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The Dental Company

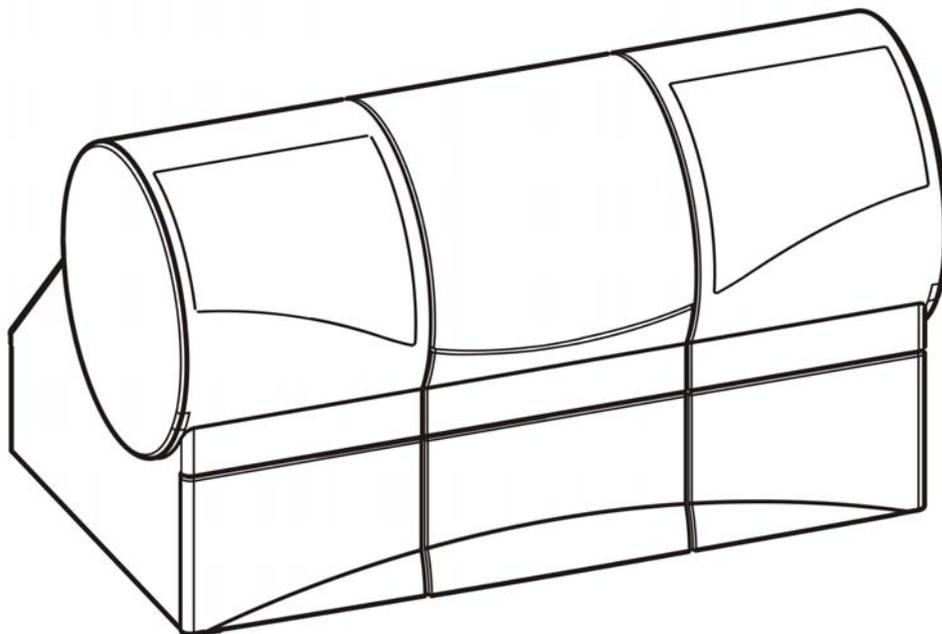
Sirona Dental CAD/CAM System CEREC MC XL

Operating Instructions

English (US)

This product is covered by one or more of the following US patents:

- US6454629
- US6394880
- US6614538
- US6702649
- US7522764
- US7163443



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1 Dear Customer,

Thank you for purchasing your CEREC MC XL[®] from Sirona.

This device enables you to produce dental restorations, e.g. from ceramic material with a natural appearance (**CE**ramic **RE**Construction).

Improper use and handling can create hazards and cause damage. Please read and follow these operating instructions carefully and always keep them within easy reach.

To prevent personal injury or material damage, it is important to observe all safety information.

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.

Your
CEREC MC XL Team

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 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 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 [→ 7]"	Identifies a reference to another text passage and specifies its page number.
• List	Identifies a list.
"Command/menu item"	Identifies commands, menu items or quotations.

2.3 Note PC / Acquisition Unit

When a PC is described in this document, this refers to a PC for the acquisition unit (if present). The PC is represented symbolically.

Please observe our recommendations for PC configuration (see System requirements).

2.4 Warranty

To safeguard your warranty claims, please complete the attached Installation Report / Warranty Passport when the unit is handed over. Then fax it to the specified fax no.

3 General description

3.1 Certification



CE mark

This product bears the CE mark in accordance with the provisions of directives 2006/95/EC (Low Voltage Directive) and 2004/108/EC (EMC Directive).

CAUTION

CE mark for connected products

Further products which are connected to this unit must also bear the CE mark. These products must be tested according to the applicable standards.

