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1 Introduction

1.1 Dear Customer,

Thank you for purchasing your inLab CAM SW software from Dentsply Sirona.

In conjunction with the inLab MC X5 and inLab MC XL production machines, this software enables you to produce computer-assisted dental restorations in the laboratory, for example 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.

Also pay attention to the safety instructions to prevent personal injury and material damage.

Your
inLab Team

1.1.1 Contact data

Customer Service Center
In the event of technical queries, please use our online contact form 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

1.2 Copyright and trademark

Copyright
© Sirona Dental Systems GmbH. 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.
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 General safety information

Only use original software

Only use original software or software which has been released by Dentsply 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 "inLab CAM".

2. Click on the arrow (A) in the window that opens.

3. The advanced window contains all information relating to the software inLab CAM SW.

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: According to US Federal Law, this product may be sold only to or by instruction of physicians, dentists, or licensed professionals.
2.2 Accessories

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

2.3.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these instructions for use. 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.

2.3.2 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

- Requests you to do something.

- ✔️ Prerequisite
  1. First action step
  2. Second action step
  or
  ➢ Alternative action
  ➢ Result
  ➢ Individual action step

- 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.
2.3.3 Conventions

<table>
<thead>
<tr>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click</td>
<td>A single click down and releasing of the left mouse button.</td>
</tr>
<tr>
<td>Double-click</td>
<td>Clicking and releasing of the left mouse button twice in quick succession.</td>
</tr>
<tr>
<td>Seizing a point</td>
<td>Press the left mouse button and hold it down.</td>
</tr>
<tr>
<td>Drag &amp; drop</td>
<td>Press and hold an element (e.g. a pictograph) and drop / release it onto a potential destination.</td>
</tr>
</tbody>
</table>
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 [→ 18]" section.

You need at least one inLab-PC 4.0x with Hardware Upgrade Kit for the software. The latest inLab PC version is always recommended.

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

---

**NOTE**

**Installation only with administrator rights**

You must have administrator rights on the PC on which you want to install the software!

---

**Preparing the installation**

✓ The USB license stick firmware is available in at least version 2.00.
✓ The PC is booted and all programs are closed.

1. Insert the USB stick into the corresponding USB port of the PC.
   - The setup program starts automatically.

2. If this is not the case, run the "Setup.exe" file in the root directory of the stick.
   - This installation program starts.

**Installing the application**

1. Select the language for the following installation and then press the "Next" button.
2. Read the information on copyright carefully and then press the "Next" button.
3. In the next step, select the language and application region for the application and then press 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 press the "Next" button. The path to the patient data folder can still be changed after the installation via the configuration menu.
   - The application is now installed. This may take several minutes.
5. Following successful installation, press 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 Dentsply 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 press the "Exit" button.
   - The installation program closes.
3.2 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 [→ 18].

3.3 Starting the software

✓ The "inLab CAM 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 "inLab CAM SW" start icon.
or
➢ Click on “Start / All Programs / Sirona Dental Systems/ inLab CAM SW / inLab CAM SW”.
   ◢ The software is started.

3.4 Restore factory default settings

✓ The program is closed.

1. Uninstall the software.
2. Install the software (see "Installing the software").
   ◢ The original factory default settings are restored.
4 User interface

Overview of the user interface

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>System menu</td>
</tr>
<tr>
<td>B</td>
<td>Phase bar</td>
</tr>
<tr>
<td>C</td>
<td>Element list</td>
</tr>
<tr>
<td>D</td>
<td>Main window</td>
</tr>
<tr>
<td>E</td>
<td>Tool kit</td>
</tr>
<tr>
<td>F</td>
<td>Page palette</td>
</tr>
<tr>
<td>G</td>
<td>Job selector</td>
</tr>
<tr>
<td>H</td>
<td>Step menu</td>
</tr>
</tbody>
</table>
4.1 Phase bar

The workflow is illustrated in the software in 3 phases.

<table>
<thead>
<tr>
<th>COLLECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRANGE</td>
</tr>
<tr>
<td>PRODUCE</td>
</tr>
</tbody>
</table>

Restorations are produced with inLab MC XL and inLab MC X5 by defining jobs. The definition of each task passes through multiple phases (see the phase tab at the top of the screen). This is how you are guided through the process. It starts with selecting the type of machine, then you have to choose the restoration to be developed, as well as the positioning of the restorations in the workpiece. Finally the job is produced using the selected machine in the last phase.

4.2 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 job is in.

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

The individual work steps for creating and preparing jobs in the software are split into phases.
4.3 System menu

In the system menu, you can:
- Close all active jobs to return to the job database
- Close a job to switch to the workpiece database.
- Save all active jobs
- Save a job
- Create a new job
- Import a job
- Export a job
- Open license manager
- Configure hardware and software
- Configure parameters
- Change general settings
- Change window mode
- Open help information
- Close the software

Opening system menu

➢ Click the button in the top left corner of the screen.
The system menu is displayed.

Closing system menu
1. Click the button in the top left corner of the screen.
   or
   ➢ Click into the main window with the left mouse button.
   ➢ The system menu is closed.

4.3.1 Closing all active jobs
By clicking on this button, you can close all active orders and return to the workpiece database to start a new case.

4.3.2 Closing a job
By clicking on this button you can close the current job.
➢ Select "Close Job" in the system menu.
➢ The current job is closed.

4.3.3 Save all active jobs
By clicking on this button you can save all active jobs. In this dialog, you can save the current status of all jobs that are open.

4.3.4 Save a job
By clicking on this button you can save the current job.
➢ Select "Save" in the system menu.
➢ The current processing status of the job is saved.

4.3.5 Create a new job
By clicking on this button you can create a new job.
➢ Select "New Job" in the system menu.
➢ You switch to the dialog to create a new job.
4.3.6 Import a job

✓ The file to be imported is stored on the inLab 4 PC or on a storage medium connected to it.

1. Click on the "Import" button in the system menu.
   ✱ The dialog window for file import opens.

2. Select the folder where the job is located.


4. Click the "Open" button.

✱ The job is now imported and opened.
4.3.7 Export a job

You can store a job in any location.

- You have opened a job in the software.

1. Click on the "Export" button in the system menu.
   - The dialog window for file export opens.
2. Select the target folder to which you want to export the case.
3. Assign any name to the order.
4. Click on the "Save" button.
   - The job is exported as a *.BLC file.

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

4.3.8 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 Systems inLab CAM SW Tools License 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".

4.3.9 Configure hardware and software / set parameters

Configuring hardware and software is described in the "Configuration [→ 20]" section.

4.3.10 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.

4.3.11 Current program version

If you click on the lettering "inLab CAM" in the phase tab, you obtain information on the current program version.
4.3.12 **Exit program**

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

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.dentsplysirona.com/manuals).

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

The following configuration options are available:
- Parameters [→ 20]
- Machine and instrument magazine management [→ 22]
- Settings [→ 34]

5.1 Parameters

In the "Parameters" menu, you can adapt the presettings for the production process.

The values can also be adjusted when creating a job.

The changes in the values are displayed graphically.

