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sirona
The Dental Company

CEREC SW

Operator's Manual
Software Version 4.0

English



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1 Introduction

1.1 Dear CEREC user

Hello and welcome to the new generation CEREC Software: CEREC SW 4.0. Sirona Dental System thanks you for your purchase and your trust in the CEREC system.

In connection with the CEREC acquisition unit and milling machine, this software enables you to produce dental restorations, e.g. from ceramic material with a natural appearance (**CE**ramic **REC**onstruction).

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 master the system safely when using CEREC for the first time, you should train based on the exercise model using the described examples.

To prevent personal injury and material damage, please observe the safety information provided within this document, on the CEREC hardware itself, and within the user interface.

To safeguard your warranty claims, please complete the attached **Installation Report / Warranty Passport** when the system is handed over and send it to the indicated fax number.

Happy Milling!
Your Sirona CEREC Team

1.2 Copyright and trademark

Copyright

© Sirona Dental Systems GmbH 2011. All rights reserved.

The information contained in this manual may be changed without notice.

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® and Windows 7® are registered trademarks.

Windows™ is a trademark of Microsoft Corporation.

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2 General information

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 General safety information

Only use original software

Only use original software or software which has been released by Sirona. To produce restorations, 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 your country of practice. Contact your dealer for more information.

Restoration to be checked by trained personnel

Each restoration created using this software must be checked for suitability by a trained professional (e.g. dental technician or dentist).

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2.2 Structure of the manual

2.2.1 Identification of danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in this document. 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.

NOTICE

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 on making work easier.

2.2.2 Formats and symbols used

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

✓ Prerequisite **1.** First action step **2.** Second action step or ➢ Alternative action ↳ Result	Requests you to do something.
See "Formats and symbols used [→ 8]"	Identifies a reference to another text passage and specifies its page number.
• List	Identifies a list item.
"Command/menu item"	Identifies commands, menu items or quotations.

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2.2.3 Conventions

Example	Meaning
Clicking	Pressing once and releasing the left mouse button or the left trackball button on the acquisition unit (or foot switch).
Double-clicking	Clicking the left mouse button or the left trackball button on the acquisition unit (or foot switch) twice in quick succession.
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.
For acquisitions with the CEREC Bluecam: Actuate foot switch	The same function as: Pressing the left trackball button on the acquisition unit or the left mouse button.
"Ctrl+N"	On the keyboard: Press the **Ctrl** and **N** keys simultaneously.
Drag & drop	Press and hold an element (e.g. pictograph), and drop onto new potential destination.

2.2.4 Formats of the manual



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

The Operator's Manual is available on the supplied document CD in pdf format.

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

2.2.5 File format

The software enables you to assign one or more cases to each patient. Depending on its state, a case consists of optical impressions, virtual models calculated from them and one or more virtual restorations.

In this manual, this patient data is referred to as "cases".

The software uses its own file format to export store cases (*.rst). This format contains all case data including patient information. RST files can be opened with other CEREC or inLab software installations. In some cases older software versions may not be able to open data exports from a newer version.

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2.3 The user interface



Overview of the user interface

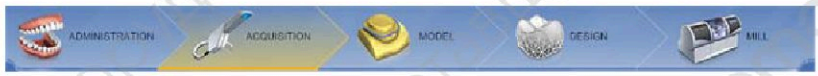
A	Phase Bar	E	Dock Bar
B	System Menu	F	Image catalog (can only be activated in *"ACQUISITION"* phase)
C	Side Panel	G	Main window
D	Step Menu	H	Tool Wheel

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2.3.1 Phase bar

The workflow is described in the software in five phases.



Phase Bar

- ADMINISTRATION
- ACQUISITION
- MODEL
- DESIGN
- MILL

2.3.1.1 ADMINISTRATION



In this phase, you can perform the following:

- Define restorations and determine their type
- Determine the tooth number(s) for each restoration
- Select restoration material,
- Choose a material color.

2.3.1.2 ACQUISITION



In this phase, you can perform the following:

- Acquisitions with the CEREC camera
  - lower jaw,
  - upper jaw,
  - buccal bite
- View a 3D preview of the acquisitions
- Activate other image catalogs

2.3.1.3 MODEL



In this phase, you can perform the following:

- The buccal bite registration
- Edit the virtual models
- Draw and edit preparation margins
- Determine the insertion axes of the restorations

2.3.1.4 DESIGN



In this phase, you can perform the following:

- View initial restoration proposals
- Rotate and position the restorations
- Shape and edit restorations

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2.3.1.5 MILL



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

- Check and adjust the positioning of the restoration in the block
- Determine the sprue position of the restoration
- Determine the block size
- Define milling options
- Begin the milling procedure

2.3.2 Dock Bar

The Dock Bar allows easy access to the objects you are working on, e. g. the virtual models or restorations.

Each object is represented by a realistic icon and a label, e. g. a crown icon with the corresponding tooth number. You can switch back and forth between objects by clicking on the symbols in the Dock Bar.

2.3.3 Tool Wheel

The tool wheel makes the most popular tools in the MODEL and DESIGN phases available for easy access. Which tools are available varies depending on the phase (MODEL or DESIGN).

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2.3.4 Step Menu

Most phases are divided into steps. These are shown in the step menu at the bottom edge of the screen. The step menu changes depending on which phase you are currently performing.

This menu guides you step-by-step through the process.



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

Mandatory steps

Mandatory steps are marked with a red or green bar.

Red bar:	The step has not yet been completed successfully.
Green bar:	The step has been completed successfully.

Note for the seeing impaired: With some vision disabilities, it may be hard to distinguish between the red and green bars in the Step Menu. Affected users should use the keyboard shortcut <Ctrl+Alt+H> to add a pattern to the red bars, giving them an alternative appearance so that they no longer resemble the green bars.

Optional steps

Optional steps do not have colored bars.



They can be shown/hidden using the button on the left of the step menu.

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2.3.5 System menu



In the system menu, you can perform the following:

- Switch to the start screen to start a new case
- Save the current case
- Save the current case under a different name
- Import case
- Export case
- Open license manager
- Configure hardware and software
- Change window mode
- Retrieve software information
- Close the software

2.3.6 The start window

In the start window, you can perform the following:

- Create or select patients
- Edit patient data
- Patient search
- Open cases
- Delete cases
- Add cases

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3 Getting started

3.1 Installing the software

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

1. Insert the DVD into 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.
   ↳ The installation wizard opens.
3. Click on the *"OK"* button.
4. In the next dialog box, click on the *"Next"* button.
   ↳ The license agreement is shown.
5. Read through the license agreement carefully.
6. If you accept the license agreement, then check the *"I accept the terms in the license agreement"* option button and confirm your acceptance by clicking the *"Next"* button.
7. In the next dialog box, click on the *"Next"* button.
8. In the next dialog box, click on the *"Install"* button.
   ↳ The program continues the installation routine. This may take several minutes.
9. Following successful installation, click on the *"Finish"* button.
   ↳ The software is installed.

3.2 Uninstalling the software

✓ The program is closed.

1. Click on "start / All Programs / CEREC SW / 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 *"Yes"* or *"No"*.
   ↳ The software is uninstalled.

3.3 Copy protection

The software can be started only when the USB License Drive is plugged in.

All permissions (milling, interface, software licenses) can be installed as electronic licenses on the license drive (License manager [→30]). Your License Drive was delivered with your acquisition unit or CEREC SW 4.0 Upgrade.

Following an update or to activate additional functions, you might require a new license, which is not located on your USB License Drive. Contact your Sirona distributor for more information on acquiring new licenses.

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3.4 Downloading the software

New version

You can download the latest software version from the Sirona website www.sirona.com.

Upgrade

Major software changes (upgrades) are subject to additional costs and require a new license. Without a new license, they only work in demo mode.

Contact your dealer to find out how to receive new licenses for an upgrade.

3.5 Starting the software

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

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

➢ Double-click the CEREC SW start icon.

or

➢ Click on "Start / All Programs / CEREC SW / CEREC SW 4.0".

↳ The application starts.

