guidance must be able to be carried out on both sides.
● The virtual model is accurately aligned on the guide lines when setting the model axis.

The virtual articulator uses Camper's plane as a reference plane for the articulation parameters. The Camper's plane is usually parallel to the occlusal plane.

Once the model axis has been set, you can activate the virtual articulator at any time by using the button in the page palette.

IMPORTANT
Use the lower jaw to set the model axis.

Articulation Parameters

The values for articulation only apply for the current restoration. You can adjust the settings in the *"MODEL"* and *"DESIGN"* phases.

1. Click on the *"Articulation"* button.
2. Click on the *"Articulation Parameters"* button.
   ⮡ The articulation parameters are displayed.

You can set the following values individually:

Parameter	Setting	Mean value
"Arms"	Side of the Bonwill triangle	105 mm
"Base"	Intercondylar distance	100 mm
"Balkwill Angle"	Balkwill angle	23°
"Sagittal Angle Left" and *"Sagittal Angle Right"*	Sagittal condylar path inclination	35°
"Bennett Angle Left" and *"Bennett Angle Right"*	Bennett angle	15°

Parameter	Setting	Mean value
"Immediate side shift left" and *"Immediate side shift right"*	Initial Bennett movement	0 µm
"Include Restorations"	If activated, available restorations are taken into consideration for the calculation of the FGPs as if they were already inserted. This means reconstructed cuspid guidance can be considered for the other restorations in the case, for example.	YES

Incisal Pin

An opening of the jaw can be produced using the *"Incisal Pin"* function. The *"Incisal Pin"* function is only available in the *"MODEL"* phase from step *"Draw Margin"* onward.

1. Click on the *"Articulation"* button.
2. Click on *"Incisal Pin"*. Hold the left mouse button down and drag the mouse until the desired value of the jaw opening is reached.

Functionally generated path (FGP)

You can show a virtual FGP for the opposing jaw or the jaw using the *"Lower Virtual FGP"* and *"Upper Virtual FGP"* functions. The cover shows the maximum movement of the respective jaw for the selected articulation parameters.

The interrupting contacts are displayed by the FGP. The interrupting contacts can correspondingly be removed using the tools.

Lower virtual FGP

1. Click on the *"Articulation"* button.
2. Click on the *"Lower Virtual FGP"* button.
   ↳ The virtual FGP is displayed.

Upper virtual FGP

1. Click on the *"Articulation"* button.
2. Click on the *"Upper Virtual FGP"* button.
   ↳ The virtual FGP is displayed.

Occlusal Compass

The occlusal compass can be calculated using the virtual FGP. The software uses the Schulz occlusal compass.

The *"Occlusal Compass"* button enables you to display and hide the dynamic contact points.

1. Click on the *"Articulation"* button.
2. Click on the *"Occlusal Compass"* button.
    ⮫   The dynamic contact points are displayed.

Color	Dynamic contact point
Blue	Laterotrusion
Green	Mediotrusion
Black	Protrusion
Red	Centric
Yellow	Latero-protrusion

Each direction of movement can be shown/hidden.

Manual Move

The lower jaw can be moved manually in accordance with the calculated masticatory movement using the *"Manual Move"* button,

1. Click on the *"Articulation"* button.
2. Click on the *"Manual Move"* button.
3. Move the lower jaw so by clicking on the orange ball in the diamond on the left.

10 ACQUISITION phase

10.1 Image catalogs with CEREC Omnicam

In the *"ACQUISITION"* phase, three image catalogs are available as standard:

- Lower Jaw
- Upper Jaw
- Buccal

In addition, further image catalogs can be shown:

- BioCopy Lower (Lower jaw)
- BioCopy Upper (Upper jaw)
- Gingiva Mask Lower Jaw (Lower jaw)
- Gingiva Mask Upper Jaw (Upper jaw)
- Scanbody Lower Jaw (Lower jaw)
- Scanbody Upper Jaw (Upper jaw)

For each of these image catalogs, only one acquisition is saved in the corresponding image catalog.

Opening the image catalog

1. Click on the icon of the desired image catalog.
2. Move the mouse cursor to the bottom edge of the screen.
   - ⮑ The active image catalog is opened, the individual acquisitions are visible.

The necessary image catalog is initially selected provided the restoration(s) is (are) only in the upper or lower jaw.

Deleting acquisitions

If an acquisition is not suitable, you can delete it. You can then execute a new acquisition for the corresponding image catalog.

- ➢ Grab the image with your mouse and move it using drag & drop to the recycle bin.
- ⮑ The image is deleted.

10.2 Live image

Change window size

You can adjust the size of the live image proportionally.

1. Click the arrow at the right edge with the mouse and hold down the mouse button.
2. Drag the camera view to enlarge or reduce it.

10.3 3D Preview

In the default setting, the data are displayed from the occlusal direction in the 3D preview.

You can freely select the viewing direction of the virtual model in the 3D preview window by using the mouse.

Rotating a 3D preview

1. Click on the 3D preview with the left mouse button and hold it down.
2. Move the mouse.
   ⮡ The 3D preview is rotated.

Moving the 3D preview

1. Click on the 3D preview with the right mouse button and hold it down.
2. Move the mouse.
   ⮡ The 3D preview moves.

Zooming into/out of the 3D preview

1. Click on the 3D preview with the middle mouse button and hold it down.
2. Move the mouse up or down as desired.
   ⮡ The 3D preview is enlarged or reduced.

10.4 Take a scan

10.4.1 CEREC Omnicam

10.4.1.1 Camera warm-up time

When switching on the system, the camera needs to warm up for 15 - 20 minutes. If the coated sapphire glass of the Omnicam is not sufficiently warm, it may steam up during the acquisition. As such, it is not possible to carry out the exposure.

Following use, always position the Omnicam on the heater plate.

You can set the end temperature to which the camera heater warms the Omnicam mirror sleeve.

1. In the software, navigate to the system menu and click on the *"Configuration"* button.
2. Click on the *"Devices"* button.
3. Click on the *"Omnicam"* button.
4. Click on the *"Camera Heater Settings"* button.
5. Use the slider to adjust the temperature.

10.4.1.2 Mode

Step Video / Photo

In the *"Video"* / *"Photo"* step, you can make intraoral videos and individual intraoral images with the Omnicam.

Taking photos

1. Select the *"Photo"* tab.
2. Click on the button or use the foot switch to trigger the camera.

Recording videos

1. Select the *"Video"* tab.
2. Click on the button to start video recording or use the foot switch.
3. Repeat click on the button or actuate the foot switch once more to stop the recording.

Viewing photos and images

1. Select the button with the *"View"* folder symbol.
2. Click on the left or right arrows to see all exposures taken. Videos can be started by clicking on the play button.
   Tip: In the acquisition modes activate the right button with the folder symbol in order to switch directly from the acquisition mode to the media view.

10.4.1.3 Directing the camera

⚠ CAUTION
After each use
Prepare the camera once again after each patient.
➢ Follow the instructions in the CEREC Omnicam user instructions, in the "Care, cleaning, disinfection and sterilization" section, in order to avoid cross-contamination between patients.

⚠ CAUTION
After each use
Reprocess the camera after each patient.
➢ Follow the instructions in chapter „CEREC Omnicam" in order to avoid cross-contamination between patients.

The CEREC Omnicam acquires images which are used during the ongoing measurement in spatial relation to each other (image registration).

During the acquisition and then during the ongoing registration process, a distinctive sound can be heard.
If the registration cannot be implemented, the acquisition flow is suspended. You are informed of this by means of a sound. This is different to the sound emitted during successful acquisition. You can adjust the volume under configuration and select another type of sound (melody).

IMPORTANT
Registration error
Should a registration error occur, you must return to another acquired point. To start with, practice this procedure on the model and then on intraoral areas.
➢ Move the CEREC Omnicam to a position where a successful acquisition was taken. A point that has already been acquired in the occlusal area is best.
⇨ You will be able to hear the sound for registered acquisitions.
➢ Continue the acquisition.

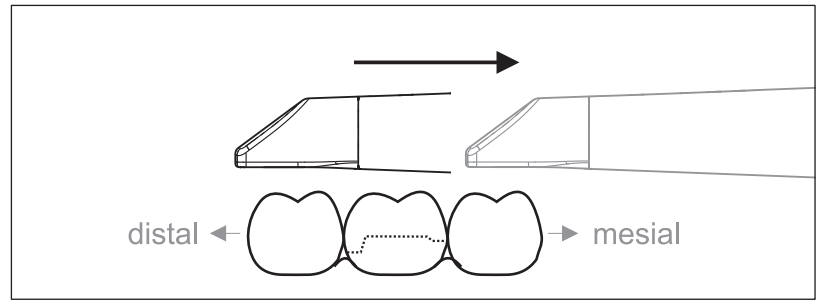| IMPORTANT |
|---|
| **No correct initial suggestion possible** |
| In the case of fewer than 2-3 teeth acquired next to the position to be restored, the CEREC cannot create a correct initial suggestion. |
| ➢ Always acquire at least 2-3 teeth adjacent to the position to be restored. |

Divide the acquisition into four consecutive sequences:

1. Occlusal
2. Buccal
3. Lingual
4. Proximal

10.4.1.3.1 Occlusal scan

Important: Ensure that the distance between the coated sapphire glass of the CEREC Omnicam and the scanned surface is observed.
The distance must be between 0-15 mm (ideally: 5 mm). The camera does not rest on the teeth or the gums. If the distance is too great, no data will be obtained.

1. Move the CEREC Omnicam to the starting position. For this purpose, the CEREC Omnicam is in the occlusal view of the tooth, which is next to the prepared tooth in the distal direction.
2. Scan in the mesial direction. To do so, slowly move the CEREC Omnicam in the occlusal direction from the distal-positioned tooth over the prepared tooth to the mesial-positioned tooth.

With full jaw acquisitions, the scan sequence is different for the transition to anteriors. Scanning begins with the lingual and labial areas, before moving on to the incisors.

10.4.1.3.2 Buccal scan
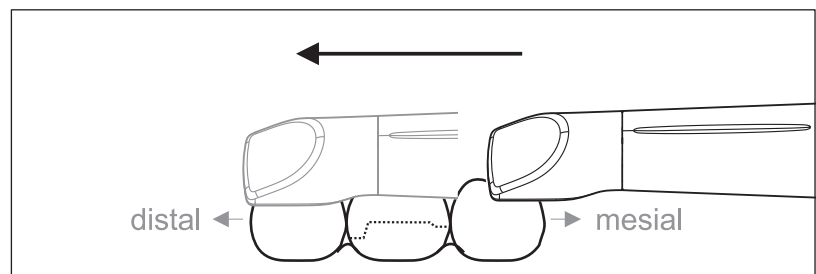
✓   The CEREC Omnicam is on the adjacent tooth, in the mesial direction to the preparation.

1. Rotate the CEREC Omnicam between 45° to maximum 90° toward the buccal.
2. Guide the CEREC Omnicam over the entire buccal distance in the distal direction over the prepared tooth.
    With full jaw acquisitions, limit the buccal scan to no more than a quadrant.

Ensure that the CEREC Omnicam is held like a flute during buccal scans. Do not tilt it vertically to the direction of motion.

Tip: Practice guiding the camera between 45° and 90°.

10.4.1.3.3 Lingual scan
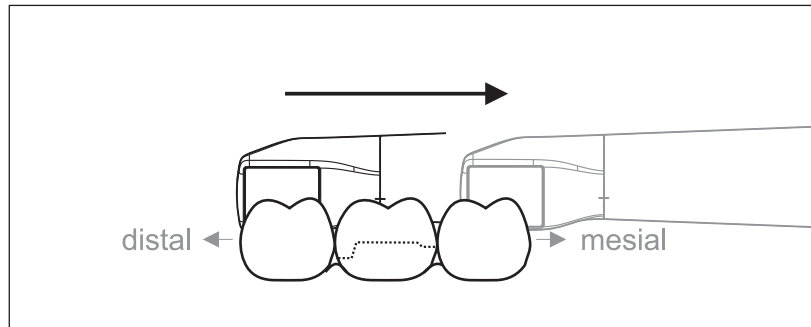
✓ The CEREC Omnicam is on the tooth that is positioned next to the preparation in the distal direction.

1. Rotate the CEREC Omnicam from 90° in the buccal direction to around 45° to maximum 90° in the lingual direction on the other side.