Examples of CE mark for connected products:

- EN 60601-1:1990 + A1:1993 +A2:1995 based on IEC 60601-1
- EN 60950:1992 + A1: 1993 + A2: 1993 + A3: 1995 + A4: 1997 based on IEC 60950
- UL 60950 third edition 2000

GOST mark



3.2 Intended use

The Sirona Dental CAD/CAM System is intended for use in partially or fully edentulous mandibles and maxillae in support of single or multiple-unit cement retained restorations. The system consists of three major parts: TiBase, inCoris mesostructure, and CAD/CAM software. Specifically, the inCoris mesostructure and TiBase components make up a two-piece abutment which is used in conjunction with endosseous dental implants to restore the function and aesthetics in the oral cavity. The inCoris mesostructure may also be used in conjunction with the Camlog Titanium base CAD/CAM (types K2244.xxxx) (K083496) in the Camlog Implant System. The CAD/CAM software is intended to design and fabricate the inCoris mesostructure. The inCoris mesostructure and TiBase two-piece abutment is compatible with the following implants systems:

- Nobel Biocare Replace (K020646)
- Nobel Biocare Branemark (K022562)
- Friadent Xive (K013867)
- Biomet 3i Osseotite (K980549)
- Astra Tech Osseospeed (K091239)
- Zimmer Tapered Screw-Vent (K061410)
- Straumann SynOcta (K061176)

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.

3.3 Further use of Sirona Dental CAD/CAM System

The Sirona Dental CAD/CAM System is also an optical impression system for computer assisted design and manufacturing (CAD/CAM) according to 21 CFR 872.3661. The system records the topographical characteristics of teeth, dental impressions, or stone models for use in the computer-assisted design and manufacturing of dental restorative prosthetic devices. Such devices are exempt from the premarket notification procedures.

4 Safety

4.1 Basic safety information

4.1.1 Prerequisites

NOTICE

Important information on the building installation

The building installation must be performed by a qualified expert in compliance with the national regulations. DIN VDE 0100-710 applies in Germany.

NOTICE

Restrictions regarding installation site

The system is not intended for operation in areas subject to explosion hazards.

NOTICE

Do not damage the unit!

The unit can be damaged if opened improperly.
It is expressly prohibited to open the unit with tools!

4.1.2 Maintenance and repair

As manufacturers of dental instruments and laboratory equipment, we can assume responsibility for the safety properties of the unit only if the following points are observed:

- The Maintenance and repair of this unit may be performed only by Sirona or by agencies authorized by Sirona.
- Components which have failed and influence the safety of the unit must be replaced with original (OEM) spare parts.

Please request a certificate whenever you have such work performed. It should include:

- The type and scope of work.
- Any changes made in the rated parameters or working range.
- Date, name of company and signature.

4.1.3 Changes to the product

Modifications to this unit which may affect the safety of the operator, patients or third parties are prohibited by law!

4.1.4 Accessories

In order to ensure product safety, this product may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user assumes the risk of using non-approved accessories.

4.2 Milling unit

4.2.1 Milling chamber door open during the milling operation

CAUTION

Milling instruments that continue to run

When the milling chamber door is opened during the milling operation, the milling instruments could continue to run for a short time.

- Be careful not to touch the milling instruments with your hand or any other object during this time.
- Avoid opening the milling chamber door while the milling unit is in operation.
- Before you open the milling chamber door, end any actions that are running by selecting the "Stop" key on the milling unit or in the application software.

4.3 Wireless phone interference with equipment

The use of mobile wireless phones in practice or hospital environments must be prohibited to ensure safe operation of the unit.

4.4 Disturbance of data transmission

Note on wireless communication

Data communication between the acquisition unit and the CEREC MC XL milling unit should preferably be implemented via the wireless H&W interface or WLAN. As for all wireless connections (e.g. mobile telephones) heavy utilization of the available radio channels or shielding caused by building installations (e.g. metal-shielded X-ray enclosures) may impair the quality of the connection. This may become noticeable through a reduction in range and/or a slower data transmission rate. In extreme cases, it will be impossible to establish a wireless connection at all.

Sirona has selected the best possible configuration for data communication via the wireless H&W interface or WLAN, which generally provides perfect functioning of this connection. However, in individual cases unrestricted wireless data communication may be impossible for the reasons mentioned above and/or due to local circumstances. In such cases, a cable LAN connection should be selected to ensure uninterrupted operation. If the only LAN interface on the rear of the CEREC AC is occupied by another plug, remove this H&W wireless interface connection and instead connect the LAN cable with the CEREC MC XL milling unit.

5 Installation and startup

5.1 Transport and unpacking

All Sirona products are carefully checked prior to shipment. Please perform an incoming inspection immediately after delivery.