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4 Design technique

4.1 General information about CEREC Biogeneric

CEREC Biogeneric is the first method able to reconstruct lifelike occlusal morphology without the help of a dental database. On the basis of the features of a patient's single intact tooth, the program extrapolates the naturally created morphology of other teeth. The biogeneric occlusal design functions for all single tooth restorations and fully anatomic bridges.

Previously, all occlusal design approaches were based on dental libraries and databases containing data records of various standard teeth. Conventional CAD/CAM programs retrieve a tooth from the archive, and then generate a generic design proposal for the given clinical situation. The user then manually edits and adapts this proposal. The biogeneric occlusal design replaces “dental database” design procedure. It can create crowns, inlays, onlays, veneers, and anatomically sized bridges in a fully automated manner. The reconstruction can be based on any intact patient tooth from the same type, i.e. posterior tooth or anterior tooth. The often time-consuming process of manually adjusting the tooth to the clinical situation is now virtually a thing of the past.

4.2 Biogeneric Individual

In the *"Biogeneric Individual"* design technique, the neighboring teeth are analyzed and the restoration proposal is calculated on this basis. 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 Biogeneric Copy

Select the design technique *"Biogeneric Copy"* to transfer parts of the existing tooth in its pre-op condition to the restoration and enhance the rest using the patented Biogeneric procedure.

Acquire the dentition before the preparation in the *"BioCopy Upper"* or *"BioCopy Lower"* image field separately.

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

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4.4 Biogeneric Reference

Select the *"Biogeneric Reference"* design technique to specify which tooth CEREC Biogeneric should use as a reference for the calculation of the restoration suggestion. The reference tooth can be any tooth of the same class (anterior or posterior tooth), e.g. the antagonist or the contra lateral tooth. You can also use a reference tooth from a model in order to achieve a specific morphology.

The reference tooth must be acquired on a separate basis in the *"BioRef Lower"* or *"BioRef Upper"* image field. This technique can be used for inlays, onlays, partial crowns, crowns, and bridges.

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5 Configuration

The *"Configuration"* menu contains three sub-menus:

- Parameters
- Devices
- Options



5.1 Parameters

The *"Parameters"* menu is separated by restoration type. Each restoration type has its own set of parameters.

Crown

Parameters	Description
Spacer	• Increase or decrease the space for adhesive below the crown (not on the preparation margin).
Occlusal Milling Offset	• Apply or remove material on the total occlusal surface in the z direction. • This value only applies to the milling results. • The effects are not visible in the DESIGN or MILL phase in the software. • Change this parameter to compensate if the occlusal surfaces of your restorations are generally too high or too low.
Proximal Contacts Strength	• Set the strength of the approximal contacts. • The software attempts to achieve this contact strength for the restoration proposals.
Occlusal Contacts Strength	• Set the strength of the occlusal contacts. • The software attempts to achieve this contact strength for the restoration proposals.

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Parameters	Description
Minimal Thickness (Radial)	• Set the minimum material thickness on the steep preparation walls. • The software attempts not to fall below this material thickness while calculating the restoration proposals. • The value is shown along with the minimal occlusal thickness as a semi-transparent cover over the preparation in the DESIGN phase. This makes areas visible which fall below the minimum thickness.
Minimal Thickness (Occlusal)	• Set the minimum material thickness of the preparation's occlusal surfaces. • The software attempts not to fall below this material thickness while calculating the restoration proposals. • A high value can lead to a flat morphology in situations where deep fissures could undercut the minimum thickness. • Check the recommendations of the material manufacturer when setting the minimum thickness.
Margin Thickness	• Strengthen the restoration margins with additional material. • Simplifies restoration handling • Prevents material splitting • The extra material can be manually reduced before inserting the restoration.

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Inlay/onlay

Parameters	Description
Spacer	• Increase or decrease space for adhesive below the restoration (not on the preparation margin).
Marginal Adhesive Gap	• Set the gap width at the preparation margin. • The adhesive in the area forms a buffer between ceramic and tooth material. • The adhesive gap cannot exceed the spacer value.
Occlusal Milling Offset	• Apply or remove material on the total occlusal surface in the z direction. • This value only applies to the milling results. • The effects are not visible in the DESIGN or MILL phase in the software. • Change this parameter to compensate if the occlusal surfaces of your restorations are generally too high or too low.
Proximal Contacts Strength	• Set the strength of the approximal contacts. • The software attempts to achieve this contact strength for the restoration proposals.
Occlusal Contacts Strength	• Set the strength of the occlusal contacts. • The software attempts to achieve this contact strength for the restoration proposals.
Minimal Thickness (Radial)	• Set the minimum material thickness on the steep preparation walls. • The software attempts not to fall below this material thickness while calculating the restoration proposals. • The value is shown along with the minimal occlusal thickness as a semi-transparent cover over the preparation in the DESIGN phase. This makes areas visible which fall below the minimum thickness.

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Parameters	Description
Minimal Thickness (Occlusal)	• Set the minimum material thickness of the preparation's occlusal surfaces. • The software attempts not to fall below this material thickness while calculating the restoration proposals. • A high value can lead to a flat morphology in situations where deep fissures could undercut the minimum thickness. • Check the recommendations of the material manufacturer when setting the minimum thickness.
Margin Thickness	• Strengthen the restoration margins with additional material. • Simplifies restoration handling • Prevents material splitting • The extra material can be manually reduced before inserting the restoration.

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Veneer

Parameters	Description
Spacer	• Increase or decrease space for adhesive below the restoration (not on the preparation margin).
Veneer Thickness	• Set the minimum thickness. • The software attempts not to fall below this material thickness while calculating the restoration suggestions. • The value is shown as a semi-transparent cover over the preparation in the DESIGN phase. This makes areas visible which fall below the minimum thickness during the design phase.
Occlusal Milling Offset	• Apply or remove material on the total occlusal surface in the z direction. • This value only applies to the milling results. • The effects are not visible in the DESIGN or MILL phase in the software. • Change this parameter to compensate if the occlusal surfaces of your restorations are generally too high or too low.
Margin Thickness	• Strengthen the restoration margins with additional material. • Simplifies restoration handling • Prevents material splitting • The extra material can be manually reduced before inserting the restoration.

Accepting settings

➢ Click *"Ok"*.

Discarding settings

➢ Click *"Cancel"*.

Resetting settings

➢ Click *"Reset All Group Parameter"*.

↳ The settings for this restoration type are reset to factory settings.

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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.

Adding devices automatically

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

✓ The device is attached to the PC.

1. Click on the *"Scan for New Devices"* button.
   ↳ All devices attached to the PC are detected. You will be prompted to enter a name for new devices.
2. Enter a name for the new device.

Adding devices (manually)

You can manually add devices with the *"Add Device (Manual)"* function. This is mandatory for devices which cannot be operated at the maximum speed of 115,200 baud. This applies to devices with long cable connections or certain radio modules (e.g. Futaba, 19200 baud).

1. Click on the *"Add Device (Manual)"* button.
2. Select whether the device is connected to the network or in series.
3. Network: Enter the network address.
   In series: 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 that it is correctly established. If necessary, contact a qualified technician.

Refresh status

With the *"Refresh Devices"* button, you can

- refresh the status display, e.g. check whether a milling unit has finished milling or
- check the current availability of a device.

Refresh status

With the *"Refresh Devices"* button, you can

- refresh the status or
- check the current availability of a device.

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5.2.1 CEREC Bluecam

Under the menu item *"Camera"*, CEREC Bluecam can be set up.

Setting	Description
Shake tolerance	• Set motion sensitivity for automatic activation. • The more stringent the setting, the longer you have to hold the camera still before the next acquisition will be taken.
Auto-delete rejected images	• Images that could not be set against/ overlaid with the current acquisitions are automatically moved to the Recycle Bin.
Auto-stitch rejected images	• New acquisitions that cannot be set against/overlaid with the last five images will be checked with all subsequent images. • This option uses computing power and, with a large quantity of images, can result in loading periods while the computing takes place.

Accepting settings

➢ Click *"Ok"*.

Discarding settings

➢ Click *"Cancel"*.