2. Guide the CEREC Omnicam over the entire lingual distance in the mesial direction over the prepared tooth.

10.4.1.3.4 Approximal surface scan
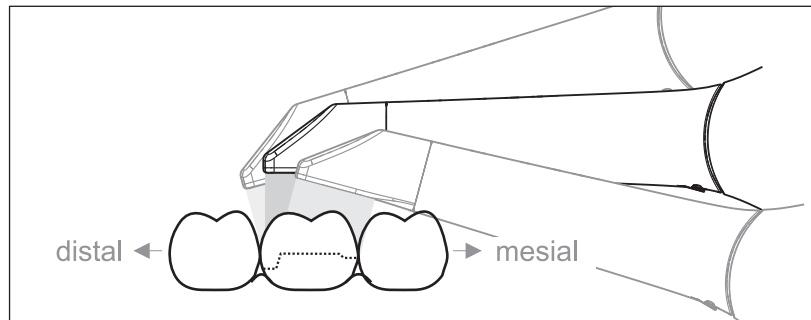
Scan the approximal surfaces of the prepared tooth.

➢ Move the CEREC Omnicam in the occlusal direction to the prepared tooth. Acquire the approximal surfaces in the distal and mesial direction by using a wave motion in the occlusal, buccal, and lingual direction over the prepared tooth.
To do so, tilt the surface by 15° in the distal and mesial direction to gain a better view of the approximal contacts.

Notes:

● Remove the soft tissue.

● Cut away the moveable gingivae, so that only 2-5 mm gingivae remains around the tooth.

● When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

● This cut must be completed during the ACQUISITION phase using the cutter.

10.4.1.3.5 Buccal registration

A buccal registration can be used to establish contact with the antagonist.

✓ The jaw with the preparation is scanned.

1. Scan the occlusal, buccal and lingual view of the antagonist (see the section "Occlusal scan [→ 97]", "Buccal scan [→ 97]" and "Lingual scan [→ 98]").

2. Perform a buccal scan of the bite block prior to completing the registration. This buccal scan should be carried out close-up to the preparation. To acquire sufficient geometry, capture the teeth of the upper and lower jaw as well as 5 mm of the respective gingival areas.

10.4.1.3.6 Scanning the quadrant and jaw

The following scan regulation applies for the acquisition of a complete quadrant or jaw arch.
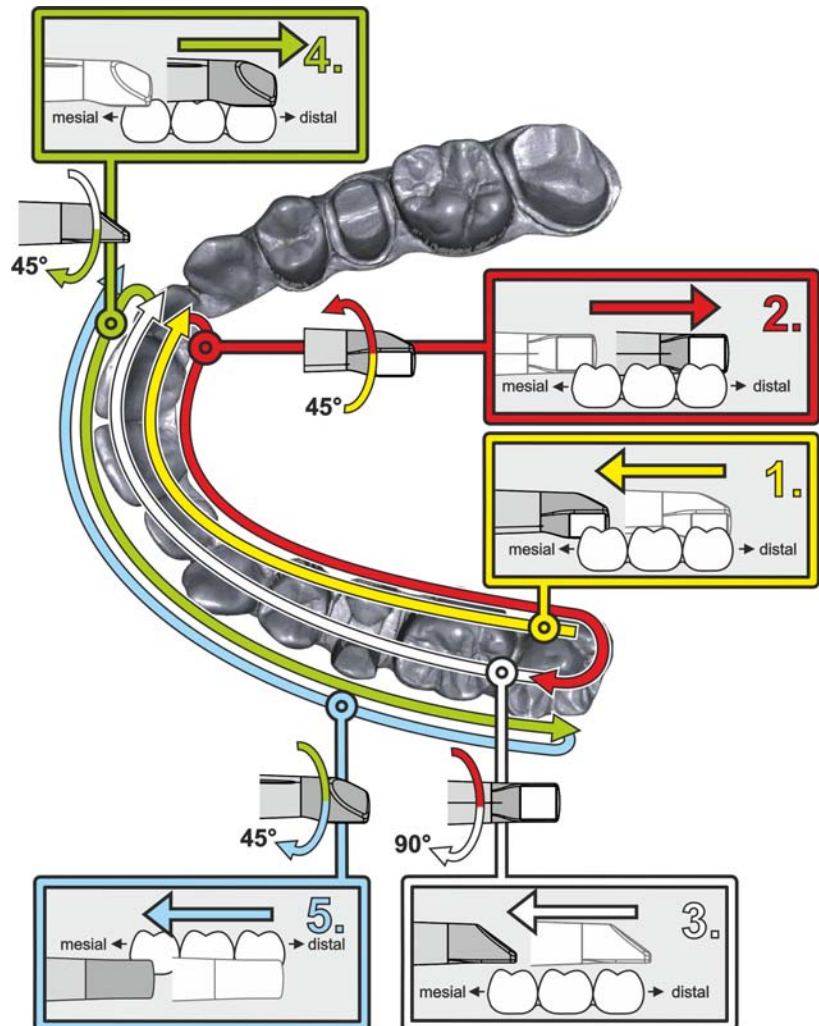
The first (fourth) quadrant is scanned up to the opposite second front tooth by moving the camera in parallel along the jaw arch.

Start the scanning process
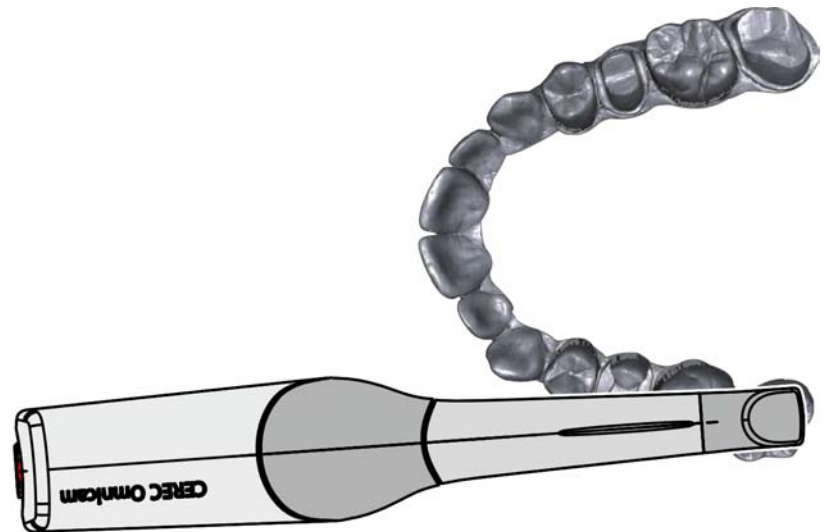
➢ Position the camera occlusally above the last tooth on the right, to start the scanning process.

Completing the scanning process

1. **Start as indicated above, on the occlusal surface of the right terminal tooth,** and scan it occlusally.
   Tilt the camera by 45° in a palatinal direction (oral) and guide it from the distal to the mesial.
2. Tilt the camera another 45° in a palatinal direction (oral) and move it in a distal direction.
3. Tilt the camera by 90° on to the occlusal surface and move it in a mesial direction.
4. Tilt the camera in a 45° buccal direction and move it back towards the distal.
5. Then tilt the camera a further 45° in a buccal direction to a total of 90° and move it in a mesial direction again.

The following scan sequence is implemented for the opposite second (third) quadrant:
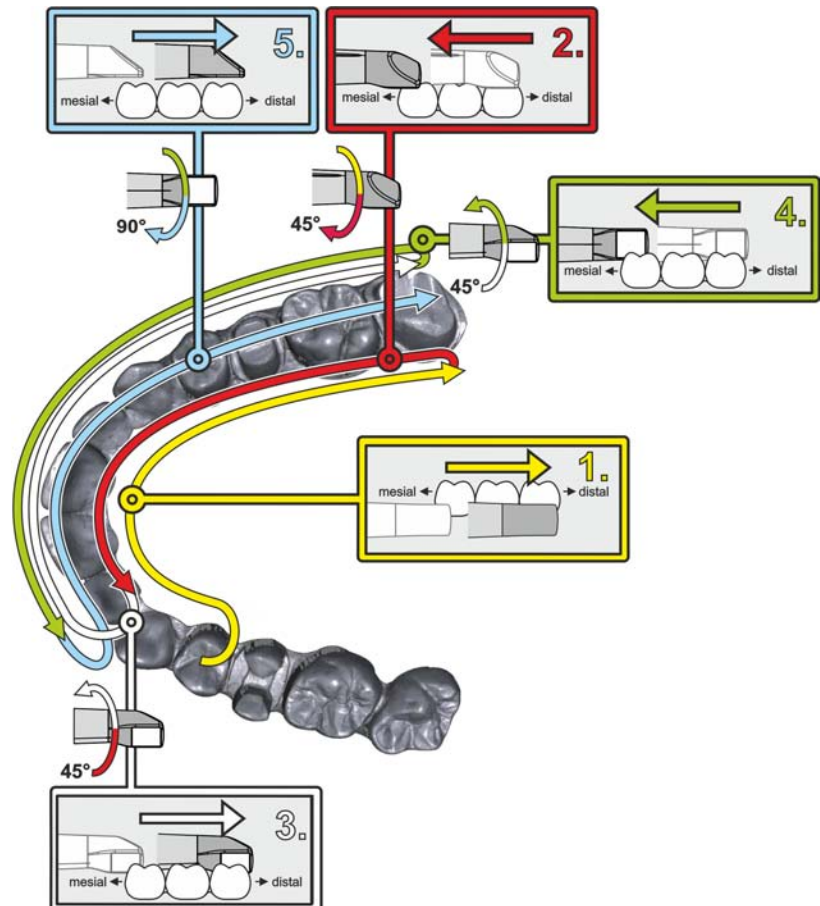
1. **Start by placing the device on the occlusal surface of a premolar, that has already been scanned,** and guide the camera palatally (orally) at a mesial tilt of up to 90° across the lingual surface of the front teeth in a distal direction towards the terminal tooth.

2. Slight tilt the camera by 45°, so that the camera is only tilted by 45° in a palatinal direction (oral) moving from the distal and back to the mesial to the front teeth.

3. Once you have reached the area of the front tooth, guide the camera 45° to the buccal side and tilt the camera by 45° from the mesial to the distal direction.

4. Once you have reached the distal, tilt the camera by another 45° (total of 90°) further towards the buccal and guide the camera from the distal back to the mesial direction.

5. Once you have reached the area of the front tooth, tilt the camera in an occlusal direction and guide the camera mesially to the occlusal surfaces right to the back distal molars.

Notes:

- Remove the soft tissue.
- Cut away the moveable gingivae, so that only 2-5mm gingivae remains around the tooth.

- When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.
- This cut must be completed during the ACQUISITION phase using the cutter.

10.4.1.3.7 Completing measurements

✓ The exposures are complete.

1. Click on the *"Next"* button.
   - ↳ The virtual model is calculated and displayed in color.
   - ↳ Gray sections highlight data material that is missing from the calculated model.

2. If missing data emerges in the preparation area, carry out further scans.

10.4.1.4 Taking acquisitions with the CEREC Omnicam

⚠ CAUTION
Hot surface!
The coated sapphire layer of the CEREC Omnicam is preheated in the camera cradle. When removing the CEREC Omnicam from its cradle, the surface temperature of the mirror sleeve can be up to 51°C. This may cause an unpleasant heat sensation on contact with a person's skin or mucous membrane. These temperatures will not damage the skin or mucosal membrane.
After removing the CEREC Omnicam from the camera cradle, the temperature of the mirror sleeve drops within a few minutes (< 5 minutes) to less than 43°C. The CEREC Omnicam is therefore suitable for use in the patient's mouth for an unlimited period of time.
At an ambient temperature from 30°C, only select the three lower heater settings.

NOTE
Image brightness
The image brightness during the acquisition is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the CEREC Omnicam and the tooth.
The surroundings of the tooth to be scanned should be as weakly illuminated as possible. Avoid any type of external light. Switch off the operating light.

IMPORTANT
Do not use cotton rolls in the scan area
Do not use any cotton rolls in the vicinity of the scan area. Should any pieces of cotton roll contaminate this area, the acquisitions will be inaccurate.

> ⚠ **CAUTION**
>
> **Prevent cross-contamination**
>
> Germs can be transmitted to uncontaminated persons via the hands, materials or objects.
>
> ➢ For hygiene reasons, wear a new set of disposable gloves for each patient while using the CEREC Omnicam.

> ⚠ **CAUTION**
>
> **In the case of patients with allergies to nickel**
>
> Should the CEREC Omnicam mirror sleeve make contact with the skin of patients allergic to nickel, allergic reactions may occur.
>
> ➢ Ensure that in the case of patients with nickel allergies, the parts of the CEREC Omnicam mirror sleeve which may make contact are protected from areas of skin.

> ⚠ **WARNING**
>
> **Danger of injury in the case of diagnosed epilepsy**
>
> Patients who have been diagnosed with epilepsy cannot be treated with the CEREC Omnicam.
>
> Dentists and dental assistants who have been diagnosed with epilepsy cannot work with the CEREC Omnicam.

✓ The teeth are blow-dried.