1. Check the delivery note to ensure that the consignment is complete.
2. Check whether the product shows any visible signs of damage.

NOTICE

Damage during transport

If the product was damaged during transport, please contact your carrying agent.

If return shipment is required, please use the original packaging for shipment.

Before every transport, the unit must be drained prior to shipment (if it has been operated). See "Removing water from the unit" [→ 41]

Transport without packaging

CAUTION

Damage to the unit or danger of injury during transport without packaging

There is a danger of the unit falling down if it is grasped by its plastic housing.

- The unit should always be carried by two persons.
- Do not grasp the unit by its plastic housing.
- Always grasp the unit by its chassis next to its feet.

5.2 Disposal of packaging materials

The packaging must be disposed of in compliance with the relevant national regulations. Please observe the regulations applicable in your country.

5.3 Installation site

CAUTION

Install out of the reach of patients!

Do not install or operate the milling unit in the vicinity of the patient (place it at least 1.5 m away from the patient).

The milling unit requires a level floor space of approx. 700 x 420 mm. The height of the milling unit is:

- with the milling chamber door closed: 425 mm
- with the milling chamber door open: 570 mm

Install the milling unit in such a way that it is not difficult to operate the main switch.

Make sure that the ventilation slots underneath and at the back of the unit remain unobstructed. The distance between the rear side of the unit and the room wall must be at least 10 cm.

Note that the unit weighs 43 kg!

The unit must not be installed at sites with a high level of humidity or dust!

NOTICE

Installation in a cabinet

If the unit is installed in a cabinet, you must provide for adequate heat exchange.

The ambient temperature surrounding the unit must be between 5°C and 40°C.

5.4 Initial startup

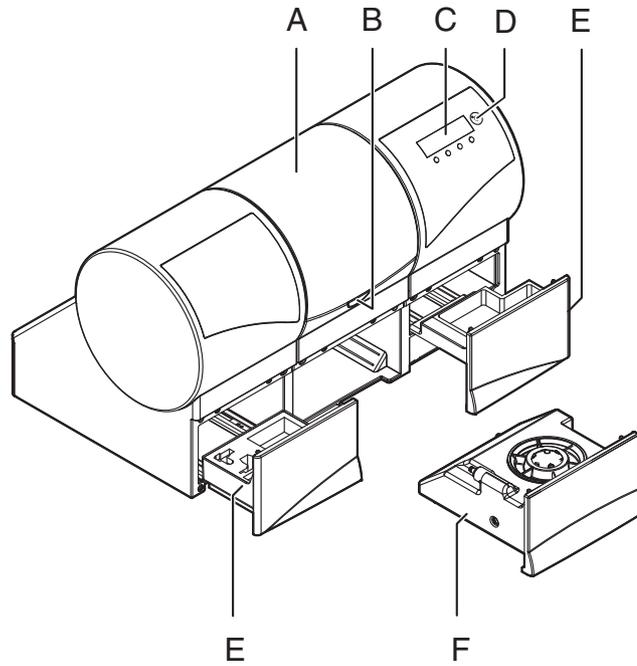
NOTICE

Important information on initial startup

Observe the software installation instructions!

5.4.1 Functional elements

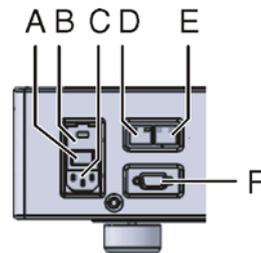
Unit overview



Overview of the milling unit

A	Milling chamber	D	ON/OFF switch
B	Milling chamber door catch	E	Drawer
C	Display	F	Water tank