5.1.1 Stack parameters (stacks)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Connector</td>
<td>• Additionally generates a horizontal connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can be switched on and off</td>
<td>NO</td>
</tr>
<tr>
<td>Connector Cross Section</td>
<td>• Sets the diameter of the connector</td>
<td>3.0 mm</td>
</tr>
<tr>
<td>Restoration Distance</td>
<td>• Sets the horizontal distance of the restorations from each other</td>
<td>1.2 mm</td>
</tr>
</tbody>
</table>

Resetting settings

➢ Click the "Reset All Group Parameter" button on the step by step menu.

The settings for this production method are reset to the factory settings.

5.1.2 Model parameters

Pin diameter:

Here you can change the diameter of pin holes in the model.

Pin length

You can use this value to determine the depth of the pin hole in the model segment.

**IMPORTANT**

Do not change this length if you want to order SLA models from infiniDent.
### 5.1.3 Milling parameters

You can define individual parameters for milling. The values can also be adjusted when creating a job.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Standard setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of Sprues</td>
<td>The parameter determines the number of pinned connections per unit that are automatically suggested. Minimum: Minimum quantity Standard: Normal quantity Maximum: Maximum quantity</td>
<td>Standard</td>
</tr>
<tr>
<td>Sprue Size</td>
<td>The parameter sets the radius of the pinned connections.</td>
<td>1.4 mm</td>
</tr>
<tr>
<td>Width of Sprue Tapering</td>
<td>The parameter is used to define to what width, i.e. with which tool (1.0 mm or 2.5 mm) the pin is to be thinned. Wider thinning makes it easier to remove the restoration, but care must be taken to ensure sufficient stability in combination with the number of pin points and their thickness.</td>
<td>1.0 mm</td>
</tr>
<tr>
<td>Disc frame</td>
<td>The parameter determines the distance which remains up to the edge of the blank.</td>
<td>2 mm</td>
</tr>
<tr>
<td>Front block frame</td>
<td>The parameter determines the thickness of the front block frame which remains.</td>
<td>1.5 mm</td>
</tr>
<tr>
<td>Side block frame</td>
<td>The parameter determines the thickness of the lateral/lower block frame which remains.</td>
<td>1.5 mm</td>
</tr>
<tr>
<td>“Sinter Support Thickness”</td>
<td>The parameter determines the thickness of the sinter support.</td>
<td>2 mm</td>
</tr>
</tbody>
</table>
5.2 Machine and instrument magazine management

All connected devices can be displayed and configured under the menu item "Machine and Instrument tray Management".

A green check mark on a device indicates its availability.

5.2.1 Setting up the unit

You must connect the unit to the PC before putting it into operation. This is described in the chapter “Connecting the PC/interfaces”.

**IMPORTANT**

The inLab MC X5 can be operated with both a static as well as an automatically assigned IP address.

From the factory the inLab MC X5 is always configured with a static IP address. The standard IP address is as follows: 192.168.230.xy. The digits x and y are made up from the last two digits of the unit serial number. These can be found on the label on the rear of the device if the serial number ends in "00" then the xy value is always "100".

The MAC address for the network card can be found on the machine's configuration menu.

To change the IP configuration always establish a direct connection with static IP address to your PC's network card. The network address for the inLab 4-PC used is 192.168.230.101. The subnet mask is 255.255.255.0.

5.2.1.1 Automatic unit search

- The unit is connected to the PC using a direct connection via Ethernet cable.
- The unit is switched on.

1. Start the "inLab CAM SW" software.
2. Click on the "Machine and Instrument tray Management" button in the system menu.
3. Click on the "Scan for New Devices" button.
   - All units connected to the PC are recognized.
4. Enter a name for the new unit.
5.2.1.2 Manual unit search

✓ The unit is connected to the PC using a direct connection via Ethernet cable.
✓ The unit is switched on.
1. Start the "inLab CAM SW" software.
2. Click on the "Machine and Instrument tray Management" button in the system menu.
3. Click on the "Add Device (Manual)" button.
4. Select "Network".
5. Enter the network address.
6. 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.

5.2.1.3 Updating devices

With the "Refresh Devices" button you can
- display the status; e.g. check whether a machine has in the meantime finished producing, or
- Check the current availability of a device.

5.2.1.4 Remove the unit

If you no longer require a unit (e.g. a unit is replaced), you can remove it.
✓ The unit is not in operation.
1. Click on the "Machine and Instrument tray Management" button in the system menu.
2. Click on the unit that you wish to uninstall.
3. Click on the "Delete Device" button.
   √ You will be asked if you would like to remove the unit.
4. Click on the "YES" button.
   √ The device is removed.

5.2.2 Configuring the device

In the "Machine and Instrument tray Management" software "inLab CAM SW" area you can make subsequent amendments to the various settings for your unit.
1. Click the "Configuration" button in the system menu.
2. Click on the "Machine and Instrument tray Management" button.
3. Click on the unit that you wish to configure.
5.2.2.1 Editing inLab MC X5 device settings

Via menu item "inLab MC X5"/ unit name you can make or view the following changes retroactively:

- Name / description
- Connection settings
  - Automatic IP setting
  - Manual IP settings
  - Display of the MAC address
- Suction
  - Sirona suction
  - External suction
- Use spindle touch
  - Spindle run time (h): Shows how long the tool spindle has been in use
  - Spindle ID: Shows the type of tool spindle. This is particularly important for selecting a suitable replacement collect chuck (blue: type 1; green: type 2)
- External tank
- Firmware download

5.2.2.1.1 Device settings

Manual IP settings

The IP address can be changed in order to integrate the machine into existing networks. To do this, proceed as follows:

1. Establish a direct connection with the inLab 4 PC (see Installing the unit).
2. If you want to change the static IP address, click "Edit Device Settings".
3. Enter the network settings in accordance with your local network configuration.
4. Confirm the new network settings using "Ok" or press "Cancel" in order not to save the changed settings.
5. Disconnect the Ethernet connection with the PC and connect the machine to the network socket in your local network (see Connecting the PC/interfaces).

Automatic IP settings

There is an option for integrating the machine into an existing network with DHCP server in such a way that the IP address is received by the DHCP server automatically. To do this, proceed as follows:

1. Establish a direct connection with the inLab 4 PC (see Installing the unit).
2. If you want to change the IP address to automatic addressing, click "Edit Device Settings".
3. Now click "Auto IP settings".

IMPORTANT

Ensure that the network in which you are integrating the machine has an active DHCP server for the allocation of IP addresses.
4. Confirm the new network settings using "Ok" or press "Cancel" in order not to save the changed settings.

5. If you have changed the setting to "Automatic" you must now disconnect the Ethernet connection to the PC and connect the machine to the network socket in your local network.

6. If you wish to change the settings back again then change over to "Manual IP settings".

**IMPORTANT**

If the machine is in "Auto IP settings" mode and does not detect any active DHCP server, the IP is automatically reset to 192.168.230.1. You can then add and manage the machine again using a direct connection to a PC via the "Add Device (Manual)" function.

---

**Suction**

You can define the type of suction used using the "Suction" setting.