1. Change to the *"ACQUISITION"* phase.
   - ↻ The camera is ready for scanning.
   - ↻ A live image appears which can be used to look around the patient's mouth.
2. Remove the CEREC Omnicam from its holder.
   - ↻ As soon as the camera is pointed over a tooth or the gums, data acquisition begins. During the continuous data acquisition, a color 3D model is generated automatically on the screen.
   A white field indicates in which area data will be acquired. If the automatic data flow breaks off, the white field is lost and the audio signal changes. In this case, move the camera to any area which has already been scanned. The scanning procedure continues.
3. Activate the foot control or point the camera cursor to the Omnicam icon in the bottom left corner to end the acquisition procedure.

Proceeding with scanning procedure

1. Activate the foot control or click on the Omnicam icon with the cursor.
   - ↻ The scanning procedure begins.
2. Proceed with the scanning procedure as described above.

10.4.1.5 Cut out model areas

With the *"Cut"* function, you can should be able to cut out model areas. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

When performing this activity, be careful not to accidentally cut out any areas that e.g. are located behind the model or are otherwise cut away from the line.

✓ You are now in the *"SCAN"* phase.
1. Click on the tool wheel.
2. Click on the *"Cut"* button.
   ⮡ The cursor changes to a cross.
3. Begin the cut line with a double-click.
4. Click to set additional points.
5. Finish the cut by double clicking.
   ⮡ The model area is cut out.
6. Click the *"Apply"* button to implement the change.

You can execute another scan of the area which you have cut out using the crop function. To do so, close the tool window, by clicking on the top right corner. You can refill the area with another acquisition.

"Undo" and *"Reset"*

With the *"Undo"* button in the tools you can undo all changes made on the selected restorations since the tool was started.

With the *"Reset"* button in the tools you can undo all changes made on all restorations since the tool was started.

10.4.1.6 Additional acquisitions

You can switch back from the DESIGN phase to the *"SCAN"* phase and add additional exposures.

✓ You are now in the DESIGN phase.
1. Click on the *"SCAN"* phase.
   ⮡ The *"SCAN"* phase opens. The image catalogs are locked.
2. Click the *"Unlock"* button in the page palette.
   ⮡ The image catalogs are unlocked.
   ⮡ You can take additional exposures.

11 MODEL phase

In the *"MODEL"* phase, the virtual models are reconstructed based on the acquired image catalogs.

If you would like to edit the model, change to the *"Edit Model"* step.

The *"Upper Jaw"*, *"Lower Jaw"*, *"Buccal Bite Registration"* and *"Set Model Axis"* steps relate to the entire model (upper and lower jaw).

All other steps in the *"MODEL"* phase refer to the restoration currently selected. These steps must be carried out as relevant for all restorations.

11.1 Editing the model

In the *"Edit Model"* step, you can work with the following tools:
- *"Form"*
- *"Cut"*
- *"Replace"*
- *"Reset Model"*

Use of the individual tools is described in the section "Page palette".

11.2 Buccal registration

The software joins the models together automatically und shows this with a green check mark at the buccal window. If this is not possible, the software will attempt to correlate the jaws in the following process. If this is not possible, you can also correlate the models together manually.

Manual correlation

In this step, the virtual models of the upper and lower jaw should be aligned with one another with the help of the buccal image in its correct position.

In the *"Buccal Bite Registration"* step, you can work with the following tools in the page palette:
- Drag Buccal
- Turn Buccal Impression

Tool Settling

In the *"Buccal Bite Tools"* step, you can modify the buccal registration semi-automatically using the *"Settling"* tool. This might be necessary if the bite is blocked by an intraoral ScanPost.

Tip: The *"Buccal Bite Tools"* step with the *"Settling"* tool is only available for the *"Abutment"* restoration type.

Rotating the lower and upper jaw

➢ Click in the blue area with the left mouse button and hold the button down.
   ↳ The lower jaw and upper jaw can be rotated about the vertical axis simultaneously.
➢ Click on the lower jaw or upper jaw with the left mouse button and hold the button down.

↲ The arches can be rotated freely, individually.

Drag Buccal
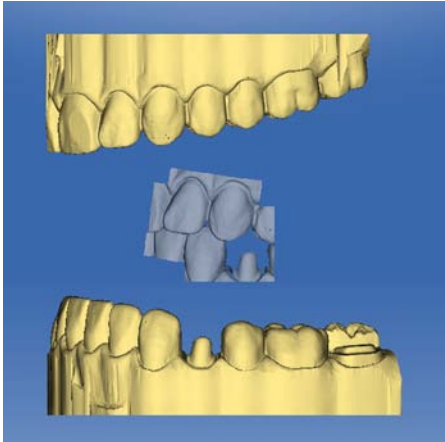
1. Rotate both models so that you can see the overlap area of the buccal acquisition and of the upper jaw and lower jaw.
2. Now drag the buccal acquisition to the corresponding area of the upper jaw with the mouse and let go of the mouse button (drag & drop).
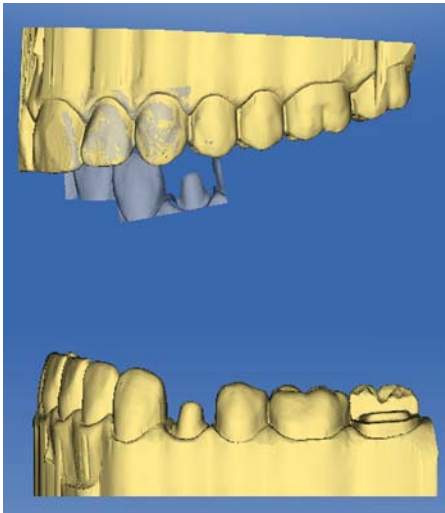
↲ The buccal acquisition automatically registers itself on the upper jaw. If the registration was successful, this will be indicated by a "leopard pattern". If the registration was not successful, the buccal acquisition returns to its original position. In this case, you must repeat the drag&drop procedure in order to find a better correlation surface.

3. Now click on the buccal acquisition once again and drag it onto the appropriate area of the lower jaw (drag & drop).
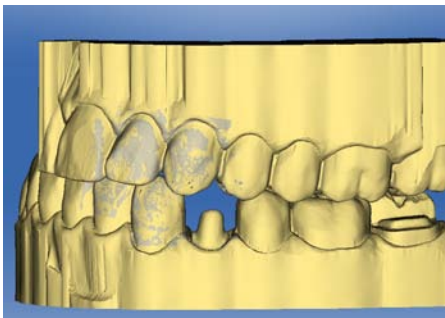
↲ If the registration was successful, this will be indicated by a "leopard pattern". If the registration was not successful, the buccal acquisition returns to its original position. In this case, you must repeat the drag&drop procedure in order to find a better correlation surface.

It is irrelevant whether you drag the buccal acquisition onto the lower jaw or onto the upper jaw first.

Turn Buccal Impression

In some cases, the buccal acquisition may be displayed upside down in relation to the lower jaw and the upper jaw. Proceed as follows in such cases:

1. Click on the upper area of the buccal image and drag it onto the lower model.

or

➢ Move the mouse via *"Tools"* onto the *"Bite Registration"* button and activate the *"Turn Buccal Impression"* command.
   ↳ The buccal acquisition will automatically flip, and you can then register it on the jaw using the drag & drop technique.

This works in the same way vice versa, i.e. if you click on the lower area of the buccal image and then drag it onto the upper model.
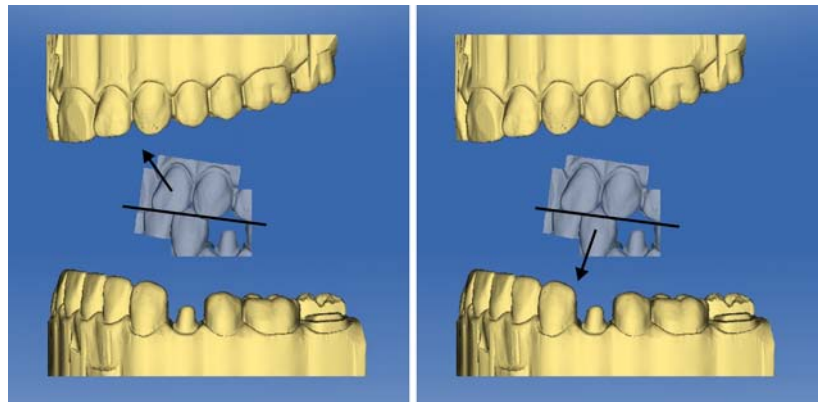
The buccal image is then displayed right side up. Registration is possible without rotation.
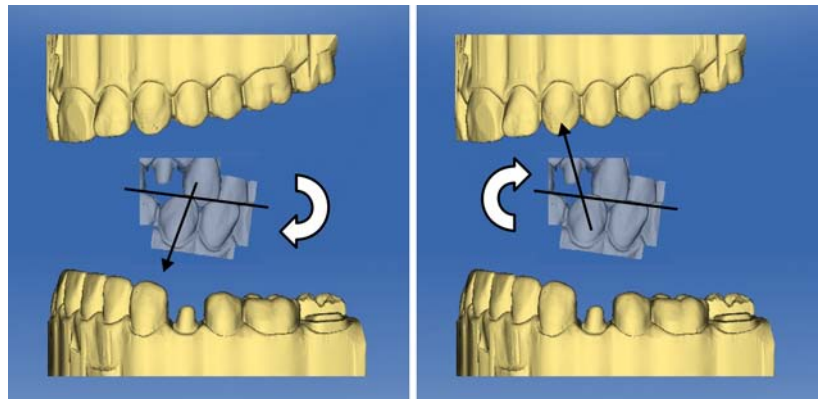
The buccal image is then displayed upside down. When you begin the registration, the software detects this and automatically flips the image right side up.
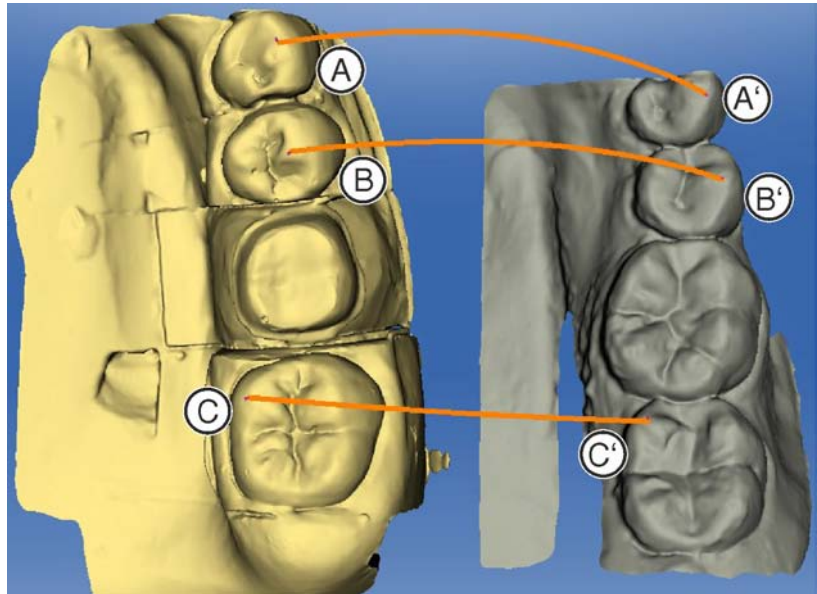
Moving to the next step

✓ The step is completed.

➢ Click on the next step to continue.

11.3 Manual correlation for image fields

If automatic correlation of the image fields does not occur, you can compose the image fields via manual correlation. To do so, three points must be set by double-clicking on both models.

1. Select the *"Set Points"* tool.

2. Double-click a prominent location (e.g. **A**) in a model to set a point.
3. Then double-click the corresponding location on the other model (e.g. **A'**).
   - ⤷ This pair of points is marked by an orange curve.
4. Set reference points B – B' and C – C' as described under items **2 – 3**.
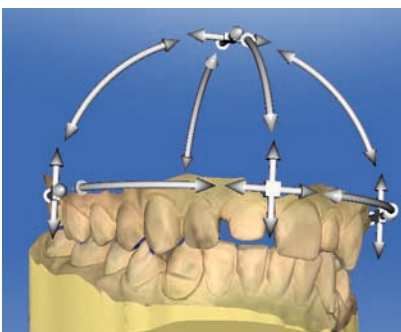5. Click *"Apply"*.

11.4 Buccal bite tools

You can align buccal registration manually in this step.