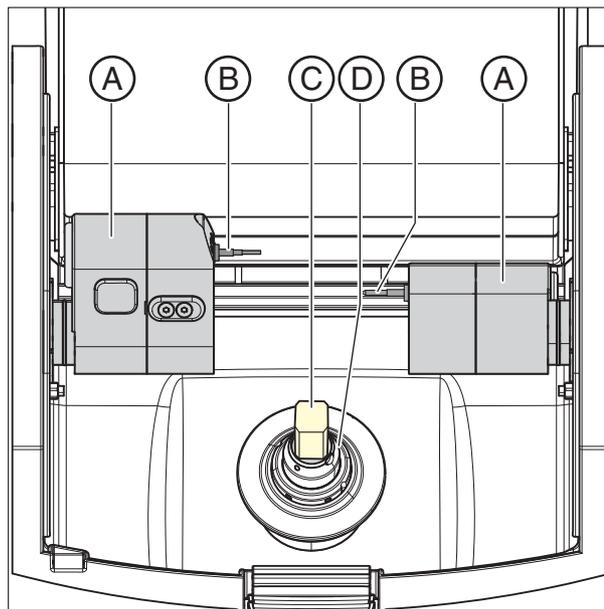
Ports on the back side



Ports

A	Main switch I = ON, 0 = OFF	D	LAN port Ethernet
B	Fuse cover	E	This connection is not used
C	Power connection	F	Barcode reader port

Milling chamber



Milling chamber

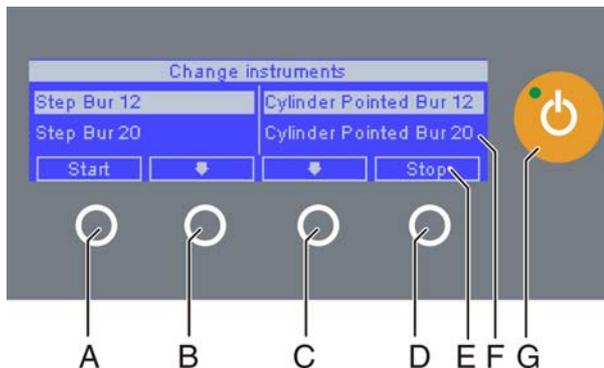
A	Bur set 1	D	Ceramic block
B	Bur set 2 (optional)	E	Workpiece spindle
C	Motor mount		

5.4.2 Display description

These operating instructions describe how to operate the unit by executing and confirming commands via your PC.

You can also confirm commands such as "Start", "Stop", "Cancel" or "OK" directly on the display of your milling unit.

Possible commands are then shown above the corresponding button on the display. In the example shown, **button 1, (A)** would confirm the command "Start" and **button 4, (D)** would confirm the command "Stop".



Display

A	Button 1	E	Command
B	Button 2	F	Display
C	Button 3	G	ON/OFF switch
D	Button 4		

5.4.3 Lighting of the milling chamber

The lighting of the milling chamber depends on the machining operation involved:

Machining operation	Lighting color
Mill	white
Scanning	Blue
Operation completed	Green
Error or "Stop" button pressed	Red

5.4.4 Inserting the milling chamber sieve

CAUTION

Risk of injury from milling instruments

Be careful not to brush against the milling instruments with your hand.

NOTICE

Risk of blockage in the cooling circuit

If chips enter into the cooling circuit of the machine, there is a risk that the cooling circuit will become blocked.

➤ The sieve is suitable for all restoration and material types. It is imperative that no chips enter the cooling circuit.

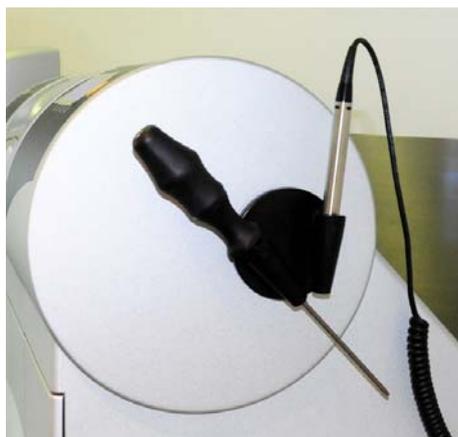


1. Remove the milling chamber sieve from the packaging.
2. Wet the underside of the sieve with water before insertion and press it firmly against the floor of the milling chamber.

5.4.5 Connecting the barcode reader (optional)

Tool holder

- Insert the block clamp tool on the left and the bar code reader on the right.