- "Sirona": You are using the optional suction available for inLab MC X5. Select this option and connect the suction to the machine (including interface cable). The communication between inLab MC X5 for starting and stopping the suction etc. is then automatic.
- "Other": You are using a different, external suction. Select this option and ensure that the requirements for external suction (see Suction requirements) are fulfilled. The suction must then be switched on and off manually for each process.

**Use Spindle Touch**

Using the "Use Spindle Touch" setting, you can choose whether the selected block size should be checked, and if the exact position of the block in the machine should be determined, for the inLab MC X5 during grinding and milling processes.

**IMPORTANT**

Please note that in cases where this option ("Use Spindle Touch") is not activated, grinding processing of the meso structure blocks is not possible.

---

**External tank**

Select this option if you have connected the coolant tank in order to be able to start wet processes.

**IMPORTANT**

Note that if this option is not selected then no wet processes (e.g. for processing glass ceramics) can be started. In this case, it is possible to process the material classes PEEK, PMMA and composite and this takes place as a dry process.

**Firmware download**

Each device (inLab MC XL or inLab MC X5) requires a firmware version which is compatible with the respective version of the software inLab CAM.

You start the download of the appropriate firmware for inLab CAM SW via this button.
**IMPORTANT**

If a unit does not have the correct firmware version, this is in fact detected by the software, yet it cannot be used for production. It is indicated as "invalid firmware" both in the device management and in the production phase.
5.2.2.1.2 Change instrument magazine (only inLab MC X5)

✓ The magazine to be used is already created in the software.
1. Click on “Change instrument tray” to change a magazine.
2. Select the instrument magazine you want to use in the software selection list through the selection box.
3. Click on “Confirm and Exit”.
4. Physically replace the instrument magazine in the machine.
5. Then confirm the magazine change by pressing the on/off button on the machine.

**IMPORTANT**
The cover of the instrument magazine stays open in the machine for as long as they are in the instrument change dialog. After changing the magazine in the machine, ensure that the lock of the magazine in the machine is shut properly. The cover of the instrument magazine closes again when you exit the change dialog in the software.
5.2.2.1.3 Service menu (only inLab MC X5)

You can do the following in the service menu:

- Spindle maintenance
- Moving to the cleaning position
- Switching the water pump on/off
- Switching the suction on/off
- Opening the chuck

Spindle maintenance

1. Click on the start button to start the spindle maintenance.
2. Then simply proceed as prompted by the software.
3. Read also which steps are to be performed in the inLab MC X5 operating instructions under the section "Tool spindle maintenance".

**IMPORTANT**

If the clamped instrument cannot be removed from the machine automatically, you can replace it manually through "Spindle Maintenance". To do this click on the start button for the spindle maintenance and follow the on-screen instructions.

Moving to the cleaning position

➢ Click on the start button to move to the cleaning position.
   ➢ The machine moves to the cleaning position.

Starting the cleaning process

➢ Click on the start button to start the automatic cleaning cycle.
   ➢ The machine moves for cleaning essential areas with the spindle using the coolant.

Switching the water pump on/off

1. Click on the start button to turn on the water pump.
   ➢ The water pump is switched on.
2. Click on the pause button to turn off the water pump.
   ➢ The water pump is switched off.

Opening the chuck

➢ Click on "Open chuck" to be able to manually take instruments out of the chuck.

**IMPORTANT**

Then ensure that the chuck is properly tightened and the dummy tool is placed in its position.
Switching the suction on/off

1. Click on the start button to turn on the suction device.
   - The suction is switched on.
2. Click on the pause button to turn off the suction device.
   - The suction is switched off.

5.2.2.2 Editing MC XL unit settings

inLab MC XL

You can later edit the following settings via the menu item "MC XL":

- **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".
  - Models can only be milled using manual block fixation.
- **Second motor set**
  - The check mark must be placed in front of "Two Bur Sets".
  - You can deactivate instrument sets individually. A deactivated instrument set will simply be ignored during production, calibration etc.
  - **NOTE!** The restoration may be damaged if longer instruments are present in the deactivated instrument set than in the active set. Ensure that the instruments installed in the deactivated instrument set are not longer than those in the active set.
- **Scanner**
  - If the grinding unit has an integrated scanner, a check mark must be placed in front of "Scanner".
  - Use the scanner to read bar codes.
- **Bar code reader**
  - If a bar code reader is used, this option must be activated.
- **External tank**
  - If the external water tank is connected and the check mark has been placed, you will not be reminded to change the water until a later point in time.
- **Firmware Update**
  - Click on the "Firmware Update" button to load the firmware related to the software on the MC XL.
Firmware download

Each device (inLab MC XL or inLab MC X5) requires a firmware version which is compatible with the respective version of the software inLab CAM.

You start the download of the appropriate firmware for inLab CAM SW via this button.

**IMPORTANT**

If a unit does not have the correct firmware version, this is in fact detected by the software, yet it cannot be used for production. It is indicated as "invalid firmware" both in the device management and in the production phase.

5.2.2.2.1 Calibration

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

5.2.2.2 Changing instruments

1. Click on the "Change Instruments" button.
2. Then simply proceed as prompted by the software.
5.2.3 Instrument set configuration (only inLab MC X5)

5.2.3.1 Creating an instrument magazine

1. Click the "Configuration"/ "Machine and Instrument tray Management"/ "Instrument Database" button in the system menu.
2. Click on "+" / "Add new instrument tray" to add a new instrument magazine.
   - The "new instrument tray" dialog opens.
3. Under "Instrument tray name:" give the instrument magazine a unique name.
4. Under "Instrument tray type:" select the type of instrument magazine you are creating. You can create instrument magazines for certain materials. Select "Misc." if you would like to create an instrument magazine for various materials.
5. Click on "Ok" to create a new instrument magazine.
   - The instrument magazine appears with your entered name in the list of instrument magazines.
6. You can now equip the instrument magazine with instruments.

**IMPORTANT**

If you have created an instrument magazine for a certain material, then only the instruments for this material will be available for selection.
5.2.3.2 Equipping instrument magazines

1. Click on the slot in the list on the left, or on a position on the instrument holder displayed, to insert an instrument in a certain location.

2. Select which instrument you would like to insert in the position in the right window.

3. To confirm the instrument magazine click on “Ok”.

IMPORTANT
With PMMA and composite tool magazines, please note that the tools contained within them are only to be used for one operating mode (wet or dry). This means if you want to process these material types in dry condition (by deactivating the tank in the machine configuration), then the tools may no longer be used for wet processing later, because then the service life of the tools cannot be ensured.

Instrument Trays field
The “Instrument Trays” field shows the name and type of all known magazines. The name of the machine in which the magazine is currently being used is displayed beneath the name of the magazine.

The castle symbol shows that this magazine has already been inserted into a machine and cannot be configured. If you wish to configure the magazine, you can eject it from the machine or configure it using the machine-specific tool change dialog (“Machine Management” / “Mill Device” / “Change Instruments”).
Instruments field

The wear status of each tool is displayed, depending on its history. The residual tool life is specified as a percentage, as well as visualized with a color-coded wear indicator.

If an unknown material ("Misc") is machined with the tool, a precise tool life forecast is not possible. The estimated residual tool life is specified as a percentage, as well as visualized with a white wear indicator. A yellow exclamation mark indicates that the tool life has potentially been shortened.