In the step *"Move Jaw"*, you can work with the following tool:
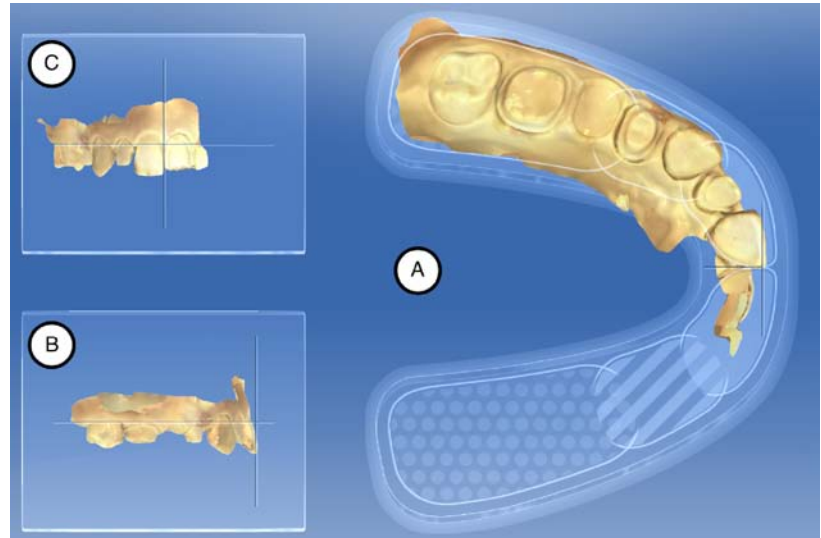
- *"Move Jaw"*

Positioning the upper jaw

➢ Left-click on an arrow symbol and hold the button down.
   - ⤷ You can displace or rotate the upper jaw in the corresponding direction.

Changing axes

➢ Right-click on an arrow symbol and hold the button down.
  ↳ You can change the axis on which the upper jaw is rotated or shifted.

11.5 Optional step: Set model axis

The model axis is automatically suggested by the software. If you are not satisfied with the suggestion, you can redefine the model axis. This alignment is required to calculate optimal initial suggestions.

Aligning the occlusal view (A)
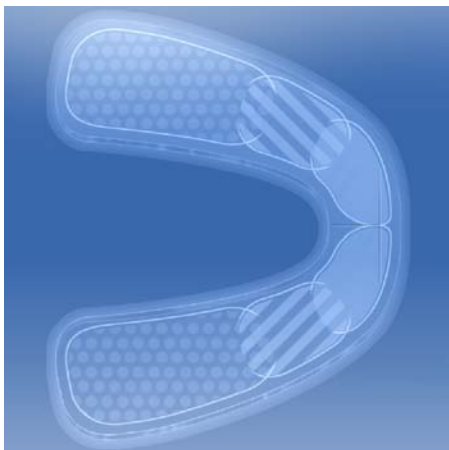
1. Align the model using the schematic mandibular arch. Each tooth must be in the correct quadrant.
2. Align the incisors using the center lines displayed.
   The following markings should help you with the alignment:
   - T-shaped cross hairs for the incisal points of the incisors
   - Dotted area for the molars
   - Dashed area for the premolars
   - Filled area for the anterior teeth
3. Hold down the left mouse button to rotate the jaw; or the right mouse button to move the jaw. If you move a jaw, the other jaw automatically moves as well.
4. Click to the next step to draw the preparation margin
   or
   for acquisitions with the extraoral scanner:
   Click to the next step to reach the configuration of the jaw ridge line. The settings in the model axis are adopted automatically.

Aligning the buccal view (B)

1. Align the jaw so that the incisal point and distobuccal cusp of the first molars are parallel with the horizontal guiding lines.
2. Hold down the left mouse button to rotate the jaw; or the right mouse button to move the jaw.
3. Click to the next step to draw the preparation margin
   or

for acquisitions with the extraoral scanner:
Click to the next step to reach the configuration of the jaw ridge line.
The settings in the model axis are adopted automatically.

Aligning the mesial view (C)

1. Align the quadrants of the jaw parallel with the horizontal guiding line.
2. Hold down the left mouse button to rotate the jaw; or the right mouse button to move the jaw.
3. Click to the next step to draw the preparation margin
   or
   for acquisitions with the extraoral scanner:
   Click to the next step to reach the configuration of the jaw ridge line.
   The settings in the model axis are adopted automatically.

11.6 Entering the preparation margin

Automatically detect the preparation margin

You can correct the preparation margin if it is not detected with complete accuracy or if you wish to refine the margin that has been detected automatically.

1. Start by double-clicking in the vicinity of the point to be corrected.
   ↳ A new corrected line is opened and the line hangs from the mouse cursor.
2. Redraw the line appropriately by guiding the cursor over the correct positions and setting points with a left mouse click.
3. Continue with this procedure until the point is corrected and the end the line with by double-clicking.

Deleting and re-entering preparation margins

1. If you want to completely delete a line and re-enter one, click *"Reset"*.
   ↳ The line is deleted.
2. Now enter the line manually.
3. Start by double-clicking anywhere on the preparation margin to be drawn.
   ↳ The line is opened and the line hangs from the mouse cursor.
4. Move the cursor over the margin and approach the first point.
   ↳ A green line is drawn automatically along the preparation margin.
5. Left-click to set points in order to ensure that the drawing of the line is set.
6. Continue the procedure until you reach the first point.
7. Close the automatic recording by double-clicking on this point (red).

General information

IMPORTANT
You can enlarge or reduce the 3D view during the input or editing of the preparation margin (see "3D Preview [→ 94]") in order to ensure the correct positioning of the preparation margin. Be sure to hold down the left mouse button for a long time. A short click adds a point to the preparation margin.

The preparation margin must always form a closed line.

You can edit the finished preparation margin after entering the last line.

Once the preparation margin is complete and has a tooth number, only the *"Manual"* tool will be available. This can be used for editing.

To enter the preparation margin, a technique can be selected in the page palette:

Technique	Layout	Usage
"Auto"	Height image	With clear preparation margins, for initially drawing in the margin.
"Manual"	Height image	For unclear preparation margins, for subsequent correction of the initial limit.
"Manual with intensity image"	Intensity image	

Entering the preparation margin in the case of clear preparation edges

Tip: You can rotate the model during input in order to obtain a better view of the preparation limit.
Click and hold the left mouse button and move the model with the mouse.

1. Start the entry by double-clicking anywhere on the preparation margin.
2. Move the cursor along the preparation margin.
   Tip: To support the automatic edge detection, click anywhere near the margin on the raised side. There is an automatic correction when the next point is set.
3. Continue this procedure until you are back at the starting point.
4. Conclude the entry by double-clicking the starting point.

### Entering the preparation margin in the case of blurred preparation edges

If you change to *"Manual"* in the page palette while entering the preparation margin, you can draw in the limit yourself.
Be careful to set the points exactly on the edge and place them close together.

If you wish to see the intensity image in blurred situations, change in the *"Analyzing Tools"* page palette to *"Intensity Image"*.

Tip: The space bar can be used to switch back and forth between drawing modes.

Seating Area
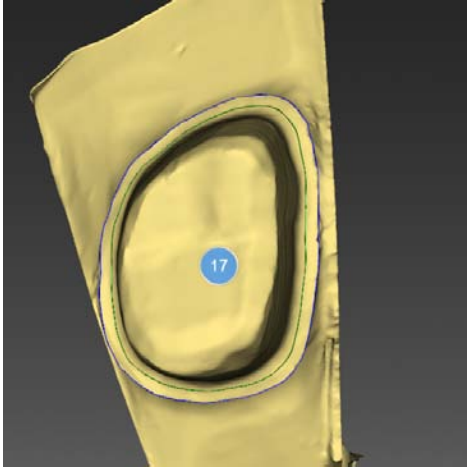
The *"Seating Area"* option (green line) can be activated via the *"Tools"* page palette.

The course of the crown fit equates to the course of the stump between the blue preparation margin line and the green line. From the green line, the spacer goes to the set value in the parameters. The support shoulder is set at a width of 400 µm by default.

1. Click the *"Seating Area"* option in the *"Tools"* page palette.
   - ✎ The support shoulder (green line) is shown. You can redraw the support shoulder.
2. Start by double-clicking in the vicinity of the point to be corrected.
   - ✎ A new corrected support shoulder line is opened and the line hangs from the mouse cursor.
3. Redraw the line appropriately by guiding the cursor over the correct positions and setting points with a left mouse click.
4. Continue with this procedure until the point is corrected and the end the line with by double-clicking.

Gingival element preparation margin

If you have selected a gingival element for the preparation margin, you must enter the preparation margin for the element in this step.

This works in the same way as the manual drawing of a preparation margin on a stump.

Enter the preparation margin for the next restoration

➢ Continue with the preparation margin for the next restoration by clicking on the desired restoration in the object bar.

11.7 Defining the insertion axis

The insertion axis is automatically suggested by the software. If you are not satisfied with the suggestion, you can redefine the insertion axis (see "Redefining the insertion axis [→ 112]").

11.7.1 Preparing the right insertion axis

If indentations are created by positioning the insertion axis vertically to the occlusal surface in the preparatory steps, you must change the direction of the insertion axis.

11.7.2 Redefining the insertion axis

Tip: Regions within a preparation margin that show an undercut from the viewing direction are marked yellow.

➢ Change the position of the preparation such that all colored markings disappear.
If this is not possible, (e.g. in the case of diverging stumps) make sure that all preparation margins are completely visible from the viewing direction and the color highlighted undercuts are as far away as possible from the preparation margin.

You can set the insertion axis in 3 different ways.

1. Change the insertion axis by pulling the orange ball in the target circle of the page palette with the left mouse button.

2. You can pull the arrows over the preparations with the left mouse button.

3. Rotate the model to the desired insertion axis and select the *"Set Restoration Axis"* option from the page palette.

In the case of bridges, you have the option to re-define the insertion axis of the individual stumps.

➢ To do this, click on the desired tooth in the restoration selector.
    ↳ All the options for setting the insertion axis are available to you.

MC XL = 4 axes (the insertion can only be set here in the bucco-lingual direction to the bridge axis.
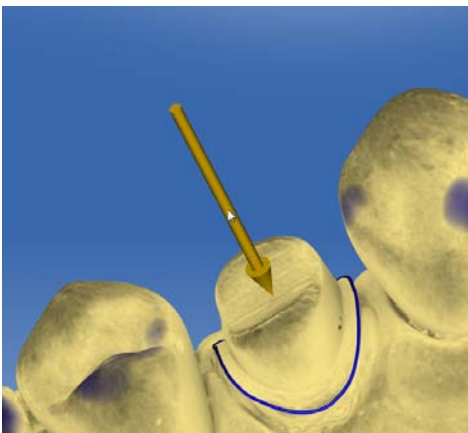
Moving the preparation margin

With the *"Adapt margin"* option in the page pallet, you are also able to set the preparation margin outside the preparation.

The original preparation margin is shown in gray and the new location of the preparation margin is shown in blue.

The subsequently produced restoration will be hollow in these areas.

11.7.3 Display insertion axis cover

In order to check that the insertion axis does not collide with the neighboring teeth you can display a cover when adjusting the insertion axis. This symbolizes the eventual crown.
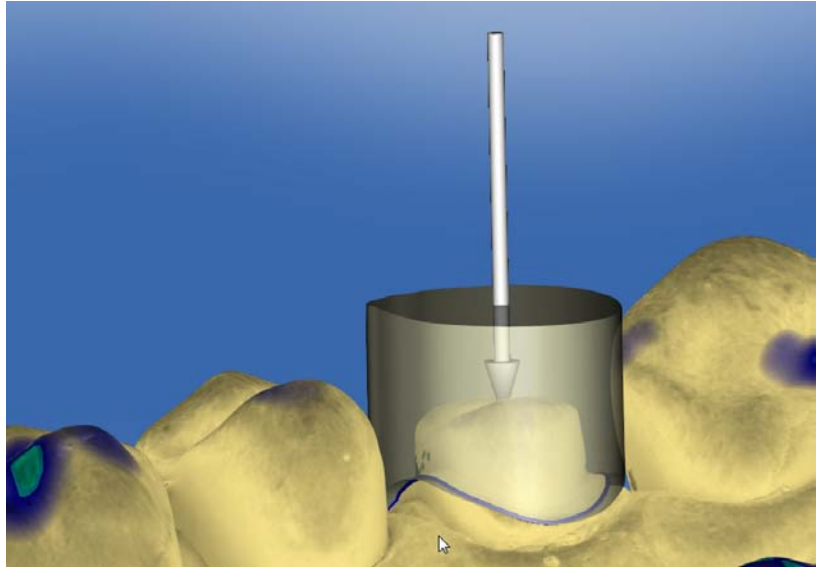
✓ You are in the *"Set Restoration Axis"* step.

1. In the page palette, place a check mark in front of *"Show Insertion Axis Hull"*.
   ⌦ The insertion axis cover is displayed.

2. Where necessary, adjust the dimensions of the cover via the additional *"Hull Thickness"* slide control in the page palette.

11.7.4 Setting the insertion axis for the gingival element

If you have selected a gingival element for the preparation margin, you must enter the insertion axis of the gingival element in this step.

11.7.5 Preparation analysis

This step can optionally be selected after defining the insertion axis.

Here the following analyses are possible:

- Undercuts
- Distance to antagonists
- Preparation margin
- Surface condition

A key in the upper left corner of the 3D area displays the different dimensions.