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

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

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5.2.2 Milling unit

5.2.2.1 Editing settings

CEREC MC XL

With the *"MC XL"* menu item, you can make subsequent changes to the following settings:

- Names
- Connection settings
  - automatically retrieve IP settings
  - manually enter IP settings
- Manual block fixing
  - If you are using the manual block chuck, you must check the *"Manual block chuck"* box.
- Second motor unit
  - If a second, optional motor unit is installed, you must check the *"Two Bur Sets"* box.

CEREC 3

With the *"CEREC 3/inLab"* menu item, you can make subsequent changes to the following settings:

- Names
- Connection settings
- Large water tank
  - If the 25 liter canister (optional, order no. 60 56 217) is connected and the checkmark has been placed, you will be reminded to change the water at a later time.
  - If a 25 liter canister is subsequently installed, your service technician must place the check in front of *"Large water tank"*.
- Scanner
  - When using a *"CEREC 3/inLab"* milling unit with a built-in scanner (optional, order no. 58 33 707) a check must be placed in front of *"Scanner"*.
  - If a scanner is subsequently installed, your service technician must place a check in front of *"Scanner"*.

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 milling unit

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

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5.3 Options

The *"Options"* menu item has the following sub-items:

- Selecting the ondontogram
- Reset notes
- Database
- Calculating restorations
- Auto-hide the Side Panel

5.3.1 Odontogram

You can set the odontogram using *"ADA/FDI Notation"*:

- International (*"FDI Notation"*)
- USA (*"ADA Notation"*)

5.3.2 Reset notes

Here, all warnings can be displayed again.

Setting	Description
YES	Displays all the deactivated warnings in the workflow again.
NO	Warnings which were previously hidden, remain hidden.

5.3.3 Database

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

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.

5.3.4 Calculating restorations

The *"Restoration Calculation"* item can be used to specify the function when entering the *"DESIGN"* phase.

Setting	Description
YES	Upon entering the *"DESIGN"* phase, proposals for all restorations are automatically calculated, for which preparation boundaries and an insertion axis have been defined. If this option is activated, it may result in lengthy loading times when editing numerous restorations.
NO	Upon entering the *"DESIGN"* phase, only the restoration proposal for the currently active tooth number is calculated.

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5.3.5 Auto-hide the Side Panel

The Side Panel is automatically minimized when you use a tool.

This setting affects the phases MODEL and DESIGN.

Setting	Description
YES	After selecting a tool, the palette will be minimized and only the symbol of the active tool will be displayed. The entire palette opens again when the mouse is positioned over it. **Tip:** Use this setting if you frequently work with the tool wheel.
NO	Provided a tool is selected, the tool palette will always be displayed in its entirety and with all options.

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6 System menu



In the system menu, you can perform the following:

- Switch to the start screen to start a new case
- Save the current case
- Save the current case under a different name
- Import case
- Export case
- Open license manager
- Configure hardware and software
- Change window mode
- Retrieve software information
- Close the software

Opening system menu



➢ Move the mouse cursor to the top of the screen.
or
➢ Click on the system menu button.
↳ The system menu is displayed.

Closing system menu



➢ Click on the system menu button.
or
➢ Click into the main window with the left mouse button.
↳ The system menu is closed.

6.1 Save case

In this window, you can save the current case.



➢ Select *"Save Case"* in the system menu.
↳ The current state of the case is saved.

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6.2 Save the case under a different name

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 under *"Add New Patient"*.

6.3 Import case

✓ A case's RST file (or older CDT file) is located on an acquisition unit or connected data carrier.



1. Click the *"Import Case..."* button in the system menu.
   ↳ The *"Import Case..."* dialog box opens.
2. Select the folder, in which the case is located.
3. Select the relevant file.
4. Click the *"Open"* button

↳ The optical impression is imported and opened.

6.4 Export case

You may save a case at any point.

✓ 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 a name to the case.
4. Click on the *"Save"* button.

↳ The case is exported as an RST file.

If you would like to transfer the optical impression from your acquisition unit to another PC, you can use a USB stick or network drive.

6.5 License manager



The license manager is used for installation of new software licenses on the USB license drive. 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.

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

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6.6 Configuration

The configuration is described in the chapter "Configuration [→19]".



6.7 Window mode

The *"Window Mode"* function can be used to exit full-screen mode or enter it again.



6.8 Current program version

The *"About"* function contains information about the current program version.



6.9 Closing the software

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

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7 Start Screen

In the start window, you can perform the following:

- Create or select patients
- Edit patient data
- Patient search
- Open cases
- Delete cases
- Add cases

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 Creating 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

Adding 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.
   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.

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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.
   ↳ 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 on the *"Edit Patient"* step in the step menu.
   ↳ The patient card/case view is opened for editing.
3. Carry out the changes.
4. Confirm your changes by clicking the *"Ok"* button.
   ↳ The changes are saved in the memory.
5. Click the double arrow on the left side of the step menu.
   ↳ The patient card/case view is displayed.

7.3.2 Deleting patients



✓ You have found the patient with the search function.
1. Click on the patient card.
2. Click on the *"Delete Patient"* step in the step menu.
3. Confirm the deletion by clicking the *"Ok"* 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 on the *"Delete Case"* step in the step menu.
4. Confirm the deletion by clicking the *"Ok"* button.
   ↳ The case is deleted.

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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 on the *"Open Case"* step in the step menu.
   ↳ The restoration is opened.

7.3.5 Adding a new case



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

1. Click on the patient.
2. Click on the *"Add New Case"* step in the step menu.
   ↳ The program switches over to the *"ADMINISTRATION"* phase.

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8 Side Panel

Various functions are offered in the Side Panel, depending on the current step.

8.1 Views

You can use the *"View Options"* button to display six predefined views.

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

Changing the view

1. Click on the *"View Options"* button.
2. Click on one of the proposed views.
   ↳ The virtual model rotates to the corresponding view.

Enlarging or reducing the view

1. Click on the *"View Options"* button.
2. Press and hold the center tooth icon with the left mouse button.
   ↳ The icon will change to a magnifying glass.
3. Pull the mouse button up or down.
   ↳ The virtual model is enlarged or reduced.

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8.2 Tools



The most important tools are also offered in the tool wheel. For further information on the tool wheel, see the section Tool wheel [→ 43].

You can find all tools as a submenu under *"Tools"*.

Tip: You can stop the current tool with the stop icon (top right).

8.2.1 Buccal registration

Moving the buccal acquisition

You can move the buccal acquisition with the *"Drag Buccal"* function.

1. Click on the *"Buccal"* button.
2. Click on the *"Drag Buccal"* button.
3. Click on the buccal acquisition and drag it to the upper jaw and lower jaw.

Rotating the buccal image

You can rotate the buccal acquisition with the *"Flip Buccal Impression"* function.

1. Click on the *"Buccal"* button.
2. Click on the *"Flip Buccal Impression"* button.
   ↳ The buccal acquisition is rotated.

8.2.2 Shaping



With the *"Form"* function, you can

- apply
- remove
- or smooth material

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

Applying material



1. Click on 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.

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Removing material

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



Smoothing

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

1. Click on the *"Form"* button.
2. Click on 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.



Modifying the size

With the *"Size"* button, you can modify the size of the affected region. The affected region is displayed as an orange colored surface. The size of the affected region can be changed for each shaping tool.

1. Click on the *"Form"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Pull the mouse cursor up or down.
   ↳ The size of the orange area is enlarged or reduced. The size is shown on the restoration.

Tip: You can also resize by clicking the right mouse button on the restoration and moving the mouse up or back while continuing to hold down the right mouse button.

Undo and Reset

With the *"Undo"* button you can undo the last change made.

With the *"Reset"* button you reset changes that were made with the tool.

8.2.3 Cutting off model regions



With the *"Cut"* function, you can cut off regions of the model. The cut off model regions are discarded. You can subsequently no longer display discarded regions.

Removing model regions

The *"Discard Part"* function can be used to remove model regions.

1. Click on 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 cropped.

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Inverting a model region

With the *"Invert Selected"* function, a model region which has been cut off can be restored.

✓ The *"Cut"* tool is selected.

✓ You have created a cut.

➢ Click on the *"Invert Selected"* button.