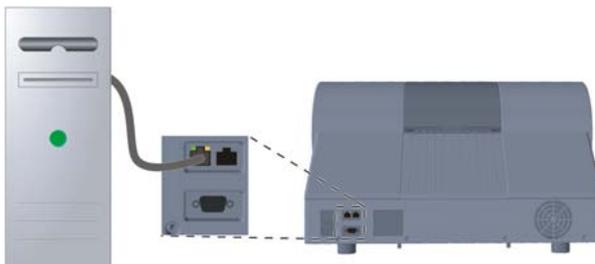
Connecting the bar code reader

- Plug the bar code reader into the serial interface to the rear of the milling unit and secure with screws.

5.4.6 Installation

5.4.6.1 Connecting to the PC via LAN

An Ethernet connection is located to the rear of the unit, which can be used to connect the PC to the milling unit. Use a network cable to do this (LAN connection).



Using a network cable

Connect the PC to the LAN connection of the unit.

If problems arise when connecting via a network cable, please read the separate instructions "Operating the MC XL via LAN".

5.4.6.2 Connecting the milling unit to the power supply

NOTICE

Grounded power outlet

The milling unit must be connected to a grounded power outlet.

- Connect the milling unit to the power supply with the power cable included in delivery.

5.4.6.3 Installing the unit

You must connect the unit to the PC before putting it into operation. This is described in the section entitled "Connecting to the PC via LAN" [→ 18] or "Connecting to the PC via WLAN (option)" [→ 19].

Searching for unit automatically

The unit is connected to the PC via a LAN cable or via WLAN.

1. Click the "Configuration" button in the system menu.
2. Click on the "Devices" button.
3. Click on the "Scan for New Devices" button.
 - ↳ All units connected to the PC are detected. For new devices, you will be prompted to enter a name.
4. Enter a name for the new unit.

Search for unit manually

The unit is connected to the PC via a LAN cable or via WLAN.

1. Click the *"Configuration"* button in the system menu.
2. Click on the *"Devices"* button.
3. Click on the *"Add Device (Manual)"* button.
4. Select whether the unit is connected to the network or in series.
5. Network: Enter the network address.
In series: Enter the COM port and the baud rate.
6. Click on the *"Ok"* button.
 - ↳ The software attempts to establish contact with the unit.

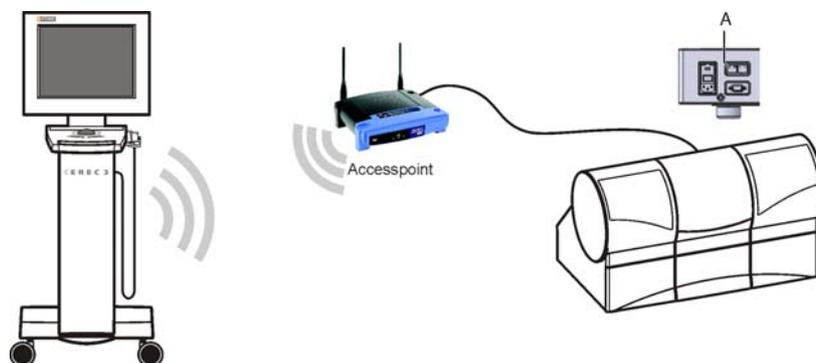
If it fails to connect, check the connection. If required, consult a qualified technician.

Removing the unit

- ✓ If you no longer require a unit (e.g. a unit is replaced), you can remove it.
 - ✓ The unit is operation.
1. Click the *"Configuration"* button in the system menu.
 2. Click on the *"Devices"* button.
 3. Click on the unit that you wish to deinstall.
 4. Click on the *"Delete Device"* button.
 - ↳ You will be asked if you would like to remove the unit.
 5. Click on the *"YES"* button.
 - ↳ The unit is removed.

5.4.6.4 Connecting to the PC via WLAN (option)

Making the connection



Connect access point

- Connect the LAN port **A** of the milling unit and the access point, using the network cable (10m, Order No.: 61 51 521).
 - ↳ The access point is pre-configured at the factory for this application.