11.8 Restoration axis for implant abutment

This step is only available if *"Abutment"* is selected as the indication.

A restoration axis is suggested automatically, that can be manually edited.

To do so, left-click the circle highlighted in orange, in the center of the target displayed. Press and hold the key and change the restoration axis to the desired direction.

> **NOTE**
>
> Angulation of more than 20° to the implant axis is not permitted. This is indicated through highlighting the restoration in red.

For the *"Multilayer Abutment"* indication, the restoration axis corresponds to the insertion axis of the crown on the abutment or an angled abutment.

11.9 Finishing the phase

✓ The next phase is can be selected.

1. Click on the next phase.

or

➢ Click on the double arrow.
   ✎ The program switches over to the next phase.

12 DESIGN phase

Tip: In the DESIGN phase you can group with the following key combinations:

- Ctrl + left mouse button
- Shift key + left mouse button

12.1 Restoration parameters

Before further editing, you can check the parameters for this restoration and make any changes that are necessary. The values set here refer only to the current restoration.

This step is optional. If you skip this step, the global parameters will be used

You can set the parameters as described in the "Parameters" section.

12.2 Morphology step

The *"Morphology"* step offers you the following options:

- Whether the restorations should be calculated fully by the biogenerics
- Whether you want to specify the tooth shape (for anterior teeth)
- Whether the suggestion should be made using a database tooth In this version, the databases of VITA, Candulor, and Merz are available.

The morphology is selected separately according to anterior and posterior teeth.

To do this, click on tooth shape to specify a tooth shape for anterior teeth or select the tooth database to select a database tooth.

12.3 Positioning step
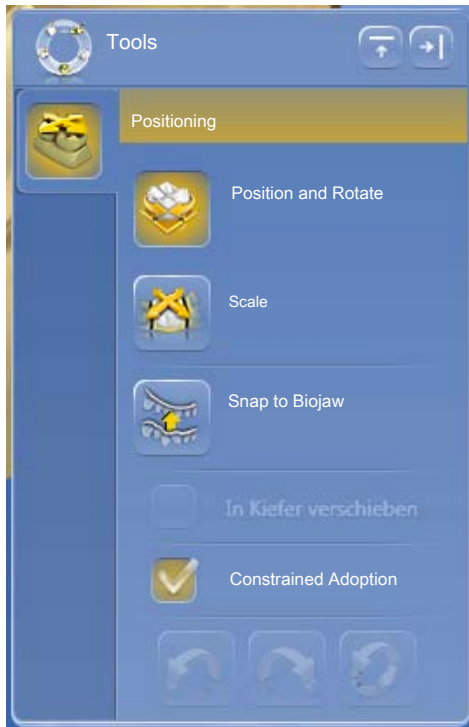
In the *"Positioning"* step, you can modify the position of the teeth. The teeth are not yet taken into account in the preparation margin in this step and can be moved freely. The *"Position and Rotate"* and *"Scale"* tools are available to you for this purpose. Place the mouse above the relevant tooth in order to display the tool handle. The new positioning can be performed for each tooth, or you can group neighboring restorations (Ctrl/shift key + left mouse button) and thus process several teeth simultaneously. When you group the teeth, the software takes account of the contact situation of the selected teeth. For example, this means that if one tooth in a group is enlarged, the others are reduced in size. The same mechanism applies when positioning the teeth. The teeth are adjusted in size to the modified conditions here, too.

If *"Linear"* is checked, all grouped restorations are moved, enlarged or reduced to the same extent. The linear function is only active if multiple teeth are grouped.

With the *"Snap to Biojaw"* option, the initial position of the edge of the preparation is ignored for the benefit of an even course of the mandibular arch. This allows natural malpositions in the mandibular arch to be compensated for to a certain degree.

If the *"Constrained Adoption"* function is checked (default), the initial suggestion is adjusted once more in shape and position to accommodate the contact situation, material thickness and the edge of the preparation. If this is not desired, this option can be deactivated. Then the suggestion is only calculated for the edge of the preparation and the shape and positioning remains the same. This may mean that material has to be manually applied so material wall thicknesses can be maintained.

12.4 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the section "Tools and functions of the page palette".

Group page palette

You can also edit multiple restorations at the same time with the *"Group"* function instead of using the key combinations.

1. Open the *"Group"* page palette.
2. Select the *"Group"* function.
3. Click on the desired teeth/restorations in the object bar.
   ↳ The orange selection color provides information on the objects assembled together.
4. Click on the *"Group"* button again to deactivate Grouping and to edit the selected restorations together.

12.5 Finishing the phase

✓ The next phase is can be selected.

1. Click on the next phase.

or

➢ Click on the double arrow.

✎ The program switches over to the next phase.

13 MANUFACTURING phase

13.1 Selecting the color

13.1.1 CEREC SpeedFire

When using zirconia and IPS e.max CA in a CEREC SpeedFire sintering oven, the color of the block must be selected in advance in the software. This ensures use of the appropriate parameters.

✓ In the ADMINISTRATION phase, you have selected the "CEREC zirconia", "inCoris TZI C", "inCoris TZI", or "IPS e.max CAD" materials.

1. Select the *"Select Color"* step.
2. Select the desired color by clicking on the color in the color center.
3. Click the *"OK"* button.

13.1.2 CEREC Blocs C In

You can set the color of the restoration and the incisal edge for "CEREC Blocs C In" materials.

✓ You have selected the "CEREC Blocs C In" material in the ADMINISTRATION phase.

1. Select the *"Select Color"* step.
2. Select the desired color by clicking on the color in the color center.
3. Click *"Incisal Edge"*.
4. If necessary, adjust the dentine core of the individual situation in the incisal or apical direction.
5. Click the *"OK"* button.
6. The software sets the restoration in the block according to the selected parameters.

13.2 Page palette manufacture / export

In this page palette, you can determine a grinding and milling unit and choose its CEREC SpeedFire sintering oven (if connected).

Here you can also select the editing options as a sub-menu of the relevant machine (see "Changing editing settings [→ 120]").

13.2.1 Manual firmware update

If the grinding and milling unit firmware is not up to date, this is indicated by a red exclamation mark and a tooltip (pop-up window that appears if you hover over the symbol for 1-2 seconds). If you click on the symbol, you are taken to the corresponding configuration menu of the grinding and milling unit. You can perform the update there manually via the *"Update Firmware"* button, which appears approximately 5 seconds after a check is performed to check the current firmware version.

13.2.2 Changing editing settings

13.2.2.1 Grinding – production options

Grinding Fast

IMPORTANT
Loss of quality
Fast grinding may have a negative influence on the quality of the restoration!

If desired, the grinding process can be accelerated for some materials. You can activate the *"Fast"* button if you require this.

This mode is faster, however, the surface of the milled restoration is slightly rougher.

In this mode the level of detail is automatically set to *"High"* and the processing mode to *"Fast"*.

Grinding Fine

This is the standard grinding mode and can be used for all indications and materials.

In this mode the level of detail is automatically set to *"High"* and the processing mode to *"Normal"*.

Grinding Extra Fine

In connection with an MC XL (4-motor machine), you have the possibility of choosing the *"Extra Fine"* option.

You must equip your machine with the following instruments for this:

- In instrument set 1: Instruments of type *"Extra Fine"*:

  Left – CYLINDER BUR 12 EF,
  Right – CYLINDER POINTED BUR 12 EF

- In instrument set 2: Instruments of type "Standard".

Grinding times are around 100% longer.

In this mode the level of detail is automatically set to *"Very High"* and the processing mode to *"Normal"*.

IMPORTANT
The *"Extra Fine"* grinding option can only be selected for final ceramics.

IMPORTANT
From the CEREC SW 4.6, the *"Occlusal Offset"* parameter is set in the MANUFACTURE phase. This value relates solely to the grinding result and is not available for milling. Apply or remove material in the occlusal direction over the entire occlusal surface with this setting. The effects are not visible in the software.

13.2.2.2 Milling – production options

Fast milling

Eliminates special processes and increases cutting parameters as well as the path spacing for optimum editing times with very good quality.

This mode is only available if the *"Margin Thickness"* parameter is set to 100 µm or more for the restoration.

In this mode the level of detail is automatically set to *"High"* and the processing mode to *"Fast"*.

Fine milling

Comprises the same process steps as the *"Fast"* stage but with reduced path spacing.

In this mode the level of detail is automatically set to *"High"* and the processing mode to *"Normal"*.

Customized milling

This mode provides greater flexibility with the individual settings for the level of detail and the processing mode.

13.2.2.3 Veneer mode

Veneer mode

Veneer mode ensures that grinding and milling takes even the finest structures into account. This stops the veneer and anterior crowns binding.

13.2.3 Exporting a restoration

You can export individual restorations in order to
● process them with the CEREC CAM SW software
● save them for shipment to infiniDent or
● save them in a different format.

TIP: To reuse blocks which have been ground, export the restoration to the CEREC CAM SW. It is not possible to call up blocks which have already been ground in the CEREC SW milling preview.

CEREC CAM restorations	The restoration is stored in *.cam file format. This file format can be read only by CEREC CAM SW software.
File restoration	The restoration is saved as an *.i.clab file. This file format can be processed by infiniDent.
	If a corresponding license is available, the restoration also can be saved as an *.stl file. This format can be processed by any other program that can interpret STL data. For STL exports you can choose whether you wish to also want to export the borehole or not (place or remove a check mark before *"Close screw hole"*).

IMPORTANT
Nature and source of the danger
Sirona will not be held liable for the further processing of *.stl data in other/external software.

13.3 Block size selection page palette

Block Sizes

In the *"Block Sizes"* page palette, you can select the right block size. The last selected block size is always preselected to start with.

IMPORTANT
The block sizes which are smaller than the currently selected restoration are indicated with a yellow warning sign.

13.4 Positioning restorations in the block

You can use the positioning tools to move the block around the restoration, turn it, and determine the sprue location.

The tools are described in the "Tools" section.

2 pinned connection options are available for grinding purposes. Nesting the restoration in a block is always attempted (multiple sprue locations). To take full advantage of the block, the software switches to one sprue location for individual elements. You can generate a nest again at any time by selecting a larger block.

13.5 Changing block sizes

The block size is automatically suggested by the software. You can change the block size in the *"Block Sizes"* side palette.

➢ Click on the selected block size in the side palette. Blocks that are not suitable on account of the size are marked by an additional symbol in the page palette.

   ↳ The restoration is positioned in the block selected by you.

13.6 Starting the production process

Once you have completed the design and assessed the restoration in the preview, you can produce the restoration.

For further information on milling or grinding, please see the corresponding Operating Instructions for the units.
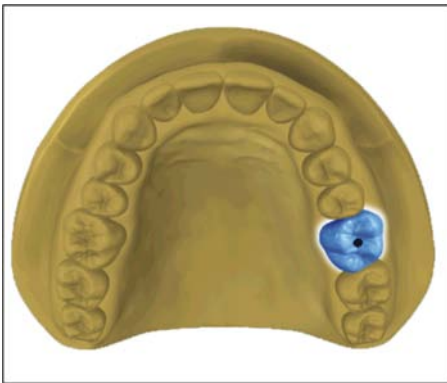
14 Design examples

14.1 Abutment - Biogeneric individual - MultiLayer

This example describes the procedure for designing an abutment with matching crown with neighboring teeth present that are in good order.

Design example *"Abutment"* with design mode *"Biogeneric Individual"* (*"Split"*: *"MultiLayer"*) on tooth 26 (#14).

14.1.1 Create a new restoration

✓ You have selected a case or created a new one.
✓ You are now in the ADMINISTRATION phase.
1. Select the restoration type *"Abutment"*.
2. Select the restoration type *"Multilayer Abutment"*.
3. Select the design mode *"Biogeneric Individual"*.
4. Select a material from the desired manufacturer as the framework material from which the abutment should be produced.
5. Select a material from the desired manufacturer as the veneering structure from which the crown should be produced.
6. Optional: If you are using multiple grinding and milling units, you can choose which machine you would like to use for the case in the *"Select Milling Device"* step.
7. Select the desired TiBase.

IMPORTANT
Not all TiBases can be selected
It is possible that not all TiBases can be selected depending on the framework material selected and the country stipulated for your installation.

8. Select whether you wish to use the TiBase or ScanPost for scanning.

IMPORTANT
For intraoral application: ScanPost recommended
Using a ScanPost is recommended for intraoral application as the correct positioning of the scanbody can only be reviewed in this case.

9. Click on the tooth for which the restoration must be set up.
   ⮡ The selected tooth is marked.
10. Change to phase ACQUISITION.