↳ The model region, which was cut off, is displayed.
The remaining model region is hidden.

Tip: You can restore a model region which was cut off by double-clicking on the semi-transparent, cut away region.

8.2.4 Correcting defects



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

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

1. Click on the *"Replace"* button.
2. Set the starting point with a double-click.
3. Click to set additional points and to tightly enclose the defect.
4. Set the line end by double-clicking.
   ↳ The line is finalized.
   Tip: You can use delete to remove the line.
5. Click on the *"Apply"* button.
   Tip: The tool can also be triggered by pressing the space bar.
   ↳ The software smoothens everything within the line through interpolation.

8.2.5 Resetting changes

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

1. Click on the *"Tools"* button.
2. Click on the *"Reset Model"* button.
   ↳ The program will ask whether you really want to reset all changes.
3. Confirm with *"Ok"*.

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8.2.6 Trimming



You can isolate the preparation with the Trim function. This allows you, for example, to draw the preparation margin more easily. Image regions which have been trimmed can later be shown/hidden as required.

Hiding image regions

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

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. Place the line close to the preparation around which you wish 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 restore a hidden image region by double-clicking on the hidden, semi-transparent region.

Undo and Reset

With the *"Undo"* button you can undo the last change made.

With the *"Reset"* button you reset changes that were made with the tool.

8.2.7 Entering the preparation margin

For further information on using this tool, see the section Entering the preparation margin [→ 65].



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.

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Drawing manually

Use *"Manual"* to manually draw the preparation margin. With this method, position individual points close to one another to manually plot the preparation margin in difficult situations.

✓ The *"Margin"* tool is open.

➢ Click on the *"Manual"* button.

↳ The manual technique is switched on.



Drawing manually with intensity image

Use *"Manual with intensity image"* to manually draw 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 between the drawing options with the space bar.

Undo and Reset

With the *"Undo"* button you can undo the last change made.

With the *"Reset"* button you reset changes that were made with the tool.

8.2.8 Positioning



The restorations can be moved and rotated with the *"Move"* function.

Moving



You can move the restoration with the *"Position"* function.

- mesio-distal
- bucco-lingual
- occlusal-cervical

You can move the restoration in 2 ways:

- Step by step, by repeatedly clicking on one of the arrows, which shows the axes of motion on the semi-transparent cube.
- Continuously in two directions when you click on one side of the cube surface and move the mouse without releasing the mouse button.
- Continuously in all 4 directions when you click in the middle of the cube surface and move the mouse without releasing the mouse button.

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Rotate

You can rotate the restoration with the *"Rotate"* function.

You can rotate the restoration around the following axes:

- mesio-distal
- bucco-lingual
- occlusal-cervical

You can rotate the restoration in 2 ways:

- Step by step, by clicking an arrow on a rotational axis.
- Continuously by clicking on the rotational axis and moving the mouse while holding down the mouse button.

8.2.9 Shaping



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

You can shape the restoration in 3 ways:

Function	Description
Auto	The software selects the axis of motion based on the screen perspective.
2-Direction	Movement is possible along an axis, orthogonal to the restoration surface.
4-Direction	Movement is possible along two axes, parallel to the restoration surface.



Anatomical

With the *"Auto"* function, morphological regions are pre-selected for shaping, e.g. cusps or fissure lines.



Circular

With the *"Manual"* function, a circular region is pre-selected for shaping.

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Modifying the size

This option is only available with the circular version.

With the *"Size"* button, you can modify the size of the affected region. The affected region is displayed as an orange colored surface.

1. Click on the *"Shape"* button.
2. Click the *"Size"* button and press and hold the mouse button.
3. Pull the mouse cursor up or down.
   ↳ The size of the orange area is enlarged or reduced. The size is shown on the restoration.

Tip: You can also resize by clicking the right mouse button on the restoration and moving the mouse up or back while continuing to hold down the right mouse button.

Scale whole

This option is only available when using the automatic tool.

With the *"Scale Whole"* button, you can modify the total size of the preparation.

8.2.10 Contacts



When you modify the restoration, the contact surfaces also move. The *"Contacts"* function resets the contacts to the thicknesses set in the parameters.

1. Click on the *"Contacts"* button.
2. Click on the *"Mesial"*, *"Distal"* or *"Occlusal"* button.
   ↳ The corresponding contact surface will be reset.

8.2.11 Varying Biogeneric Morphology



With the *"Biogeneric Variation"* function, you can generate various versions of possible morphologies.

1. Click the *"Biogeneric Variation"* button and press and hold the mouse button.
2. Pull the mouse cursor up or down.
   ↳ The morphology is changed.
3. Release the mouse button when you see the optimum morphology for your purposes.

8.2.12 Adjusting the sprue position

With the *"Sprue"* function, you can rotate the position of the sprue on the restoration in two ways:

- Step by step, by clicking an arrow in the circle segment.
- Continuously, by left clicking on the rotational axis and moving the mouse while holding down the mouse button.

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8.2.13 Moving the block

Moving

With the *"Position"* function, you can move the restoration in all spatial directions until the restoration hits a block boundary.

You can move the block in 2 ways:

- Step by step, by repeatedly clicking on one of the arrows, which shows the axes of motion on the semi-transparent cube.
- Continuously in two directions when you click on one side of the cube surface and move the mouse without releasing the mouse button.
- Continuously in all 4 directions when you click in the middle of the cube surface and move the mouse without releasing the mouse button.

Rotating

With the *"Rotate"* function, you can rotate the restoration around the block axis.

You can rotate the restoration in the block in 2 ways:

- Step by step, by clicking an arrow in the circle segment.
- Continuously, by clicking and holding on the circle segment.

8.2.14 Tool wheel

The tool wheel makes the most popular tools in the MODEL and DESIGN phases available for easy access. Which tools are available varies depending on the phase (MODEL or DESIGN).

Working with the tool wheel

✓ You are in the MODEL or DESIGN phase.

1. Click on the main window with the right mouse button.
   ↳ The tool wheel is opened with the cursor.
2. Place the mouse cursor above the tool you want to use.
   ↳ If the tool has multiple versions, these will be displayed.
3. Click the tool you wish to use.
   ↳ The selected tool is activated.

8.3 Displaying objects

Upper jaw



With the *"Upper Jaw"* button, you can display and hide the upper jaw.

1. Click on the *"View Options"* button.
2. Click on the *"Upper Jaw"* button.
   ↳ The upper jaw is displayed or hidden.

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Lower jaw

With the *"Lower Jaw"* button, you can display and hide the lower jaw.

1. Click on the *"View Options"* button.
2. Click on the *"Lower Jaw"* button.
   ↳ The lower jaw is displayed or hidden.



Display upper/lower jaw transparently

You can freely set the transparency of the upper and lower jaw.

1. Click on the *"View Options"* button.
2. Press and hold the left mouse button over the appropriate button and move the mouse up or down.
   ↳ The transparency of the corresponding jaw is changed.



Minimum thickness

With the *"Minimal Thickness"* button, you can show and hide the minimum thickness display.

➢ Click on *"Minimal Thickness"*.
   ↳ The display of the minimum thickness will be displayed or hidden.

You can set the minimum thickness under *"Parameters"*. For further information, see the section Parameters [→ 19].



Restoration

The *"Restoration"* button enables you to display and hide the restoration.

➢ Click on *"Restoration"*.
   ↳ The restoration is displayed or hidden.



Displaying a transparent restoration

You can freely set the transparency of the restoration.

1. Click on the *"View Options"* button.
2. Press and hold the left mouse button over the *"Restoration"* button and move the mouse up or down.
   ↳ The transparency of the active restoration is changed.



Trimmed region

With the *"Trimmed Model"* button, you can display and hide the trimmed region.

✓ You have trimmed a region in the MODEL phase.
➢ Click on *"Trimmed Model"*
   ↳ The trimmed region of the virtual model is displayed or hidden.

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8.4 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.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Model Contacts"* button.
   ↳ The contact areas on the model are displayed or hidden.