Meaning of the color scale:

- Green: Device is in a good state, optimum milling or grinding results.
- Yellow: Device is in an acceptable state, in the case of demanding restorations the milling or grinding results should be checked.
- Red: Device is approaching the wear limit and should be replaced, milling or grinding results should be checked.
- White: Device is in an unknown state, milling or grinding results must be checked.

5.2.3.3 Editing instrument magazines

1. Select the desired instrument magazine in the list.
2. Click on "Edit" to edit an instrument magazine.
3. You can change the name of the instrument magazine.
4. You can change the type of the instrument magazine.
5. Click "Accept" to confirm the changes.

5.2.3.4 Deleting instrument magazines

1. Select the desired instrument magazine in the list.
2. Click on "Delete" to remove the instrument magazine.
3. Click "Ok" to confirm the deletion.
5.3 Settings

The menu item "Settings" has the following subitems:

- Select odontogram
- Reset notes
- Change database path
- Language
- Print legend
- Display legend
- Generate name automatically
- Calculate jobs automatically
- Automatic positioning
- MC XL milling
- Material
- Archive configuration

5.3.1 ADA/FDI 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.

➢ Click on "Reset" to display the warnings again.

5.3.3 Changing a database path

Under "Blank Database" you can adjust the directory for saving the restoration data for the production (CAM files) and the workpieces saved in the software (BLC files).

**IMPORTANT**

For the restoration data to appear automatically in the list of elements, when these have been exported from the inLab SW, ensure that the same data path is also selected in the inLab SW.

Under "Instrument Database" you can change the directory for the instrument magazine database.

5.3.4 Language

Here, you can change the language of the software.
5.3.5 Printing the workpiece progression

Here you can select whether a legend will be printed out. This option can be used to print a legend of the restorations with the relevant job information for the current job.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>A legend will be printed.</td>
</tr>
<tr>
<td>NO</td>
<td>A legend will not be printed.</td>
</tr>
</tbody>
</table>

5.3.6 Displaying the workpiece progression

Here you can select whether a legend should be displayed following processing.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>A legend will be displayed.</td>
</tr>
<tr>
<td>NO</td>
<td>No legend will be displayed.</td>
</tr>
</tbody>
</table>

5.3.7 Job calculation

Here you can select whether the restorations of a job are automatically calculated in the workpiece.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>The restorations of the job are automatically calculated in the workpiece when switching to the AR-RANGE phase.</td>
</tr>
<tr>
<td>NO</td>
<td>The restorations must be positioned manually in the workpiece in the &quot;Restoration Positioning&quot; step.</td>
</tr>
</tbody>
</table>

5.3.8 Automatic positioning

Here you can select whether the restorations of a job are automatically positioned.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>Restorations are positioned in the blank or the block.</td>
</tr>
<tr>
<td>NO</td>
<td>Restorations are placed near the blank or the block and must be manually pushed into the blank or block.</td>
</tr>
</tbody>
</table>
5.3.9 **Milling with the inLab MC XL**

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 material selection step.

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

5.3.10 **Material**

In the "Material" tab you can freely configure which materials you want to use in the software for the processing.

You can deactivate materials by unchecking the check box. These are then not displayed when newly creating workpieces.

5.3.11 **Archive configuration**

Here, the storage location of the archive and the rules for shifting elements and workpieces to the archive can be defined.
6 Job management

6.1 Workpiece database

6.1.1 Workpiece database structure

All created and ground blanks and blocks are located in the workpiece database.

The workpiece database is available in the start view for opening newly created and not yet finished jobs from this view for production.

The "Blanks" symbol in the lower left corner of the image can be used to access the workpiece database from any step in the software (e.g. while a job is being processed) to create new jobs on an existing workpiece.

Workpieces that are being processed are grayed out.

The workpiece database is also displayed during the course of defining a new job when the appropriate workpiece should be selected for the elements to be produced (see "Selecting workpieces [→ 48]").
When you click on a workpiece/block, a preview of it is displayed on the right.

The following information is displayed for each workpiece/job. The workpieces can be sorted according to the relevant properties by clicking on the column header:

- **"Blank ID"**: Each workpiece is provided with a unique ID number during creation. As a rule, this should be marked on the workpiece. Using this ID the blank can be identified in the workpiece database for further processing.

- **"Material"**: The associated material which has been selected for a workpiece is displayed for each workpiece.

- **"Blank Size"**: The respective block or blank number is specified for each workpiece.

- **"Material Color"**: The respectively available color can be set for each workpiece individually. Free text entry is possible for all materials "Misc".

- **"Date"**: The date of this workpiece’s last date of processing is specified.

- **"Machine Type"**: The type of machine for which this workpiece/job has been defined is displayed.

- **"Material Class"**: Each workpiece is assigned a material class through the material class index. This defines the tools with which the elements can be prepared.
  - White: Abrasives
  - Yellow: Zirconium oxide
  - Red: PMMA
  - Blue: Composite
  - Gray: Sinter metal
  - Green: Metal

- **"Status"** (display only in the start view): The "Status" column displays the current status of the workpiece/job.
  - New workpiece, open job: The workpiece has not yet been processed. An order has already been added.
  - Processed workpiece, open job: Restoration has already been used in a previous job. The remaining material is displayed. A new job has already been created for the workpiece.
  - Processed workpiece: No new job has been created yet for the workpiece already processed in a previous procedure.
  - New workpiece: The new workpiece was created. No job has yet been defined.
• "LOT-Number" (not visible in the start view):
  Displays the lot number of the relevant workpiece.
• "Fits in Blank" (not visible in the start view):
  Indicates whether the selected restorations fit in the respective workpiece.

6.1.2 Opening workpieces
Click on "Open Blank" to open a workpiece.

6.1.3 Deleting workpieces

> Click on "Delete" (trash can icon) to delete a workpiece.

6.1.4 Service export

> Click "Service Export" to export all information about a tool and all machining processes for which the workpiece was used.

The *.zip file includes:
• a *.Blc file,
• all *.cam files of the elements which were created as a job on the workpiece,
• all relevant *.Log files for the processing procedures for this tool.

6.1.5 Searching the database (free text search)

> Search the database by entering the first letters of your search term.

6.1.6 Creating a new workpiece

1. Click on "New Blank" to create a new workpiece.
2. A new line will be added to the top of the list.
3. Click on the tick to create the workpiece.
4. A newly created workpiece is displayed in first place in the list. In order to use this workpiece for the job, place a tick on the right at the end of the line.
**IMPORTANT**

When creating new MISC workpieces, please observe the processing instructions of your material manufacturer with regard to indication restrictions and construction parameters.

You can provide the following details when creating new workpieces:
- "Manufacturer"
- "Material Name"
- "Production Method"
- "Blank Size"
- "Material Color"
- "Blank ID"
- "LOT-Number"
- "Date"
- "Enlargement"
- "Fits in Blank"
- "Material Class"

**Manufacturer**

From the list select from which manufacturer you would like to create a workpiece.

**Material Name**

From the list select the material name of the workpiece that you would like to create. The options are determined by the respective manufacturer.

**Production Method**

Filled out automatically with "Grinding" or "Milling" and depends on the selected material.