### 14.1.2 Scanning a preparation

1. Acquire the preparation (see "ACQUISITION phase [→ 93]").
2. If you have formed an emergence profile then starting the acquisition of this region directly after removing the gingiva former is recommended.
3. You can also complete scans of the opposite jaw and the buccal bite registration as an option.
4. Now insert the ScanPost with the scanbody. Switch to the *"Scanbody"* image catalog for the relevant jaw and scan the scanbody. **NOTE! Ensure that the ScanPost itself as well as the transition from the gingiva to the ScanPost have been captured properly and that there is no interruption.**
5. Ensure that you also scan toothed areas (two additional teeth in all cases) in order to guarantee the registration for the preparation acquisition.
6. If all required acquisitions are present, change to phase MODEL.

14.1.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (see shape).
2. With the tool *"Cut"*, cut out unnecessary image areas (see Cut out model areas [→ 68]).
3. Correct defects with the tool *"Replace"* (see Correcting defects [→ 69]).
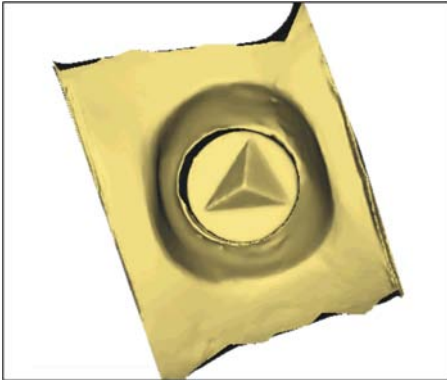
14.1.4 Bite registration
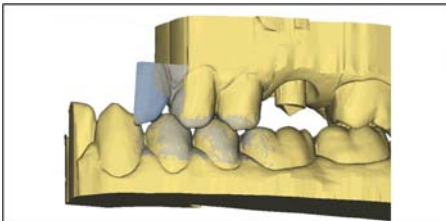
✓ The *"Bite Registration"* step is optional. The bite registration is generally automatic.

➢ Complete a manual buccal registration if necessary (see "Buccal registration [→ 105]").

14.1.5 Set model axis

✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis). Please ensure a consistent representation here.
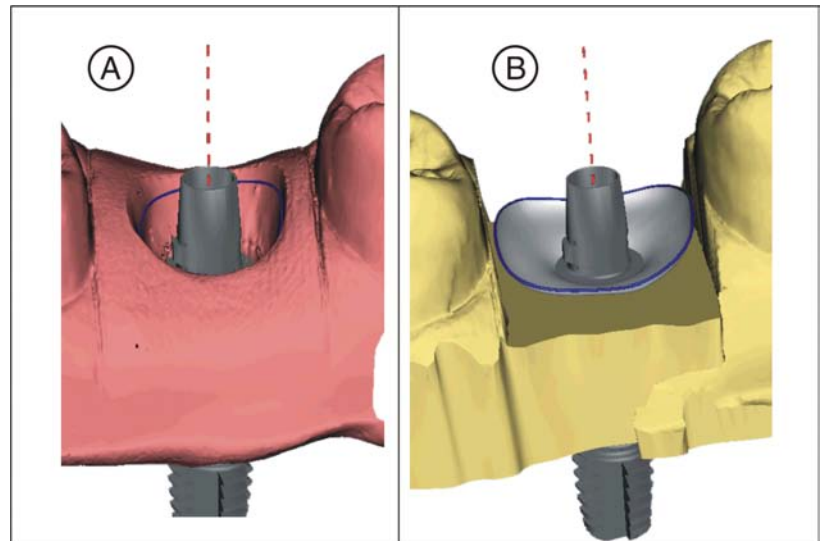
14.1.6 Mask areas

✓ The *"Trim Area"* step is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see "Trimming the preparation").

14.1.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

14.1.8 Editing the baseline

The *"Edit Base Line"* step is active.

The baseline (emergence line, blue) is suggested automatically (**A**).
If you deselect the *"Use Gingiva Mask"* option, an emergence profile is suggested automatically (**B**).

If necessary, adjust the baseline as follows.

1. Start the entry by double-clicking anywhere on the baseline. Draw a new baseline by clicking along the desired path.
2. Complete the entry with a double-click on a point on the old baseline.

IMPORTANT
Editing the baseline is possible both for the automatic emergence profile and the gingiva-based emergence profile.

The baseline for the pontic can also be entered on the gingival mask. To do so, the corresponding option must be activated in the tool.

14.1.9 Define restoration axis

Determine the angulation for the abutment (see "Restoration axis for implant abutment [→ 115]").

14.1.10 Adjusting parameters

✓ The *"Restoration Parameters"* step is optional.
1. Adjust the parameters where necessary.
2. Confirm the changes with *"Ok"*.
   ↳ The initial suggestion is then calculated automatically.

14.1.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the "Page palette [→ 21]" section. Designing the final outer shape of the restoration first of all is useful before you divide this into abutment and crown.

Start with the rough tools first and position the restoration. Then implement the smaller corrections. The same editing recommendations that apply to crowns also apply to the area around the crown.

Using the *"Shape"* / *"Circular"* tool is recommended for adjusting the emergence profile.

Edit layers individually

✓ The step *"Edit Restoration"* is active.
1. Select the *"Split"* tool.
   ↳ The crown is displayed transparently.

2. With the mouse pointer, go to the bottom edge of the picture.
   ↳ The restoration range expands. 2 restorations are represented for the tooth position.
3. Click on the icon for crown or abutment, to toggle between the two restorations.
4. Use the tools from the page palette to edit whichever restoration is active.
5. Start with the editing of the abutment. Use the *"Scale"* tool to adjust the height of the abutment and the course of the shoulder.
6. Please note that changes to the abutment affect the crown design. By switching to the crown you can check e.g. whether the minimum wall thickness has still been observed for the crown after the shoulder has been narrowed.
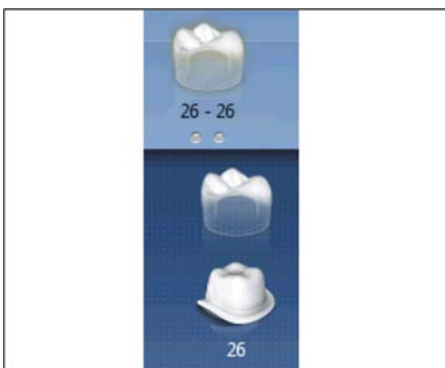
Change to the MANUFACTURE phase. Both restoration layers have to be developed individually.

### 14.1.12 Creating restorations

1. In step *"Milling Unit"*, select the device with which the restoration will be edited.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the editing process.

14.2 Abutment - Biogeneric individual

This example describes the procedure for designing a directly screw-retained crown with neighboring teeth present that are in good order.

Design example *"Abutment"* with design mode *"Biogeneric Individual"* on tooth 26 (#14).

14.2.1 Create a new restoration
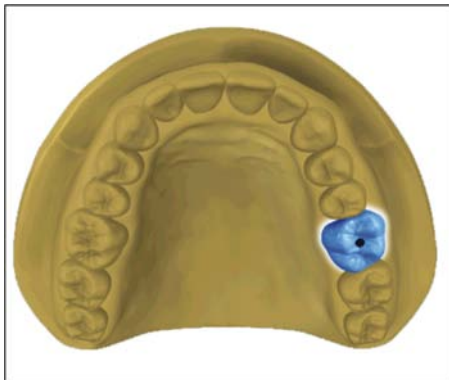
✓ You have selected a case or created a new one.
✓ You are now in the ADMINISTRATION phase.

1. Select the restoration type *"Abutment"*.
2. Select the restoration type *"Screw Retained Crown"*.
3. Select the design mode *"Biogeneric Individual"*.
4. Select a material from the desired manufacturer from which the crown should be produced.
5. Optional: If you are using multiple grinding and milling units, you can choose which machine you would like to use for the case in the *"Select Milling Device"* step.
6. Select the desired TiBase.

IMPORTANT
Not all TiBases can be selected
It is possible that not all TiBases can be selected depending on the framework material selected and the country stipulated for your installation.

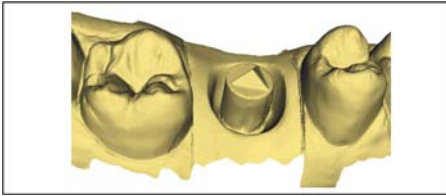7. Select whether you wish to use the TiBase or ScanPost for scanning.

IMPORTANT
For intraoral application: ScanPost recommended
Using a ScanPost is recommended for intraoral application as the correct positioning of the scanbody can only be reviewed in this case.

8. Click on the tooth for which the restoration must be set up.
   ⤷ The selected tooth is marked.
9. Change to the ACQUISITION phase.

### 14.2.2 Scanning a preparation

1. Acquire the preparation (see "ACQUISITION phase [→ 93]").
2. If you have formed an emergence profile then starting the acquisition of this region directly after removing the gingiva former is recommended.
3. You can also complete scans of the opposite jaw and the buccal bite registration as an option.
4. Now insert the ScanPost with the scanbody. Switch to the *"Scanbody"* image catalog for the relevant jaw and scan the scanbody. **NOTE! Ensure that the ScanPost itself as well as the transition from the gingiva to the ScanPost have been captured properly and that there is no interruption.**
5. Ensure that you also scan toothed areas (two additional teeth in all cases) in order to guarantee the registration for the preparation acquisition.
6. If all required acquisitions are present, change to phase MODEL.

14.2.3 Editing the model

✓ The step Edit Model is active.
1. With the tool *"Form"*, apply, remove or smoothen material (see shape).
2. With the tool *"Cut"*, cut out unnecessary image areas (see Cut out model areas [→ 68]).
3. Correct defects with the tool *"Replace"* (see Correcting defects [→ 69]).
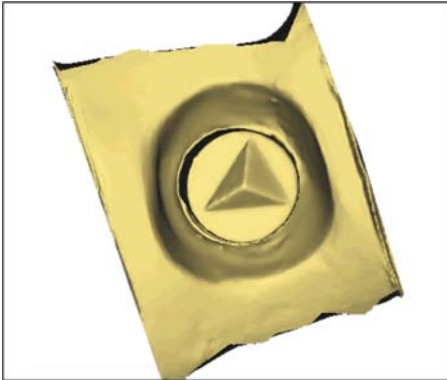
14.2.4 Bite registration
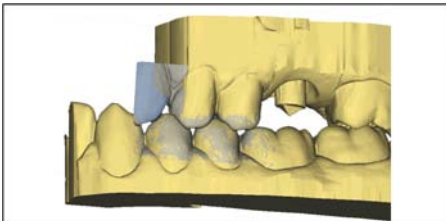
✓ The *"Bite Registration"* step is optional. The bite registration is generally automatic.
➢ Complete a manual buccal registration if necessary (see "Buccal registration [→ 105]").

14.2.5 Set model axis

✓ The step *"Set Model Axis"* is active.
➢ Set the axes for model alignment (see Set model axis). Please ensure a consistent representation here.
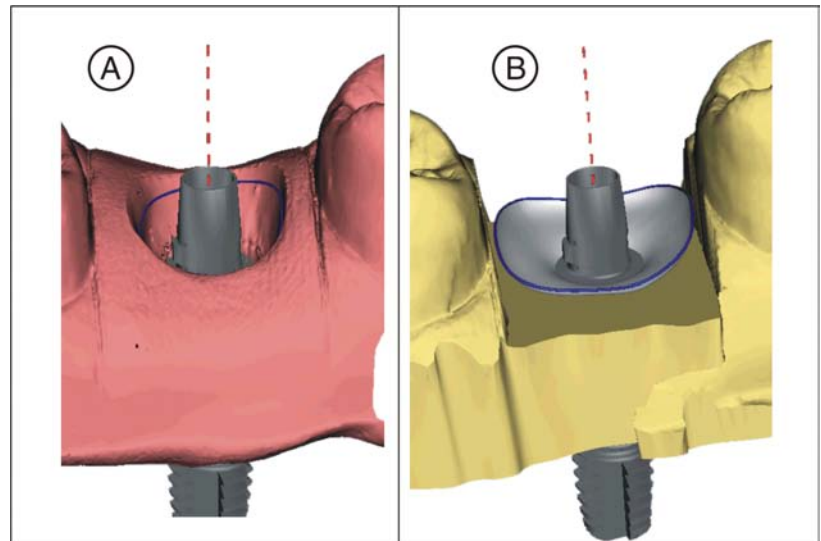
14.2.6 Mask areas

✓ The *"Trim Area"* step is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see "Trimming the preparation").

14.2.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

14.2.8 Editing the baseline

The *"Edit Base Line"* step is active.

The baseline (emergence line, blue) is suggested automatically (**A**).
If you deselect the *"Use Gingiva Mask"* option, an emergence profile is suggested automatically (**B**).

If necessary, adjust the baseline as follows.

1. Start the entry by double-clicking anywhere on the baseline. Draw a new baseline by clicking along the desired path.
2. Complete the entry with a double-click on a point on the old baseline.

IMPORTANT
Editing the baseline is possible both for the automatic emergence profile and the gingiva-based emergence profile.