Penetration/pressure:	> 100 µm 100 - 50 µm 100 - 0 µm
Distance:	0 - 50 µm 50 - 100 µm > 100 µm

Contact surfaces on the restoration

You can use the Side Panel 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 100 - 0 µm
Distance:	0 - 50 µm 50 - 100 µm > 100 µm

Side and bottom surfaces



Using the *"Model Box"* button, the virtual model can be displayed without the sides and bottom.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Model Box"* button.
   ↳ The virtual model is displayed without side and bottom surfaces.

Tip: Show the jaw model in the MILL phase (show reference objects) and hide the model's bottom to review the fit on all sides.
This allows you to monitor the tightly sealed preparation boundary and check whether the ceramic extends through the preparation. This is an indication of places where the restoration can be seated.

Occlusal contacts

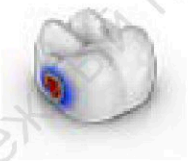


Using the *"Occlusal Contacts"* button, the occlusal contact points of the active restoration, which are displayed in color, can be shown or hidden.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Occlusal Contacts"* button.
   ↳ The restoration is displayed with or without occlusal contacts.

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Proximal contacts

Using the *"Proximal Contacts"* button, the approximal contact points of the active restoration. which are displayed in color, can be shown or hidden.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Proximal Contacts"* button.
   ↳ The restoration is displayed with or without proximal contacts.



Model color

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

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Color restoration"* button.
   ↳ The virtual model is shown in white or the model color.



Cutting

Using the *"Cut"* button, a cut can be placed through the restoration and model in the screen plane.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Cut"* button.
   ↳ A cut is placed in the screen plane through the virtual model.
3. Click on the "Move cut" buttons to move the cut plane.



Cursor details

With the *"Cursor Details"* button, you can display the height and thickness of the restoration with the cursor.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Cursor Details"* button.
   ↳ The height and thickness of the restoration are shown with the cursor and updated in real time.



Distance

With the *"Distance"* button, you can measure the distance.

1. Click on the *"Analyzing Tools"* button.
2. Click on the *"Distance"* button.
3. Click on the restoration to select the start and end points.
   ↳ The distance is displayed.

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9 ADMINISTRATION phase

Selecting the restoration type

➢ Select the restoration type in the Side Panel: *"Single Restoration"* or *"Bridge Restoration"*.

Single tooth restoration



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

1. Click on the tooth for which the restoration is to be created.
2. Select the restoration type.
   The available types of restorations are matched to the tooth number selected.
3. Choose the design technique *"Biogeneric Individual"*, *"Biogeneric Copy"* or *"Biogeneric Reference"*.
   Tip: For information on the design technique, see the section Design technique [→ 17].
4. Optional: Click on the step *"Select Milling Device"* in the step menu to change the current milling unit.
5. Optional: Click on the *"Select Material"* step in the step menu to change the manufacturer and the material.
6. Confirm the settings by clicking *"Ok"*.
   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.

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Bridge restoration

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

1. Choose the positions of the two end abutments of the bridge.



The individual elements of the bridge are shown above. The software attempts to logically preset the restoration types. In the case of long bridges, a scrollbar appears beneath the elements.

2. Select the individual bridge elements.
3. Determine the restoration type and the design technique of the individual elements, as described in section ADMINISTRATION phase [→ 47] .
4. Optional: Click on the step *"Select Milling Device"* in the step menu to change the current milling unit.
5. Optional: Click on the *"Select Material"* step in the step menu to change the manufacturer and the material.
6. Confirm the settings by clicking *"Ok"*.
   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.

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Finishing the ADMINISTRATION phase

✓ All restorations to be created are defined.

✓ The *"ACQUISITION"* phase is can be selected.

➢ Click on the *"ACQUISITION"* phase.



or



➢ Click on the double arrow.

↳ The program switches over to the *"ACQUISITION"* phase.

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10 ACQUISITION phase

10.1 Image catalogs

Overview

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



- Lower Jaw



- Upper Jaw



- Buccal

In addition, further image catalogs can be shown:

- BioRef Lower
- BioRef Upper
- BioCopy Lower
- BioCopy Upper

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.

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10.1.1 Working with the image catalog



In the image catalog all acquisitions are shown respective to their regions.

The first acquisition of an image catalog is called the reference acquisition and is marked with a dot (flag in the upper right corner of the frame). Acquire the image in the occlusal direction, as this acquisition determines the orientation of the virtual model.

The acquisitions are labeled as follows:

Symbol	Meaning
Green flag with check mark	Calculated / overlaid images
Green flag with dot	Reference optical impression
Blue flag	The attempted calculation / overlay is still being processed.
Red flag with exclamation mark	Calculation / overlay failed.
No flag	Hidden images

If you position the mouse over an acquisition, it will be shown in the camera view and highlighted in the 3D preview.

Scrolling through the image catalog



For each acquisition, a colored dot will be shown at the top of the image catalog.

Color	Meaning
Green	Calculated / overlaid images
Blue	The attempted calculation / overlay is still being processed
Red	Calculation / overlay failed
White	Hidden images

If the acquisitions can no longer be displayed in full in the image catalog, a scroll bar appears. You can use it to scroll through all acquisitions.

1. Click on the scroll bar and press and hold the mouse button.
2. Slide the scroll bar to the right or left.

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Selecting images

➢ Click on the acquisition with the left mouse button.
Several images can be selected.
↳ The images are now selected.

Moving acquisitions

You can move acquisitions to other image catalogs using drag & drop.

1. Click on marked acquisitions and hold down the mouse button
2. Move the selection to the icon of the desired image catalog.
   ↳ The program will ask whether you want to move or copy the acquisition.
3. Select *"YES"* to copy the acquisition or *"NO"* to move it. *"Cancel"* can be used to cancel the operation.
   ↳ The acquisition will be ready for use in the corresponding image catalog.

Hiding images

➢ Click an acquisition with the right mouse button.
↳ The acquisition is shown in gray.
The acquisition is no longer used for the 3D preview and virtual model creation.

You can make the acquisitions visible again by following the same process.

If the *"Ignored"* filter is active, the acquisition remains visible in the image catalog.
If the *"Ignored"* filter is deactivated, the acquisition is hidden (see Command filter [→ 53]).

Select command

The *"Select"* command enables you to:

- select all images
- void the selection
- invert the selection

1. Click the *"Select"* button in the image catalog.
2. Click the appropriate button.

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Edit command

The *"Edit"* command enables you to:

- copy
- cut
- insert
- delete
- hide
- display

1. Select the acquisitions you want to edit.
2. Click the *"Edit"* button in the image catalog.
3. Click the appropriate button.

Advanced command

The *"Advanced"* command enables you to:

- buffer acquisition sequence (quadrant)
- Compose two acquisition sequences (quadrant)
- Switch to the *"Impression Scan"* mode

Command	Description
"Add Quadrant"	• Buffer the first acquisition sequence (quadrant). • Subsequently, another acquisition sequence can be taken.
"Merge Quadrants"	• The current acquisition sequence is merged with the buffered sequence.

1. Click the *"Advanced"* button in the image catalog.
2. Click the appropriate button.

Filter command

The *"Filter"* command enables you to:

- Turn the display of hidden acquisitions on or off
- Show or hide discarded acquisitions (calculation/overlay not possible)

Command	Description
"Ignored" (active)	Hidden acquisitions are displayed.
"Rejected" (active)	Discarded acquisitions are displayed.

1. Click the *"Filter"* button in the image catalog.
2. Click the appropriate button.

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10.1.2 Adding image catalogs

With the *"Add Catalog"* button, you can create additional image catalogs.

1. Click on the *"Add Catalog"* button.
   ↳ The possible image catalogs are displayed.
2. Click on the required image catalog.

↳ The image catalog is displayed next to the standard image catalogs.

10.1.3 Recycle bin

Removing acquisitions

1. Select the acquisitions you want to remove.
2. Click on the *"Edit"* button.
3. Click on the *"Delete"* button.

   or

   ➢ Grab the image with your mouse and move it using drag & drop to the recycle bin.

↳ The acquisition is sent to the recycle bin.

Tip: You can move the last acquisition to the recycle bin by right-clicking the image catalog icon.

Opening the recycle bin

In the recycle bin, you will see the acquisitions removed from the currently active image catalog.