**Blank Size**

From the list select the desired workpiece size. The options are determined by the respective manufacturer and material.

**Material Color**

The respectively available color can be set for each workpiece individually.

Free text entry is possible for all materials "Misc".

**Blank ID**

Open text field in which you can enter a custom workpiece name. A workpiece ID is suggested.

**LOT-Number**

Here you can enter the LOT number of the workpiece.

**Date**

Is automatically filled in with the date of the workpiece system.
Enlargement
Enter the magnification factors for zirconium oxide and sinter metal workpieces here.
- For the MC X5 specify the magnification factor(s) in decimal numbers.
- For MC XL enter the Z-value.

Fits in Blank
Is filled out once the restorations for the workpiece are selected.

Material Class
Depending on the selected material, the color code for the material class is displayed here.

<table>
<thead>
<tr>
<th>Color</th>
<th>Material class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>Zirconium oxide</td>
</tr>
<tr>
<td>Red</td>
<td>PMMA / wax</td>
</tr>
<tr>
<td>Blue</td>
<td>Composite</td>
</tr>
<tr>
<td>White</td>
<td>Abrasives</td>
</tr>
<tr>
<td>Gray</td>
<td>Sinter metal</td>
</tr>
<tr>
<td>Green</td>
<td>Metal</td>
</tr>
</tbody>
</table>

6.1.7 Scan workpiece
For several materials, it is possible to scan a QR code to record all information from the "Creating a new workpiece [→ 39]" section. You can scan the QR code on the workpiece packaging or on the workpiece.

1. Click on “Scan Blank”.
   - If a webcam is installed (see recommendation below), a live preview opens.
2. Place the QR code on the workpiece to be scanned or on the packaging in the middle of the live preview window.
3. Keep the object still so that the camera can focus.
4. As soon as the camera has detected the QR code, a new row is added for the new workpiece. Check and confirm the information.
5. If the workpiece has already been created, it is filtered out of the list of all workpieces.

Webcam recommendations
Note the following recommendations for the webcams to be used.
- Minimum requirement: e.g. Logitech C 525
  - Autofocus with at least 10 cm focal length,
  - Resolution: 8MP or 720p,
  - Standard lens (polymer)
- Recommendation: e.g. Logitech C 920
  - Autofocus with at least 10 cm focal length or less, multiple (20), Resolution: 15MP or 1080p,
  - Glass lens
6.2 Archive

You can access the archive via the “Archive” icon on the bottom lefthand of the screen.

You can deposit restorations and workpieces in the archive in order to keep the active order list clear.

Click on the icon to shift the respective order/restoration to the archive.
6.3 Element database

6.3.1 Element database structure

In the element database, you can find all the restorations that you have constructed or imported using the software inLab SW (see "Importing elements [→ 44]").

**IMPORTANT**

If you are using the software inLab SW for the design, elements appear in this list automatically if the workpiece database folders are synchronized in inLab SW and inLab CAM SW (see "Changing a database path [→ 34]"). In other words, the same data path has been selected in the inLab SW as in the inLab CAM SW.

When you click on a restoration, a preview of it is displayed on the right.

The following information is displayed for each element: The elements can be sorted according to the relevant properties by clicking on the column header:

- "Dentist": Information on the dentist of the present case
- "Patient": Information on the patient of the present case
- "Technician": Creator of the element of the present case
- "Restoration Type": Indicates what type of element this is
- "Toothnumber": Indicates the service area of the present case.
- "Machine Type": Indicates for which machine type (MC XL or MC X5) the respective element has been designed.
- "Restoration Height": Indicates the actual height of the element.
- "Optimized Height": Indicates the height to which the element can be reduced using the machine kinematics to achieve material savings
- "Material": For each element the related material is displayed for which the element has been selected.
- "Material Class": Each element is assigned a material class through the material class index. This defines the tools with which the elements can be prepared.
  - White: Abrasives
  - Yellow: Zirconium oxide
- Red: PMMA
- Blue: Composite
- Gray: Sinter metal
- Green: Metal

- "Export Date":
  Specifies the date on which the element was exported from the inLab SW or on which it was loaded via STL.

### 6.3.2 Deleting elements

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data loss</td>
</tr>
<tr>
<td>When you delete a restoration from the list the file is also deleted from the PC.</td>
</tr>
</tbody>
</table>

> Click on "Delete" to delete a restoration.

### 6.3.3 Importing elements

> Click on "New Item" to import a new restoration into the database. You can import *.cam files or *.stl files with or without additional information.

#### 6.3.3.1 Importing *.cam files

- The *.cam file is stored on the inLab 4 PC or on a storage medium connected to it.

1. Click on "Import Element" to import a restoration for the job.
   - The dialog window for file import opens.
2. Select the folder where the file(s) is (are) located.
3. Select the file(s).
4. Click on the "Open" button.
   - The file(s) is (are) then imported and opened.

#### 6.3.3.2 Import restoration element from other CAD software

<table>
<thead>
<tr>
<th>IMPORTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considering recommendations</td>
</tr>
<tr>
<td>Please note that the best possible fit of the restoration created using inLab MC X5 or inLab MC XL can only be achieved when taking into account the machine-specific parameters in the CAD software used. Configure the respective specific machine parameters in the CAD software used for the following processing options. Consider the tool parameters stated in particular. Consider the following recommendations when designing your construction software:</td>
</tr>
<tr>
<td>&gt; Observe the material-specific minimum wall thicknesses.</td>
</tr>
</tbody>
</table>
### Machining option

<table>
<thead>
<tr>
<th>Machine type</th>
<th>Machining mode</th>
<th>Material class</th>
<th>Machine type / axes</th>
<th>Tool diameter (in mm)</th>
<th>Milling correction [in mm] (when stating the diameter/when stating the radius)</th>
<th>Tool geometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>inLab MC X5</td>
<td>Milling</td>
<td>Zirconium oxide</td>
<td>5(3+2)</td>
<td>1.0</td>
<td>1.1/0.55</td>
<td>Radius (mill)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sinter metal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PMMA</td>
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<td>Grinding</td>
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<td>Abrasives</td>
<td>5(3+2)</td>
<td>1.4</td>
<td>1.5/0.75</td>
<td>Cylinder (grinder)</td>
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<tr>
<td>inLab MC XL</td>
<td>Milling</td>
<td>Zirconium oxide</td>
<td>4(3+1)</td>
<td>1.0</td>
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<td>Grinding</td>
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<td>4(3+1)</td>
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<td>1.1/0.55</td>
<td>Cylinder (grinder)</td>
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<td>Milling materials</td>
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<td>4(3+1)</td>
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<td>1.5/0.75</td>
<td>Cylinder (grinder)</td>
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<td>Milling materials</td>
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<td>(Step Bur 12)</td>
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</table>

### 6.3.3.3 Importing *.stl files

- The *.stl file of a restoration is stored on the inLab 4 PC or a storage medium connected to it.