The baseline for the pontic can also be entered on the gingival mask. To do so, the corresponding option must be activated in the tool.

14.2.9 Define restoration axis

This work step can be skipped.

14.2.10 Adjusting parameters

✓ The *"Restoration Parameters"* step is optional.
1. Adjust the parameters where necessary.
2. Confirm the changes with *"Ok"*.
    ↳ The initial suggestion is then calculated automatically.

14.2.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the "Page palette [→ 21]" section.

Start with the rough tools first and position the restoration. Then implement the smaller corrections. The same editing recommendations that apply to crowns also apply to the area around the crown.

Using the *"Shape"* / *"Circular"* tool is recommended for adjusting the emergence profile.

✓ The step *"Edit Restoration"* is active.
➢ Use the tools from the page palette to edit the restoration.

14.2.12 Grinding the restoration

1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

14.3 Abutment - framework

This example describes the procedure for designing an abutment.

Design example *"Abutment"* with design mode *"Framework"* on tooth 26 (#14).

14.3.1 Create a new restoration
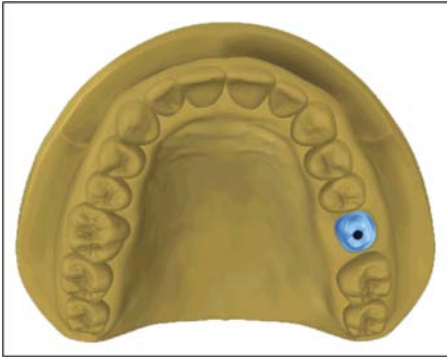
✓ You have selected a case or created a new one.
✓ You are now in the ADMINISTRATION phase.

1. Select the restoration type *"Abutment"*.
2. Select the restoration type *"Framework Abutment"*.
3. Select a material from the desired manufacturer from which the abutment should be produced.
4. Optional: If you are using multiple grinding and milling units, you can choose which machine you would like to use for the case in the *"Select Milling Device"* step.
5. Select the desired TiBase.

IMPORTANT
Not all TiBases can be selected
It is possible that not all TiBases can be selected depending on the framework material selected and the country stipulated for your installation.

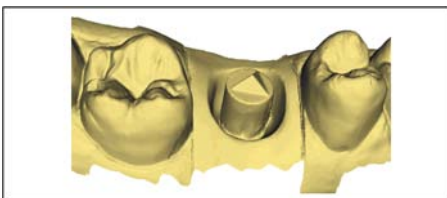6. Select whether you wish to use the TiBase or ScanPost for scanning.

IMPORTANT
For intraoral application: ScanPost recommended
Using a ScanPost is recommended for intraoral application as the correct positioning of the scanbody can only be reviewed in this case.

7. Click on the tooth for which the restoration must be set up.
   ↳ The selected tooth is marked.
8. Change to the ACQUISITION phase.

14.3.2 Scanning a preparation

1. Acquire the preparation (see "ACQUISITION phase [→ 93]").
2. If you have formed an emergence profile then starting the acquisition of this region directly after removing the gingiva former is recommended.
3. You can also complete scans of the opposite jaw and the buccal bite registration as an option.
4. Now insert the ScanPost with the scanbody. Switch to the *"Scanbody"* image catalog for the relevant jaw and scan the scanbody. **NOTE! Ensure that the ScanPost itself as well as the transition from the gingiva to the ScanPost have been captured properly and that there is no interruption.**
5. Ensure that you also scan toothed areas (two additional teeth in all cases) in order to guarantee the registration for the preparation acquisition.
6. If all required acquisitions are present, change to phase MODEL.

14.3.3 Editing the model

✓ The step Edit Model is active.

1. With the tool *"Form"*, apply, remove or smoothen material (see shape).
2. With the tool *"Cut"*, cut out unnecessary image areas (see Cut out model areas [→ 68]).
3. Correct defects with the tool *"Replace"* (see Correcting defects [→ 69]).
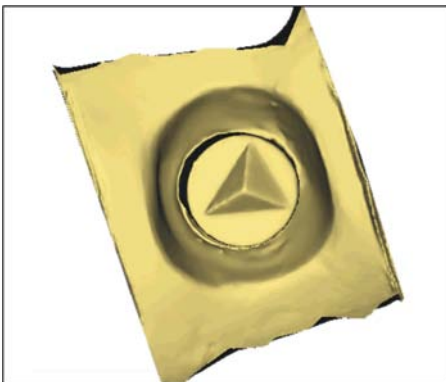
14.3.4 Bite registration
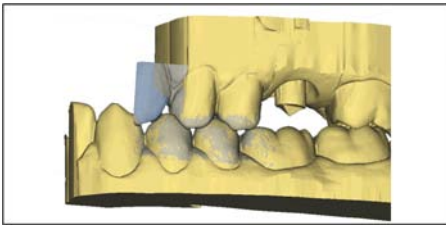
✓ The *"Bite Registration"* step is optional. The bite registration is generally automatic.

➢ Complete a manual buccal registration if necessary (see "Buccal registration [→ 105]").

14.3.5 Set model axis

✓ The step *"Set Model Axis"* is active.

➢ Set the axes for model alignment (see Set model axis). Please ensure a consistent representation here.
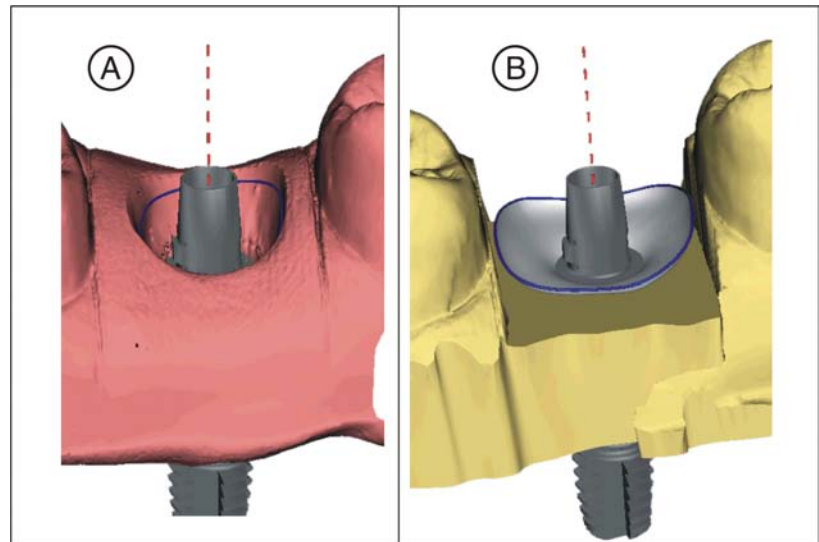
14.3.6 Mask areas

✓ The *"Trim Area"* step is active.

➢ Cut away the distal and mesial neighbors, so that you input an open line in each case (see "Trimming the preparation").

14.3.7 Select Scanbody

✓ The step *"Click Scanbody Head"* is active.

➢ Double-click the Scanbody you are working on.

14.3.8 Editing the baseline

The *"Edit Base Line"* step is active.

The baseline (emergence line, blue) is suggested automatically (**A**).
If you deselect the *"Use Gingiva Mask"* option, an emergence profile is suggested automatically (**B**).

If necessary, adjust the baseline as follows.

1. Start the entry by double-clicking anywhere on the baseline. Draw a new baseline by clicking along the desired path.
2. Complete the entry with a double-click on a point on the old baseline.

IMPORTANT
Editing the baseline is possible both for the automatic emergence profile and the gingiva-based emergence profile.

The baseline for the pontic can also be entered on the gingival mask. To do so, the corresponding option must be activated in the tool.

14.3.9 Define restoration axis

This work step can be skipped.

14.3.10 Adjusting parameters

✓ The *"Restoration Parameters"* step is optional.
1. Adjust the parameters where necessary.
2. Confirm the changes with *"Ok"*.
   ↳ The initial suggestion is then calculated automatically.

14.3.11 Editing the restoration

The virtual model provides a visualization and design of a restoration in 3D.

Once the restoration has been calculated, you can change the restoration with the tools in the toolbar.

The individual tools and their applications are described in the "Page palette [→ 21]" section.

Use the *"Scale"* tool to adjust the general size and shape of the abutment. Adjusting the emergence profile with the *"Shape"* / *"Circular"* tool is recommended if the shoulder has been defined.

✓ The step *"Edit Restoration"* is active.

➢ Use the tools from the page palette to edit the restoration.

14.3.12 Grinding the restoration

1. In step *"Milling Unit"*, select the tool with which the restoration needs to be ground.
2. In step *"Change Block Size"*, change the block size, where necessary.
3. In step *"Adjust Mill Position"*, position the restoration in the block, where necessary.
4. Start the milling process.

15 Tips and Tricks

15.1 Shortcut keys

Tip: Press and hold down the "Alt" key on the keyboard to see the keyboard shortcuts. All available functions that can be reached using the keyboard shortcuts are visible on the corresponding buttons.

System menu

Shortcut keys	Meaning
Ctrl + N	Closes the current case and the application returns to the start screen.
Ctrl + S	Saves the current case.
Ctrl + Alt + S	Saves the current case under a new patient.
Ctrl + I	Opens the file import dialog for importing a file.
Ctrl + E	Opens the file export dialog for exporting a file.
Ctrl + Q, Alt + F4	Exits the application.
F1	Opens the Help section.
Alt + F2	Opens the configuration
F11	Full frame mode

Phases

Shortcut keys	Meaning
Ctrl + F1	Switches to the ADMINISTRATION phase, if available.
Ctrl + F2	Switches to the SCAN phase, if available.
Ctrl + F3	Switches to the MODEL phase, if available.
Ctrl + F4	Switches to the DESIGN phase, if available.
Ctrl + F5	Switches to the MANUFACTURE phase, if available.
Ctrl + F2	Opens the configuration, if it is available.

Opening the tool wheel and page palette

Shortcut keys	Meaning
Alt + V	Opens the *"View Options"* menu in the page palette.
Alt+ T	Opens the *"Tools"* menu in the page palette.
Alt + D	Opens the *"Display Objects"* menu in the page palette.
Alt +A	Opens the *"Analyzing Tools"* menu in the page palette.
Alt +L	Opens the *"Link Options"* menu.

Shortcut keys	Meaning
Ctrl + Num 3	Changes to buccal display, left
Ctrl + Num 5	Changes to centered display
Ctrl + Num 2	Changes to cervical display, bottom
Ctrl + Num 9	Changes to distal display, rear
Ctrl + Num 7	Changes to lingual display, right
Ctrl + Num 1	Changes to mesial display, front
Ctrl + Num 8	Changes to occlusal display, top

Analyzing Tools

Shortcut keys	Meaning
Ctrl + O	Displays or hides the occlusal contacts.
Ctrl + B	Displays or hides the box of the model.
Ctrl + C	Starts/ends the *"Slice"* analysis tool.
Ctrl + D	Displays or hides the details on the mouse cursor
Ctrl + T	Start/ends the distance analysis tool.
Ctrl + G	Displays or hides the grid.
Ctrl + Alt + M	Displays and hides the model color.

Acquisitions

Shortcut keys	Meaning
1	Change to the Lower Jaw image catalog
2	Change to the Upper Jaw image catalog
3	Change to the Buccal image catalog
4-9	Inserts image catalogs onto the page palette according to their sequence and selects these directly.
Right arrow	Changes to the right, to the next image catalog. If this is not yet available, the corresponding image catalog is applied.
Left arrow	Changes to the left, to the next image catalog. If this is not yet available, the corresponding image catalog is applied.
Space bar	Switches the camera on or off
Return	Changes to manual mode or triggers an acquisition
+	Starts the acquisitions in automatic acquisition mode
-	Ends the acquisitions in automatic acquisition mode

Tools – Edit Restoration

Shortcut keys	Meaning
Alt + F	Opens the *"Form"* tool.
Alt + S	Opens the *"Shape"* tool.
Alt + R	Opens the *"Reduce"* tool.
Alt + B	Opens the *"Biogeneric Variation"* tool.
Alt + C	Opens the *"Contacts"* tool.
Alt + M	Opens the *"Position and Rotate"* tool.
Alt + X	Opens the *"Recalculate"* tool.
Alt + L	Opens the *"Connector Lines"* tool.
Alt + 0	Opens the *"Connector Move"* tool.
Alt + I	Opens the *"Facial Variation"* tool.
Alt + E	Opens the *"Edit Base Line"* tool.
Ctrl + C	Activates the *"Slice"* analysis tool.