Positioning the access point

1. As a test, place the access point near the milling unit at head level or higher.
2. Perform a communication test as described in the separate instructions (see "Operating MC XL via WLAN in infrastructure mode", chapter "Final work, analyzing connection quality"). If applicable, follow the instructions on changing channels.
3. After you have found the optimum setting, take the acquisition unit and place it in the position in which it will be operated that is farthest away from the access point.
4. From this position, repeat the communication test you conducted earlier. If the results are satisfactory, leave the access point permanently in this position.
5. If the results are not satisfactory, position the access point outside of the room in which the milling unit is located and repeat the communication test.
 - ↳ If the connection quality is still not adequate, WLAN communication cannot be easily achieved under the local conditions. In this case, ask your network administrator for assistance.

NOTICE

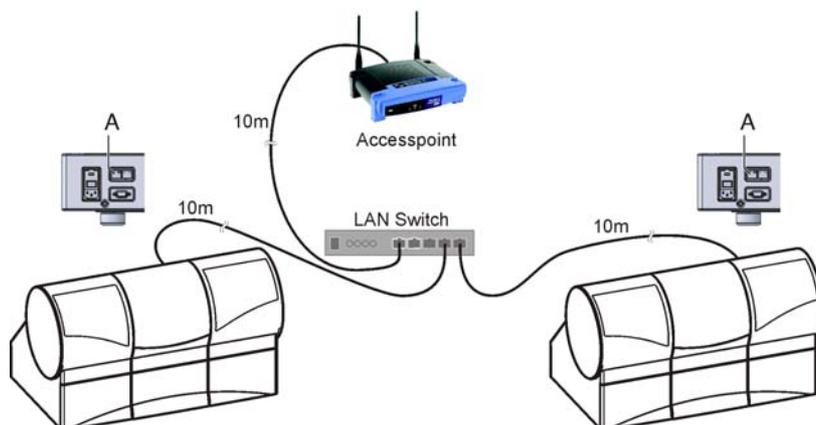
LAN connection

Operation via a cable LAN connection is possible at any time.

5.4.6.5 Operating several milling units over one access point

To operate several MC XL milling units over one access point, you need the following additional components:

- 1x LAN switch (e.g. Netgear ProSave 5 Port Gigabit Switch, Model GS105)
- 1x LAN network cable (10m, Sirona Order No.: 61 51 521).



LAN switch, connection example with 2 milling units

1. Connect the LAN port (A) of the MC XL milling unit with the LAN switch using the included 10m LAN network cable.
 2. Connect the access point with the LAN switch using the additional 10m LAN network cable.
- ☞ Now, all MC XL milling units connected to the LAN switch can be operated via WLAN.

5.4.6.6 Connecting to the PC via the wireless H&W interface (optional)

- ✓ The CEREC AC is equipped with a wireless module HW 8614/F2.
Installation kit: 62 79 694
Retrofit kit: 62 79 702
1. Connect the wireless module HW 8614/F2 to the LAN port of the MC XL, using the LAN crossover cable (1 m).
 2. Connect the plug-in power supply included in the scope of delivery with the wireless module HW 8614/F2 and plug it into the power supply.
 3. If applicable, fasten the wireless module in the selected operating position, using the pre-installed Velcro strap.
Make sure that the rod antenna is in vertical position.
 4. Pair the wireless module of the milling unit as described in the installation instructions included with the wireless module (Order Number 62 80 064).

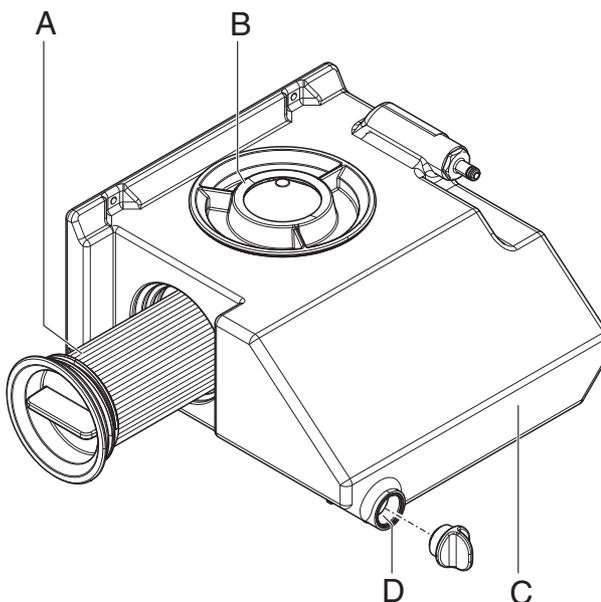
You can pair multiple milling units with a CEREC AC. If more than 2 milling units are operated at once, the limited data bandwidth may cause milling time delays.