1. Click on the icon of the image catalog, for which you wish to open the recycle bin.
2. Click on the icon of the recycle bin.

↳ The recycle bin for the active image catalog is displayed.



Reusing acquisitions from the recycle bin

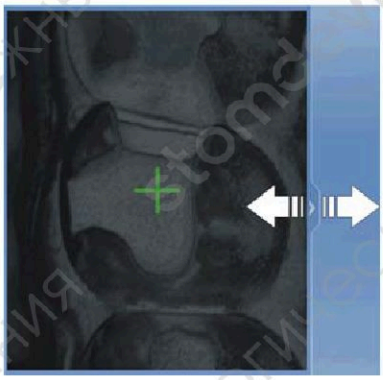
➢ Grab the image with your mouse and move it using drag & drop to the desired folder.

Tip: If you show/hide acquisitions in the recycle bin, they will be automatically moved back to the image catalog.

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10.2 Camera view



Change window size

You can adjust the size of the camera view 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.

Height and intensity image

Acquisitions from the image catalog can be displayed as height or intensity images.



Height image



Intensity image

✓ The camera is switched off.

1. Click on the icons to switch between the height and intensity image.
2. Position the mouse cursor over an acquisition in the image catalog.
   ↳ The acquisition is shown in the camera view of the selected layout.

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 is moved.

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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 Taking the scan

10.4.1 Switching CEREC camera on/off

The CEREC camera is turned on automatically when you switch to the acquisition phase. If it is not used for some time, it will shut down.



➢ Click the camera icon to switch the CEREC camera on or off.

10.4.2 Camera support

Using the camera support gives you the following advantages:

- You obtain acquisitions free of motion blurring.
- You avoid damage to the prism.
- You avoid touching the prepared tooth.

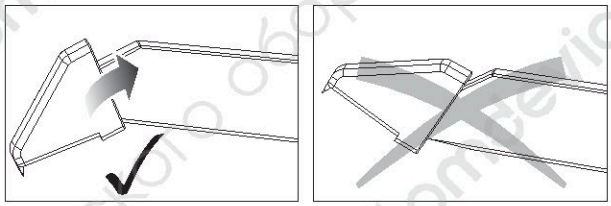
⚠ CAUTION

Using the camera support

Clean the camera support by wiping or spraying it with disinfectant prior to use. Designed for one-time use only.

10.4.3 Preparing the optical impression

1. Push the camera support onto the camera as illustrated.

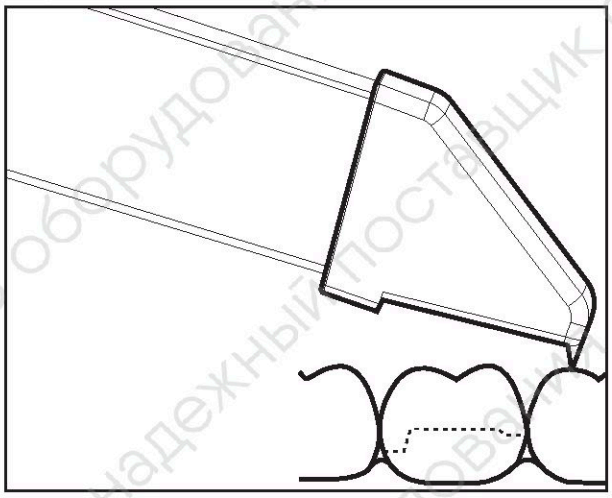


Pushing on the camera support

2. Position the camera over the teeth to be acquired.

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Supporting the 3D camera

3. Support the camera with the front part of the camera support on a tooth so that you can hold it quietly during the acquisition phase.

NOTICE

Powder on the surface of the prism

If the prism touches powdered surfaces, then powder usually remains on the prism surface and generates dark spots in the image.

The powder can be wiped off from the prism with a soft cloth.

10.4.4 Taking acquisitions with the CEREC camera

With the CEREC camera you can switch between two acquisition modes:

- manual
- automatic

After being switched on, the CEREC camera is set to automatic acquisition control.

NOTICE

Image brightness

The image brightness during the scan is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the CEREC camera and the tooth.

The surroundings of the tooth to be acquired should be as weakly illuminated as possible. Avoid any type of external light. Switch off the dental light.

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Changing from automatic to manual acquisition control

You can switch from automatic to manual acquisition control.

✓ You are in automatic acquisition control.

1. Move the mouse cursor over the camera icon.
2. Press the foot control upward and keep it pressed.
   ↳ A green cross appears in the live image. Manual acquisition control is enabled.

You can leave manual acquisition control by following the same process.

Automatic acquisition control

To help avoid blurred acquisitions caused by withdrawing the CEREC camera too early, an acoustic signal sounds as soon as the acquisition is completed. Make sure that neither the Windows volume control is at the lowest position nor “Sound off” is activated.

1. Position the CEREC camera as described above the powdered tooth.
2. Once a sharp acquisition is possible, images are generated and transmitted to the 3D preview automatically.
   Observe undercuts on all lateral edge lines of the preparation.
3. Move the camera until all required images have been acquired.
   ↳ The model is restored automatically in the 3D preview during the acquisition.
4. Then check the above points once again. Take care that the optical impression is **sufficiently bright**, **sharp** and **free of motion blurring**. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the scan icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw and the buccal registration.

Manual acquisition control

1. Press the foot control upward and keep it pressed.
   ↳ A green cross appears in the live image in the camera view.
2. Release the foot control.
   ↳ The acquisition is automatically transferred to the 3D preview.
3. Additional acquisitions can be created by repeating steps 1 and 2.
   ↳ The model is restored automatically in the 3D preview during the acquisition.
4. Then check the above points once again. Take care that the optical impression is **sufficiently bright**, **sharp** and **free of motion blurring**. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

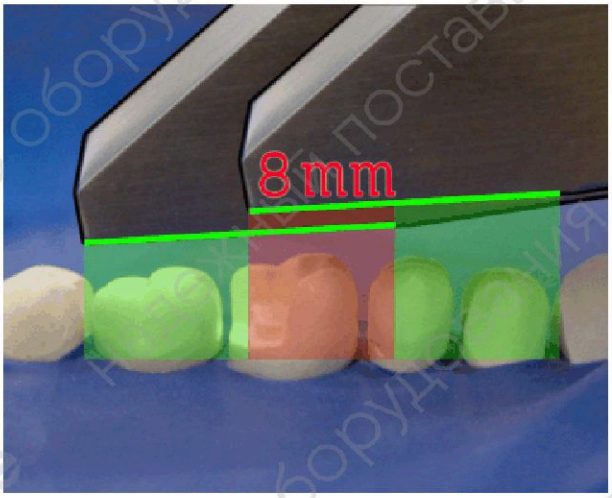
If you click the acquisition icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw and the buccal registration.

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10.4.5 Supplementary optical impressions

Acquiring the neighboring teeth as well



Overlap area 8mm

If the neighboring teeth are to be completely imaged as well, then the image catalog can be extended by acquisitions of these teeth. The overlap area of two neighboring acquisitions must be at least 8 mm.

10.4.6 Angled optical impressions

Additional angled optical impressions

Additional angled acquisitions are possible. They can be used to acquire regions that are concealed in the occlusal acquisition direction, or to acquire steep walls in more favorable angles.

IMPORTANT
Proximal undercuts Proximal undercuts may make it impossible to seat an inlay.

The maximum permissible tilt angle for capturing an additional optical impression of the same area is 20°.

10.4.7 Optical impressions for quadrant restoration

For quadrant restoration it is recommended to acquire the prepared teeth as well as an unprepared neighboring tooth in each case. It can be covered by capturing several supplementary optical impressions.

10.4.8 Acquiring end teeth

End tooth at the distal margin

When end teeth are restored, the end tooth should lie at the distal margin of the image field.

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10.4.9 Acquiring an impression

Preparing an impression

✓ In certain circumstances, the impression must be cut free somewhat, so that the definition of the image of the CEREC camera is sufficient.

➢ If scannable silicon is not used, provide the area to be acquired with a matt finish to prevent reflections. For this purpose, use CEREC Optispray.