1. Click the "Import Element" button in the system menu. 
   - The dialog window for file import opens.
2. Select the folder where the restoration is located.
3. Select "STL (*.stl)" from the drop-down list next to "File name:" in the drop-down menu.
4. Select the relevant file.
5. Click on the "Open" button.
   - A dialog opens in which additional information can be added for the loaded restoration.
6. Complete the information (if available):
   **NOTE!** Information marked "**" is mandatory
   "Dentist", "Patient", "Order Number", "Technician", "Restoration Type", "Manufacturer", "Material Name", "Production Method".

7. Confirm the information by clicking on the double arrow.

Depending on the type of restoration selected, different tools are available for selection.

- "Margin"
- "Define Screw Channel"
  Select the respective tool and draw the screw channels or preparation lines.
- For the object type "Misc":
  No tools are available. A standard strategy is used without entering the preparation line. **NOTE!** Please note that no guarantee can be assumed for the quality of the processing results.

After import, imported files are also displayed in the element database and can be selected for the current job by checking the box.
6.3.3.4 Importing STL files with meta information (*.3ox, *.constructioninfo, *.sci)

- The *.stl file of a restoration and the file with the additional information about a restoration (*.constructioninfo, *.3ox, *.sci) are stored on the inLab 4 PC or on a storage medium connected to it.

1. Click on the "Import Element" button in the system menu.
   - The dialog window for file import opens.
2. Select the folder where the restoration and the file with the additional information are located.
3. Select the desired file format from the drop-down list next to "File name:" in the drop-down menu: *.3ox, *.constructioninfo or *.sci.
4. Select the relevant file.
5. Click on the "Open" button.
   - A dialog opens in which additional information can be added for the loaded restoration.
6. Complete or edit the information:
   - NOTE! Information marked "***" is mandatory.
   - "Dentist", "Patient", "Order Number", "Technician", "Restoration Type", "Manufacturer", "Material Name", "Production Method".
7. Confirm the information by clicking on the double arrow.
   - In the next step, the imported information (preparation line, screw channel, insertion axis, etc.) is visualized.

6.3.4 Filtering lists

You can sort the list based on different time filters. To do this select the desired filter from the drop-down list.

- All
- Last two weeks
- Last eight weeks
- Today (last 24h)
7 Editing orders

7.1 Create a new job

1. Click on "New Job" to start a new job and, in so doing, to add restorations to an existing workpiece or a new workpiece for production.

2. Assign a custom name to the job and select the type of machine with which you want to produce this job.

3. Confirm your entry by pressing "Ok". Alternatively, you can also open an existing workpiece from the start view, to add new elements to it or to produce a job that has already been prepared.

7.2 COLLECT phase

7.2.1 Adding an element to a job

1. From the element database select the elements that you want to produce with relevant job.

2. Place a tick on the right next to the line of a restoration to add it to a job. You can tick several restorations.

7.2.2 Selecting workpieces

1. Click in the relevant line to display a preview of the respective workpiece on the right.

2. Select the workpiece that you would like to use for the job from the workpiece database by ticking it. Various information (such as "Manufacturer", "Material Name", etc.) is available to you to help you with your selection (see also "Creating a new workpiece [→ 39]"). If no appropriate workpiece is available, you can define an additional workpiece through "New Blank" (see "Creating a new workpiece [→ 39]" and "Scan workpiece [→ 41]").

3. Click on the pin to edit the details of the workpiece.

The individual fields become active and can be changed.
7.3 **ARRANGE phase**

If you have selected "Automatic Positioning" from the options, the restorations are automatically placed in the workpiece during transition to the "ARRANGE" phase.

**Inserting restorations**

➢ Insert the restorations into the workpiece, by clicking on the plus sign behind the restoration in the list on the left on the screen.

Tip: You also can place restorations repeatedly.

➢ The restorations are inserted in the workpiece and positioned.

**Removing restorations**

➢ You can remove restorations again by clicking on the minus sign.

**Changing parameters for the current workpiece**

If you want to change the parameters for the current workpiece, click on "Job Parameters" in the step menu. The global parameters that you have set in the options are not changed.
7.3 ARRANGE phase

7.3.1 Restoration list

You can find all the restorations selected in the "COLLECT" phase in the restoration list of the workpiece / job (see image).

| A | "ID": Each element is assigned a unique ID number in the workpiece. This is also visualized on the element in the workpiece. |
| B | "Dentist": Information on the dentist of the present element. |
| C | "Patient": Information on the patient of the present element. |
| D | "Restoration Type": Indicates what type of element this is. |
| E | "Toothnumber": Indicates the service area of the present case. |
| F | "Counter": Elements can be positioned multiple times in a workpiece. The counter increases by "+1" each additional time an element is placed in the workpiece. |
| G | "Status": Each element has a status. This is displayed via a tooltip (pop-up window) in each case.* |
| H | "+/-": Position the element in the workpiece or remove the element from it. With multiple additions, the counter increases by "+1" for each time. |

* Status explanations:

- Yellow warning triangle: Element is outside the workpiece, tools or the permitted angles of rotation are exceeded. Note that if the angles are exceeded or the tools are too short, not all areas can be processed in full. The remaining material and the resulting undercuts must be balanced out through manual reworking. Proceeding to the next step is not prevented. For MC XL jobs in the stacking process, this symbol indicates that the pin / the pin point no longer fits in the workpiece.
- Single tick: Restoration added to workpiece.
- Double tick: Restoration has already been prepared in a previous job.

- Red warning triangle: "Horizontal collision". This means between restorations or with the edge of the workpiece. Proceeding to the next step is prevented. For restorations with screw channels, elements for which the permitted angles are exceeded ("Overtumed angles") are also marked with a red exclamation mark. For MC XL jobs in the stacking process, this status indicates that the restoration is partially or wholly outside the workpiece. It is not possible to move to the next step.

### 7.3.2 Positioning restorations

#### 7.3.2.1 inLab MC X5

##### 7.3.2.1.1 Horizontal positioning

Move the object while holding down the left mouse button to rotate it on the plane of projection.

Move the object while holding down the right mouse button to move it on the plane of projection.

Crowns and bridges can be positioned freely in the block and rotated by 360°.

##### 7.3.2.1.2 Vertical positioning

**Orientation**

Move the workpiece while holding down the left mouse button to rotate it.

Move the workpiece while holding down the right mouse button to move it.

**Object movement**

Hold down the left mouse button to rotate the 3D view.

Hold down the right mouse button to move the object vertically in the workpiece.

##### 7.3.2.1.3 3D mode

**Orientation**

Move the workpiece while holding down the left mouse button to rotate it.

Move the workpiece while holding down the right mouse button to move it.

**Object movement**

Move the pointer over the object and move the object while holding down the left mouse button to rotate it.

Move the pointer over the object and move the object while holding down the right mouse button to move it on the plane of projection.
Use the “Ctrl”, “Alt” and “Shift” keys to align the object’s rotation and movement with a spatial axis of the object.

### 7.3.2.2 inLab MC XL

**7.3.2.2.1 Horizontal positioning**

If you go to the restoration with the mouse, you can position and rotate the restorations.

- **Crowns** can be positioned freely in the block and rotated by 360°.
- **Bridges** can be positioned freely in the block and rotated by 180°.

**7.3.2.2.2 Vertical positioning**

If you go to the restoration with the mouse, you can position the height of the restorations in the workpiece.