Tools – Edit Model

Shortcut keys	Meaning
Alt + C	Opens the *"Cut"* tool.
Alt + E	Opens the *"Replace Tool..."* tool.
Alt + F	Opens the *"Form"* tool.
Alt + R	Opens the *"Reset Model"* tool.
Ctrl + Z	Undo
Ctrl + Y	Repeat
Ctrl + Alt + Z	Resets the changes made with the tool.
Ctrl + C	Copy
Ctrl + V	Insert
Ctrl + X	Cut
Ctrl + A	Mark all

Tools – Display Objects

Shortcut keys	Meaning
Ctrl + B	Displays or hides the box of the model.
Ctrl + M	Opens the *"Minimal Thickness"* tool.
Ctrl + U	Hides the jaw which has the active restoration.

16 Sirona Connect portal

16.1 Starting the Sirona Connect portal

✓ The start screen is active.

➢ Click the *"Sirona Connect Portal"* button on the step by step menu.

    ↳ The login window is displayed.

You can log in to the Sirona Connect portal here. You must register as a dentist on the Sirona Connect homepage for this.

Model data in the Sirona Connect Portal

The user contact data is saved within Sirona Connect and is used by Sirona to make contact if necessary. The users should send patient data via Sirona Connect in anonymized form only wherever possible. Sirona Connect deletes this data at regular intervals.

16.2 Registration and functions of the Sirona Connect portal

1. Go to the Sirona Connect homepage and click on *"Dentist Registration"*.

    ↳ The application software now guides you through the log-in process.

2. Enter all required information there.

    ↳ On completing registration successfully, you will receive an e-mail stating from Sirona Connect with an activation link.

3. Click on the link in the e-mail to activate your account.

Under *"My account"* you have the option of amending your user data and saving additional information such as your Skype™ ID.

Under *"My favorite Laboratories"* you can add up to 5 laboratories with which you are able to work via Sirona Connect. For this click on *"Search labs"* and enter at least your zip code and an area for the search. Via the *"add"* and *"remove"* buttons you can adapt your favorite laboratories.

Under the *"External portals"* link you have the option of linking the Sirona Connect portal with other portals. If you do connect with other portals, the data-protection regulations apply for the other portal that is connected. Depending on the external portal you may need its access data to log on.

You can also change your password in this area and display your Sirona Connect order list.

Under the *"User Administration"* link you can create new users, e.g. if there are multiple users working in a practice, and manage their access rights.

16.3 Log out of the Sirona Connect software at the portal

1. Enter user name and password.
2. Activate the relevant option if you want to save the user name and password.
3. In the step menu, click on *"Ok"*.
    - ✎ The data are uploaded in parallel to the information being entered in the portal.

16.4 Check restoration information

You can check the restoration information in the first step.

To the left of the overview the restoration information is shown for each restoration that was created in the *"ADMINISTRATION"* phase.

If the data are not correct you have to change them in the *"ADMINISTRATION"* phase. You can leave the portal with *"Exit Portal"*.

If the data is correct you can click on *"Enter Order Data"* to move to the next step.

16.5 Enter order data

In this step you can select the lab to which the case is to be sent and enter the desired delivery date.

IMPORTANT
Maximum 5 labs
You can save a maximum of 5 labs in the list of your favorite labs.

Via *"Edit your favourite laboratories"* you can add labs to or delete labs from the list.

Under *"Return Date"* you can select the delivery date by clicking on the desired day in the calendar. Under *"Time"* you can also state a delivery time.

Then click on *"Add Additional Information"* to go on to the next step. Your preferred laboratory has saved individual order information, which must be entered for the return date.

16.6 Add additional information

In this step you must add the patient's gender and insurance type (Germany only).

Under *"Additional Instructions"*, either a wide text field is provided or individual fields for further information are shown, which were created by their laboratory.

Using the *"Additional Files"* function you can send additional files (photos).

Then click on the *"Add To Cart"* button to move to the shopping cart.

16.7 Shopping cart

In the shopping cart you can check the order details, modify them or delete the order from the shopping cart.

As soon as the file has been fully uploaded and all the information is correct, you can send the order to your lab via *"Submit cart"*. To do so under *"Verification"* you must enter your password and confirm it with *"Ok"*. The order list is then inserted automatically.

16.8 Order list

You can filter the orders by the various statuses via the filter next to the list.

In order to view the order details you must click the relevant order in the list so that it is highlighted in orange. Then you can view the details by clicking on *"View Order"* in the step menu.

17 Creating a CEREC Guide 2

17.1 Optical impression

1. Scan the situation in the mouth either intraorally or using a model. The following applies at least to all areas, which are intended to later serve as a support for the CEREC Guide 2. The surface scan is also used for the overlay of the x-ray volume.

NOTE
Note that the drilling template cannot be bigger than the scanned area.
Avoid holes in the scan. Otherwise, no locating surface for the CEREC Guide 2 can be determined at these points.

2. Design a restoration at the planned implant position. Mark the emergence profile of the tooth on the gingiva in manual entry mode.
3. Export the data record using in *.SSI format.

17.2 3D x-ray and implant planning

A DVT exposure can be performed before or after the optical impression. Make sure that there are no metal artifacts in the scan, as these may hinder the overlay of optical data with the x-ray volume or even make it impossible. Do not scan the patient at the final bite position, but rather with a slightly opened jaw. Remove all removable metal parts in the opposing jaw (e.g. prosthetics). If possible, record 3/4 of the arch of the jaw. This increases the likeliness that teeth free from artifacts can be used for registration.

To produce a CEREC Guide 2, the import of the previously created *.SSI data record in GALILEOS Implant is necessary. The optical surface scan is superimposed over the X-ray volume. This makes it possible to determine the implant location while also considering the soft tissue and prosthetic planning.

⚠ CAUTION
Check that the optical impression is correctly aligned with the X-ray data record.

If multiple implants are to be planned, multiple *.SSI data records must be imported.

To plan the implant follow the instructions provided in the "GALILEOS Implant 1.9.2" operator's manual. Follow the instructions provided in Appendix C.2 "Exporting plans for third-party processing using optical impressions".

Select Sirona - CEREC Guide Drill Keys as the sleeve system (CEREC Guide 2, SICAT Surgical Guides). You then have three sleeves available to choose from, which match the CEREC Guide drill keys S, M or L respectively.

If, for example only one pilot hole is to be created, the selection of size S is sufficient (apart from Camlog).

The specification of a depth stop is oriented on the length of the drill used. The planned position is reached when drilling once the mechanical stop of the drill reaches the drill key or (if the drill does not have a stop) the length marking on the drill is lowered to the upper side of the drill key.
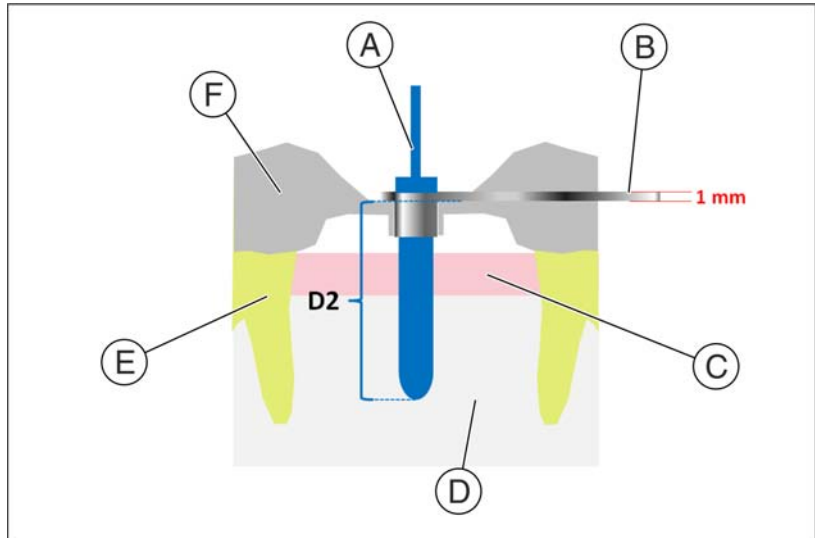
A	Drill	D	Bones
B	CEREC Guide Drill Key	E	Tooth
C	Gingiva	F	CEREC Guide 2

In the GALILEOS Implant software, the depth stop is to be entered using the D2 value. The D2 value is defined as the distance from the side of the drilling template to the apical top of the implant. As the drill strikes the 1 mm thick drill key, the D2 value to be set results from the length of the drill minus one millimeter
(**D2 = drill length – 1 mm**).

The statement of the D1 value is to be ignored.

After entering the D2 value, the sleeve is visualized above the implant at the relevant height.

NOTE

When selecting the bushing, ensure that it does not collide with neighboring teeth and the drill key and the drill itself can be introduced without a collision.
Note that selecting a smaller sleeve may limit the use of larger drill diameters.
The Camlog Guided System is only compatible with sleeve L.

If the representation of the underside of the sleeve cuts the scan shown as the yellow line, this indicates that the position of the drill key is at least partially subgingival.

Multiple implants and sleeve positions are planned in the same way. It is possible to export this as a file. Export the plan for "processing by third-party providers by way of optical impressions" as a .CMD.DXD file.

17.3 Design and development of the CEREC Guide 2

By selecting *"Import"*, you can switch the directly load the *.CMG.DXD file.

Phase ADMINISTRATION

If the plan contains multiple implants, these will be treated as multiple separate restorations. Select the implants that you want to integrate into a drilling template.

Select the machine type for development. This determines the possibilities for further processing.

● Drilling templates can be produced with a bore hole on an MC XL and up to an anatomical size of 85 mm x 40 mm.

Phase MODEL
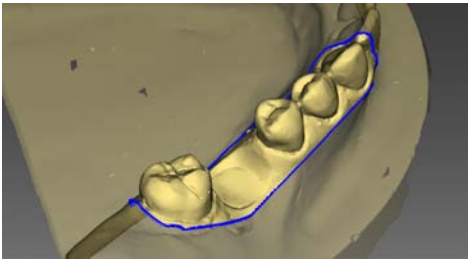
If the original scan is presented, which was also the basis for the implant planning. All areas, which are not intended to serve as a support for the CEREC Guide 2 should be cut. This includes, for example, larger areas of gingiva outside the planned implant position. Parts of the residual teeth may also be discarded if they are not required for support.

Note that a longer template is easier to hold in position with one finger and ensures secure support. This applies to free-end situations in particular.

In the *"Set Restoration Axis"* step, you can define the insertion axis of the drilling template. To do this move the orange-colored ball in the target circle.

Phase DESIGN

Set the parameters for the drilling template.
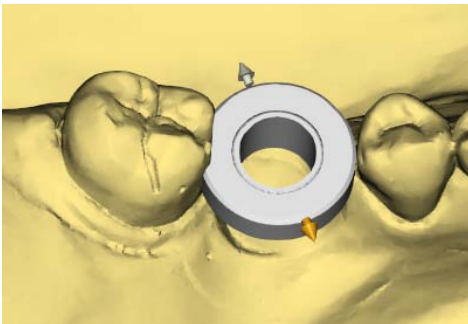
The position and shape of the sleeve cannot be changed using general design tools.

If a sleeve is shown in red, parts of it are subgingival. Determine whether these areas are to be cut away (e.g. to enable the unhindered placement on a model) or are to be left as they are. They color of the sleeve then turns green.

Optionally, you can create side access to introduce the drill from the side. This is only recommended for reasons of stability where required due to a lack of space.

After calculating the template element and if necessary orienting it in the block or round blank, you have the option of creating viewing panels in the step *"Inspection Window"*, which you can use to check the fitting of the template even during the surgical intervention. To do this click on the cursor at the point at which you want to design a viewing panel. Then you have the option to change the position of the viewing window, if necessary.

You can then still adapt the design of the template by cutting away any problematic areas.

Phase MANUFACTURE

If you want to create the drilling template on an MC XL, ensure that you have activated the option *"MC XL Milling"* in *"Configuration"*.

So that the milling process runs without interruption, ensure where necessary that milling tools with a sufficient service life are used, the water filter has been cleaned and there is sufficient water in the tank.

After milling, ensure that no shavings enter into the tank during the cleaning process, as these can quickly clog the water filter.

17.4 Surgical intervention

> ⚠️ **CAUTION**
>
> Remove burrs and round sharp corners on the template element. Check that the template fits correctly beforehand where necessary using a model. The template element must be completely slid open and must not wobble.
> Clean and disinfect the CEREC Guide 2 as described in the chapter below.
> Select the drill key required which corresponds to the drills specified by the manufacturer of the guided system. Also adhere to the drill key assignment table.
> Ensure that the drill key can fully enter the drill hole and stops there without wobbling.

1. Perform the implantation according to the implant manufacturer's instructions.
2. Fix the template in the mouth, holding it in position with your finger if necessary.

Tip: If you have created access to the drill from the side due to a lack of space, first place the CEREC Guide 2 into the patient's mouth. Then guide the drill key through the drill and push it upwards. Now guide the drill through the side into the sleeve position and lower the drill key to the stop point. Then start drilling.

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We reserve the right to make any alterations which may be required due to technical improvements.

Sirona Dental Systems GmbH