Acquiring an impression



1. Click on the icon of the desired image catalog.
2. Open the image catalog.
3. Click on the *"Advanced"* button.
4. Click on the *"Impression Scan"* button.
5. Start the acquisition procedure.
   ↳ In the 3D preview, the model is displayed on both sides. The model preview is displayed in yellow, whereas the preview of the casting itself is shown in green.

As long as *"Impression Scan"* mode is active, acquisitions are inverted while creating the virtual model. *"Impression Scan"* mode is available for all image catalogs.

The various catalogs do not need to be acquired in the same mode.

10.4.10 Finishing the phase

✓ All necessary acquisitions are available (jaw, possibly opposing jaw, and buccal bite acquisition).

✓ The *"MODEL"* phase is can be selected.

➢ Click on the *"MODEL"* phase.

or

➢ Click on the double arrow.

↳ The program switches over to the *"MODEL"* phase.

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11 MODEL phase

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

11.1 Buccal registration

In this step, you see the virtual models of the jaw, opposing jaw, and the buccal acquisition. The buccal acquisition is placed in the center between the lower jaw and upper jaw.

In the *"Bite Registration"* step, you can work with the following tools:

- Drag Buccal
- Flip Buccal Impression

The use of the individual tools is described in the section Side Panel [→ 35] .

For further information on the *"Flip Buccal Impression"* function, see the section Buccal registration [→ 62].

Rotating the lower and upper jaw

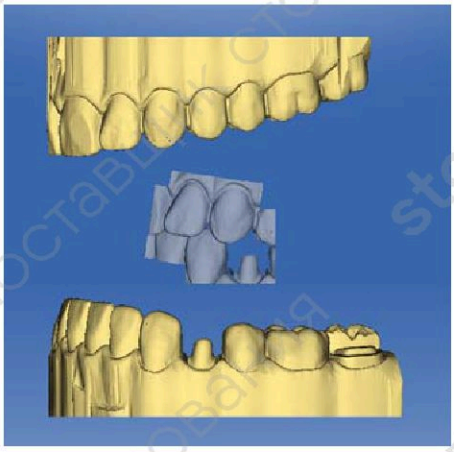
➢ Click in the blue area with the left mouse button and hold the button down.

↳ 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 jaws can be freely rotated individually.

Registering the buccal acquisition on the lower jaw and upper jaw



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).

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↳ 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.

Rotating the buccal image

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:



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

or

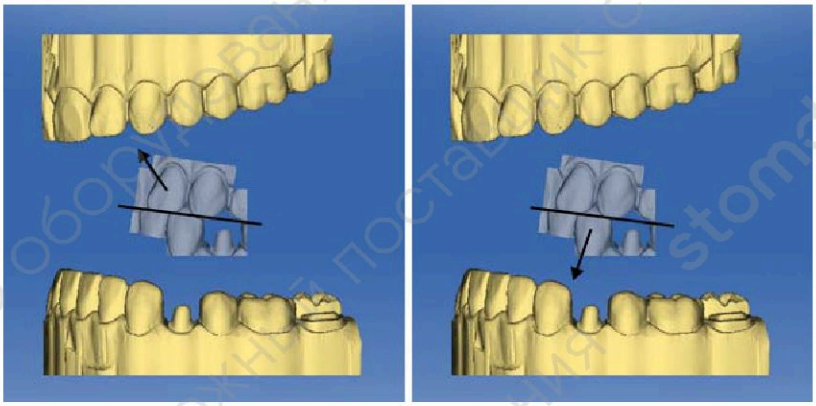
➢ Move the mouse via *"Tools"* onto the *"Bite Registration"* button and activate the *"Flip Buccal Impression"* command.

↳ The buccal acquisition will automatically flip, and you can then register it on the jaw using the drag & drop technique.

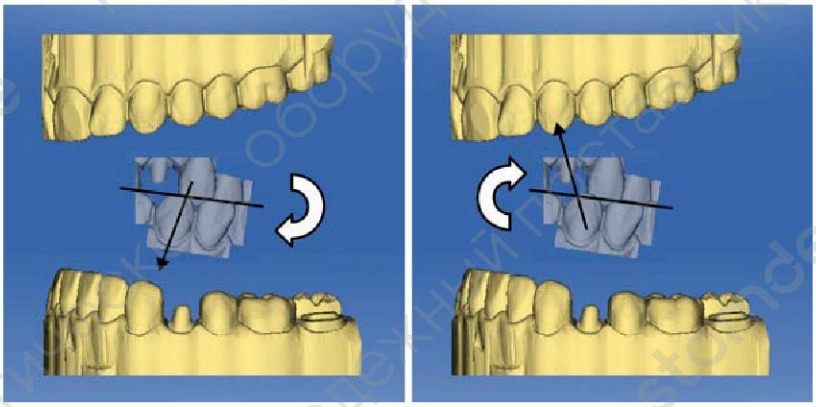
This works in the same way vice versa, i.e. if you click on the lower area of the buccal image and then drag it onto the upper model.

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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 the double arrow to proceed to the next mandatory step.

or

➢ Click on the icon of a restoration in the Dock Bar to start the preparation of this restoration.

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11.2 Editing the model

This step is optional. To access this step, you must click on it.

In the *"Edit Model"* step, you can work with the following tools:

- Form
- Cut
- Replace
- Reset

The use of the individual tools is described in the section "Side Panel [→35]".

11.3 Trimming the preparation

This step is optional. To access this step, you must click on it.

In the *"Trim Area"* step you can hide image regions outside of the preparation, e.g. mesial and distal neighbors.

If the virtual model is trimmed in this design step, both the sides and the bottom are subsequently displayed as closed.

In the *"Trim Area"* step, you can work with the following tools:

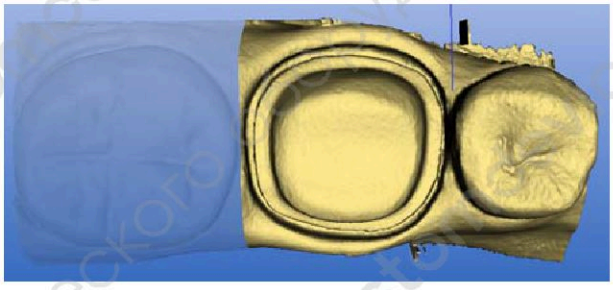
- *"Trim"*

The use of the tool is described in the section Side Panel [→35] .

Trimming image regions

You can trim several image regions.

1. Rotate the model to a perspective in which you can see all areas that you want to trim. The model cannot be rotated while you are drawing the line.
2. Double click in any location to set the starting point of the trim line.



Distal neighbor hidden

3. Click to set further points of the line, e.g. in the interdental space.
4. Double click in any position to end the line. Ensure that the closing end of the line does not cut any areas of the model that you want to keep.

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↳ The smaller image region to the side of the line is hidden.
Tip: If the wrong image region is hidden, you can switch to the other image region by double-clicking the hidden region.

11.4 Entering the preparation margin

In the *"Draw Margin"* step, you can work with the following tool:

- Margin

The use of the tool is described in the section Side Panel [→ 35] .

General information

As you are entering the preparation margin, you can rotate the 3D model. Ensure the left mouse button is pressed and held. A quick click adds a point to the preparation margin.

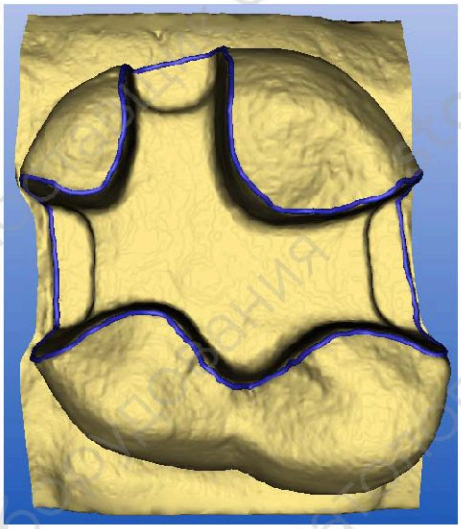
The preparation margin must always form a closed line.