**7.3.2.2.3 Rotating**

If you go over the restoration with the mouse, you can change the alignment by rotating around the Y-axis.

**7.3.2.4 Positioning multiple restorations for MC XL grinding orders (stacks)**

To produce multiple restorations from one workpiece through grinding, add these to the workpiece via the restoration selection list. The restorations are automatically positioned in the block. The positioning is made optimally for grinding processing. Manual position adjustment is not possible.

**7.3.2.3 Invalid position**

If restorations have an invalid position due to positioning (e.g. are positioned too close to one another), they are colored in red and must be moved until they become white. Then they regain a valid position.

**7.3.2.4 Sinter support**

With the "Sinter Supports" tool you can activate and deactivate the calculation of sinter support for sinter metal and zirconium dioxide. A calculation is then performed automatically, depending on the size of the restoration.
7.3.2.5 Editing axes

With the "Edit Axes" tool, you have the option to check and edit the axes of insertion and restoration for an element.

The tool also gives you the option of automatically removing undercuts in the editing process.

1. Activate the "Edit Axes" tool.
2. Click the element, for which you want to edit the axes.
   - The restoration axes and axes of insertion are visualized
   - The undercuts are visualized.
3. Click on an arrowhead to edit the axes by moving the arrow.
   **NOTE!** Check the resulting undercuts. The undercuts are shown in green, yellow, orange and red, depending on their thickness. Select the angle of insertion so that no undercuts are present where possible.
4. "Minimize Undercuts": Activating the "Minimize Undercuts" button automatically activates 5-axis editing of the areas with undercuts. The machine angles available are taken into account.
   - The restoration is marked with a wand symbol.
7.3.3 Positioning the pins / Changing the pin layout

Adding pins
1. Move near the restoration with the cursor.
   - In the positions where a pin can be placed, the cursor is displayed transparently.
2. If you want to place the pin, click the left mouse button.

Marking several / all pins
1. Press and hold the “Ctrl” button and mark several pins with the left mouse button.
2. Press the key combination “Ctrl”+A in order to mark all pins.

Moving pins
1. Click with the left mouse button on a pin and keep the button pressed.
2. Move the pin along the restoration and release the mouse button at the desired position.
3. To position the ends of the pin, click with the left mouse button on one of the balls at the ends of the pin and keep the button pressed.
4. Move the ball and release the mouse button at the desired position.

Pin layouts
There are four different pin layouts available:
- “standard” (layout according to settings under “Job Parameters”),
- “Thinned” (layout with reduced pin diameter on the object’s surface),
- “Wide thinned” (layout with reduced pin diameter on both sides),
- “Cut” (pin is completely detached in the final processing step),

Removing the pin
1. Go to the pin which you want to delete with the cursor.
   - It becomes orange-colored.
2. Left-click to mark the pin.
3. Press the “Delete” button to delete the pin.

Tip: It is possible to subsequently reposition the restorations. The already placed connectors are kept in the orientation of the restoration as far as possible.
7.3.4 Restoring milled restorations / enabling material (only available for milled materials)

Using the context menu (right mouse button), you can reactivate a milled restoration (shaded out). The reactivated restoration can then be prepared.

**IMPORTANT**
The workpiece must not be temporarily removed as the exact positioning is no longer guaranteed.

7.3.5 Deleting via context menu

Using the context menu (right mouse button), you can remove the activated restoration. By doing so, the workpiece is enabled at this point.

**IMPORTANT**
Performing a deletion via the context menu modifies the workpiece history. Collisions and further problems in terms of preparing restorations may occur in this workpiece area.
7.4 PRODUCING phase

7.4.1 Analysis tools / Cursor details

wall thickness

The "Wall Thickness" analysis tool can be used to display the wall thickness of the object globally.

Furthermore, the local wall thickness at the position of the cursor can be read using "Cursor Details".

Undercut

The "Undercut" analysis tool can be used to display undercuts of the object globally.

Deviation from nominal geometry

The "Deviation from nominal geometry" analysis tool can be used to display the production results globally depending on the current position and the configuration of the machine and tools.

Furthermore, the local deviation from the nominal geometry can be read using "Cursor Details".
7.4.2 Production preview

Setting production quality

You can set up to three different production qualities per element.

To do so, click on the restoration in question. The restoration is highlighted in color.

If you want to change options for several restorations at the same time, you can make a multiple selection by pressing "Ctrl"+ mouse click (for several) or "Ctrl"+ A (for all).
Depending on the selected machine and material or restoration (prostheses), you can select the following production options:

- "Detail Level"
  - "Very High",
  - "High",
  - "Low"

- "Machining Mode"
  - "Fast",
  - "Normal",
  - "Soft"

**Context menu**

You can open a context menu by right-clicking. You can use this context menu to quickly switch between the individual production options for the selected restorations.

**Tool geometry**

This option adjusts the geometry of the mating surfaces to the available tool / machine configuration.
7.4.2.1 **MC X5 milling**

The following options are available:

**Detail Level**

- **"Very High"**: The 2.5mm, 1.0mm and 0.5mm tools are used for the maximum detail accuracy in the interdental and occlusal area.
- **"High"**: The 2.5mm and 1.0mm tools are used for average detail accuracy in the interdental and occlusal area.
- **"Low"**: The 2.5mm tools are used for low detail accuracy in the interdental and occlusal area.

**Machining Mode**

- **"Fast"**: For very quick machining:
  Should not be used in the case of very thin walls and edges.
- **"Normal"**: Standard mode.
- **"Soft"**: Slow processes with additional processing steps:
  Should be used with restorations with very thin walls and particularly finely leveled edges.
7.4.2.2 **MC X5 grinding**

The following options are available:

**Detail Level**
- "Very High": The 2.2mm, 1.2mm and 0.6mm tools are used for the maximum detail accuracy in the interdental and occlusal area.
- "High": The 2.2mm and 1.2mm tools are used for average detail accuracy in the interdental and occlusal area.

**Machining Mode**
- "Fast": For very quick machining:
  Should not be used in the case of very thin walls and edges.
- "Normal": Standard mode.
- "Soft": Slow processes with additional processing steps:
  Should be used with restorations with very thin walls and particularly finely leveled edges.
7.4.2.3 **MC XL milling**

The following options are available:

**Detail Level**

- "High":
  The 2.5 mm and 1.0 mm tools are used for average detail accuracy in the interdental and occlusal area.
- "Low":
  The 2.5 mm tools are used for low detail accuracy in the interdental and occlusal area.

**Machining Mode**

- "Fast":
  For very quick machining:
  Should not be used in the case of very thin walls and edges.
- "Normal": Standard mode.
- "Soft":
  Slow processes with additional processing steps:
  Should be used with restorations with very thin walls and particularly finely leveled edges.
7.4.2.4 MC XL grinding

Fine – Normal processing using material-specific grinding instruments.

Extra fine – Extra fine processing using material-specific grinding instruments and the grinding instruments cylinder bur 12 EF and cylinder pointed bur 12 EF.

**IMPORTANT**

For the extra fine processing, all 4 motors must be fitted with the relevant instruments at the time of processing.

The following options are available:

**Detail Level**

- "Very High".
  - In addition to machining using the material-specific grinding instruments, the EF tools are used for the maximum detail accuracy in the interdental and occlusal area.