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

To enter the preparation margin, a technique can be selected in the Side Panel:

Technique	Layout	Usage
"Auto"	Height image	In the case of clear preparation margins, for the initial drawing of the border.
"Manual"	Height image	In the case of unclear preparation margins, for the subsequent correction of the initial border.
"Manual with intensity image"	Intensity image	

Entering preparation margin in the case of clear preparation margins

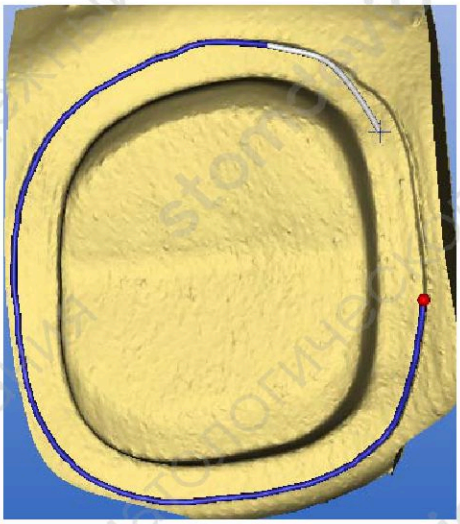


1. Start the entry by double-clicking anywhere on the preparation margin.
2. Move the cursor along the preparation margin.
Tip: To support the automatic edge detection, click anywhere near the margin on the raised side. There is an automatic correction when the next point is set.
3. Continue this procedure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

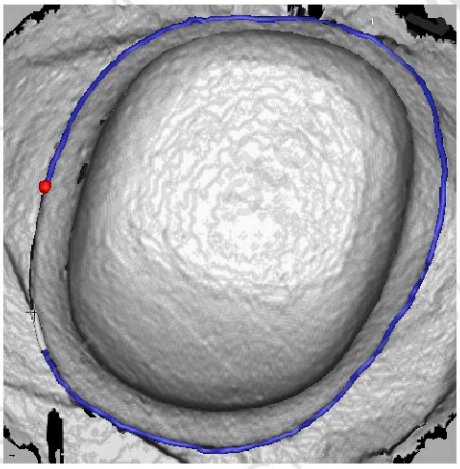
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Entering the preparation margin in the case of unclear preparation margins



If you switch to *"Manual"* while entering the preparation in the Side Panel, you can draw the margin yourself.
Take care to place the points exactly on the margin and close to one another.



If you wish to see the intensity image in unclear situations, change to the Side Panel in *"Manual with intensity image"*.

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

Moving to the next step

✓ The step is completed.

➢ Continue with the preparation margins for the next restoration by clicking on the desired restoration in the Dock Bar.

or

➢ Click on the next step.

11.5 Defining the insertion axis

In the *"Define Insertion Axis"* step, you can work with the following tools:

- Insertion Axis

The use of the individual tools is described in the section "Side Panel [→35]".

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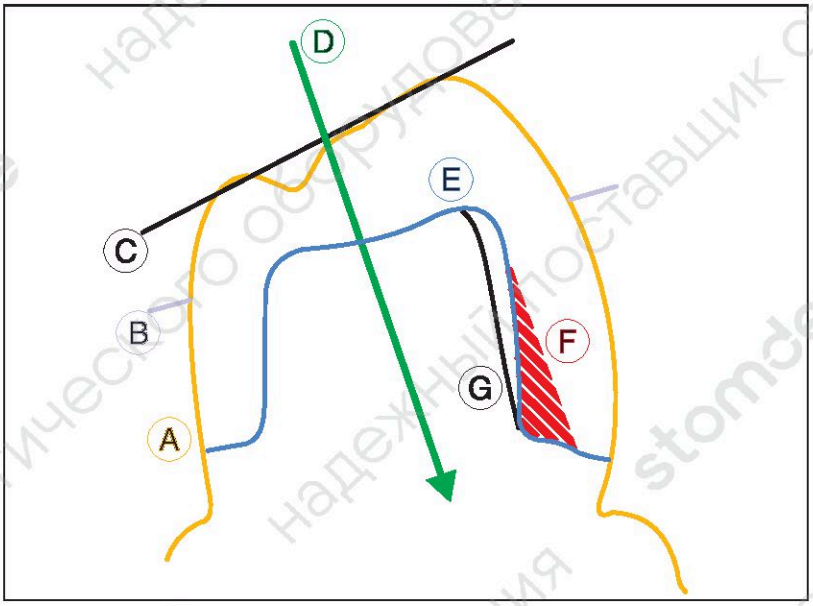
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11.5.1 Preparing the right insertion axis

CEREC Biogeneric obtains the information it requires from the occlusal surface and the proximal contact line of adjacent teeth, based on the insertion axis selected by the user. The software stipulates that both levels must be positioned vertically to the 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.

Deviations of the acquired surface from the actual occlusion have a negative effect upon the quantity of data available for the biogeneric algorithm. This has the potential to affect the quality of the proposal.



A	Tooth contour	E	Preparation
B	Proximal contact line	F	Undercut
C	Occlusal surface	G	Alternative buccal preparation line
D	Insertion axis		

(A) displays the original contour of the tooth to be restored.

The optimum alignment for the insertion axis (D), in order to provide information for the biogeneric algorithm, is approximately vertically to the proximal contact line (B) and occlusal surface (C).

Undercuts (F) may arise with this axis, which is ideal for the biogeneric calculation for the preparation (E). (G) shows an alternative buccal preparation line to optimize the insertion angle and to enable optimum results from CEREC Biogeneric Individual.

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11.5.2 Redefining the insertion axis

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

1. Change the position of the preparation such that all yellow 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 yellow-marked undercuts are as far away as possible from the preparation margin.
2. In order to achieve an optimum result with CEREC Biogeneric, change the position of the preparation so that the insertion axis is aligned as vertically as possible to the occlusal surface.
3. Then rotate the preparation model so that the model is correctly labeled by the axis designations (mesial<->distal). To do this, rotate the preparation in the occlusal view by grasping the right or left edge of the screen with the mouse pointer and then moving the pointer along the edge of the screen.
4. Confirm with the *"Ok"* button.

↳ The insertion angle of the restoration is determined.

11.6 Confirming quality

With some licensing versions (e.g. PAYG financing model), you must certify the quality of the model. Only following confirmation, can you change to the DESIGN phase.

1. Check the quality of the model.
2. Carry out any necessary corrections.
3. Click on the *"Check Models"* button.



↳ You have confirmed the model and can change to the DESIGN phase.

11.7 Finishing the phase

✓ The next phase is can be selected.

➢ Click on the next phase.

or

➢ Click on the double arrow.

↳ The program switches over to the next phase.

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12 DESIGN phase



12.1 Checking parameters

You can check the parameters for this restoration prior to further processing. The values entered here only apply to the current restoration.

This step is optional. If you skip this step, global parameters are used.

You can change the parameters as described in section Parameters [→ 19] .

12.2 Editing the restoration

The virtual model is used for visualizing and designing a 3D restoration.

Once the restoration has been calculated, you can modify the restoration with the tools available in the tool bar.

The individual tools and their uses are described in the section .

12.3 Finishing the phase

✓ The next phase is can be selected.

➢ Click on the next phase.

or

➢ Click on the double arrow.

↳ The program switches over to the next phase.

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13 MILL phase

13.1 Replacing the milling unit



In the *"Milling Unit"* step, you can select the device to mill the restoration.

13.2 Changing milling settings

For the milling process, you can also select veneer mode and/or fast milling.

Veneer mode

Veneer mode ensures that even the finest structures are taken into account during the milling process. This prevents the veneer and anterior crowns from being positioned improperly.

Fast milling

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. To do this, activate the *"Fast Milling"* button.

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

13.3 Positioning the restoration in the block

You can move and rotate the block around the restoration and determine the sprue position using the positioning tools.

The tools are described in the section .

13.4 Starting the milling procedure

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

You can find further information about milling in the corresponding operating instructions.

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We reserve the right to make any alterations which may be required due to technical improvements.

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Sirona Dental Systems GmbH
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Germany
www.sirona.com

in the USA:
Sirona Dental Systems LLC
4835 Sirona Drive, Suite 100
Charlotte, NC 28273
USA

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