- "High".
  - Machining using the material-specific grinding instruments for average detail accuracy in the interdental and occlusal area.

**Machining Mode**

- "Fast".
  - For very quick machining:
    - Should not be used in the case of very thin walls and edges.

- "Normal": Standard mode.
7.4.3 Changing machine

If you have more than one machine, in this window you must select the machines on which you wish to start the job.

1. Click "Change Production Device".
2. Select the machine on which you wish to start the job.

7.4.4 Displaying the workpiece progression

➢ Click "Show Blank History" to display a printable workpiece progression.
➢ Click on the printer icon to print the workpiece progression. To do this a printer must be connected to the PC.
1. Click on the disk icon to save the workpiece progression.
2. Select the folder path on which you want to save the workpiece progression and click on "Save".
➢ Click on the magnifier+ icon to enlarge the display.
➢ Click on the magnifier– icon to minimize the display.
➢ Click on the document icon to re-establish the standard size.
➢ Click on the pen icon to add free text to the workpiece progression. Enter the text into the window that opens and click on the pen icon again to display the text in the workpiece progression.
7.4.5 Checking instruments

The “Check Instruments” step makes it possible to check the following in a dialog:

- which workpiece should be inserted,
- which restorations are to be produced (this can be used to derive whether the remaining service life of the tools is roughly sufficient in the magazine to be selected),
- which tool magazine is in use and which must be used,
- what the remaining service life of the tools to be used is, in order to derive whether it needs to be replaced before the start of the process.

➢ Click on “Check Instruments”.

All information is displayed. Now all tool magazines can be displayed, they can be replaced or tools can be replaced in them. If changes to the magazine are made in the machine, these are to be confirmed on the machine.

IMPORTANT

The subsequent start of the process (and with it the confirmation of the changes to magazines and tools made in the software) is confirmed on the machine.

If tools in magazines have been replaced in the “Check Instruments” dialog, which were not used in the machine at this time, the software assumes that this has also happened in reality. There is no further query as to whether the change has actually been made.
7.4.6 Starting the production process

1. Click "Start Production" to start the production process. Follow the instructions that appear on the screen.
   The following information is displayed:
   – Tool magazine with the selected equipment.
   – Tool with tool ID, material and material class.
   – The corresponding instructions.

2. Read also the "Production processes" section of the inlab MC X5 operating instructions.

7.4.7 Working with the multiblock holder of inLab MC X5

If you wish to process several blocks in the multiblock holder simultaneously, proceed as follows:

1. Click "New Job".
2. Select the inLab MC X5 as the machine.
3. Select all restorations you would like to prepare.
4. Click "Select Blank".
   A dialog box appears. If the materials for the selected restorations are known, the software can now determine the appropriate blocks and block sizes for the selected restorations automatically. If you do not want this, click "No".
   If you confirm the dialog with "Yes", a single job with an appropriate block will be generated for each element selected.
5. For restorations which cannot be uniquely assigned, you have to specify the workpiece manually.
6. If you must create a block, click on "New Blank" and create the block.
7. Select this block by placing a check mark on the right at the end of the row.
8. Change to phase "ARRANGE".
9. If you have selected automatic "Job Calculation" in the configuration, the restoration is calculated directly into the block. If
not, you must select the restoration in the list on the left by clicking on the plus sign.

10. You can adjust the position of the restoration in the block using "Horizontal Position" and "Vertical Position".

11. Change to phase "PRODUCE".

12. Select the machine on which you would like to produce the restoration.

13. Go to step "Multi Block Position". The software suggests a free position in the multiblock for you. By clicking on another free position you can change the position of the block. Positions that cannot be occupied for reasons of space are designated as "invalid" accordingly.

14. Click "Production Preview".
   - The block including the restoration is displayed in the multiblock holder.
   - You can change the production quality.

### 7.4.8 Editing multiple jobs

You can also define new jobs during processing and prepare these in parallel on additional units, if available.

1. Click on "New Order" in the menu bar.

2. If you subsequently wish to switch between orders, you can do this using the job selector. To do this, click on the icon of the job in the selector bar.

3. If you point on one of the jobs with the mouse, a tooltip / pop-up window appears with all the information on the job in question.
7.4.9 Machining titanium PreForm abutments with the inLab MC X5

If you wish to edit titanium PreForm abutments with the inLab MC X5, proceed as follows:

**IMPORTANT**

When machining this material type, also observe the specific instructions in the operating instructions for inLab MC X5.

Make sure in particular that the correct tank with the DentaLub cooling lubricant is used.

1. Click on “New Job”.
2. Select the inLab MC X5 as the machine.
3. Select all restorations you would like to prepare.
4. Click on “Select Blank”.
   - A dialog box appears. If the materials for the selected restorations are known, the software can now determine the appropriate workpieces and workpiece sizes for the selected restorations automatically. If you do not want this, click "No".
   - If you confirm the dialog with "Yes", a single job with an appropriate block will be generated for each element selected.
5. Select this block by placing a check mark on the right at the end of the row.
6. Change to the "ARRANGE" phase.
7. If you have selected automatic "Job Calculation" in the configuration, the restoration is calculated directly into the workpiece. If not, you must select the restoration in the list on the left by clicking on the plus sign.
8. Change to the "PRODUCE" phase.
9. Select the machine on which you would like to produce the restoration.
10. Go to step "Multi Block Position". The software suggests a free position in the Ti-PreForm holder to you. By clicking on another free position you can change the position of the block. Positions that cannot be occupied for reasons of space are designated as "invalid" accordingly.
11. Click on “Production Preview”.
   - The workpiece including the restoration is displayed in the multiblock holder.
12. Start the process. When doing so, make sure that you administer the right tools (if not present) and a suitable tool magazine.
7.4.10 Preparing full prostheses with inLab MC X5

Various processing options are available for manufacturing a full prosthesis with inLab MC X5.

The "Pockets only" option can be activated in order to initially mill out only the tooth pockets with a perfect fit. In a second milling step, the remaining prosthesis surface and, if necessary, the occlusion surfaces are milled to the intended quality.

Proceed as follows:

1. Click on "New Job".
2. Assign an order name and select the MC X5 as the machine.
3. Select "New Item".
4. Select the prosthesis base you wish to prepare (SCI file) and click on "Open".
5. Enter the case details and continue.
6. Select "Dentsply Sirona Lucitone" blank in the workpiece database.
7. If necessary, adjust the position of the prosthesis base and the pins and activate the "Material clearing" function (enables easier access when adhering prosthetic teeth).
8. Now start the first milling process. Please ensure that the blank is inserted using the positioning aid and that the correct tools are used.
9. Following the first milling process, remove the blank and adhere the prosthetic teeth.
10. Re-insert the blank into the machine using the positioning aid.
11. Now open the job displayed in the order list and start the second milling process.
12. If necessary, adjust the preparation settings (quality/power) and start the milling process.

The "Material clearing" option can be activated in order to facilitate the bonding of prosthetic teeth, especially in the two-stage processing procedure. Material in the vicinity of the tooth pockets is then removed on a large scale.
We reserve the right to make any alterations which may be required due to technical improvements.