5.4.7 Filling the water tank

NOTICE

Using the tank cap opener

If you find the tank cap, tank drain or filter insert hard to open by hand, use the tank cap opener (see "Using the tank cap opener" [→ 41]).



Water tank

A	Filter insert	C	Tank
B	Tank cap	D	Tank drain

✓ The water tank has been drained, see "Removing water from the unit" [→ 41].

1. Pull out the water tank at the front of the unit.
2. Turn the tank cap counter-clockwise and take it off.

NOTICE

Damage to surfaces!

When undiluted, DENTATEC milling additive etches plastic surfaces and can cause discoloration.

- Do not place DENTATEC on the unit.
- Do not spill DENTATEC.

3. Add approx. 75 ml of DENTATEC to the tank.
4. Fill the tank with water until the filter insert is completely immersed (up to the bottom edge of the cover thread, approx. 3 liters).
5. Wait for a short time until the filter insert is completely soaked; then add an appropriate amount of water.
6. Close the water tank by tightening the tank cap clockwise by hand.
Do not use the tank cap opener for this.

7. Push the water tank back into the housing.
8. Switch the unit on (see Switching the unit ON and OFF [→ 23]).
9. Switch the pump on (press the "Pump" button) to fill the water circuit.
10. Fill the water tank up again until the filter insert is completely immersed (up to the bottom edge of the cap thread).

5.4.8 Switching the unit ON and OFF

NOTICE

Do not put the unit into operation at low temperatures!

If you move the unit to the operating site from a cold environment, condensation may form and result in a short circuit.

The milling unit contains grease depots for lubricating components which can cause error messages at low temperatures.

- ✓ Install the unit at room temperature.
- Wait until the unit has reached room temperature and is absolutely dry (for at least one hour)
- ↪ The unit is dry and can be put into operation.

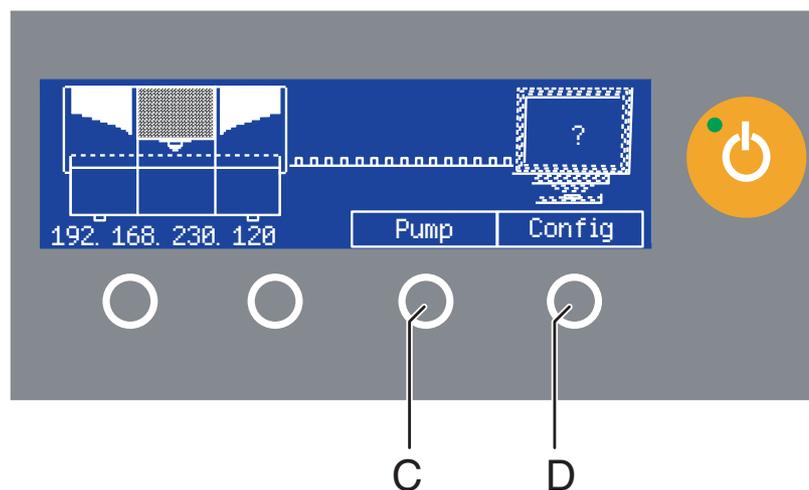
NOTICE

Do not adjust the line voltage

The unit automatically adjusts to the line voltage.

Switching the unit on

- ✓ The milling unit is connected to the power supply.
1. The main switch on the rear side of the unit is set to position I (ON).
 2. Press the ON/OFF button on the front panel.
- ↪ The unit switches on and the display lights up.



Power-up display

When the milling unit is switched on, the display shows a picture of the milling unit trying to contact the PC.

You can start or stop the water pump by pressing the "Pump" button (C). This enables you to drain the water circuit without connecting to the PC (e.g. prior to transport) or fill the water circuit during startup.

You can call up the IP address by pressing the "Config" button (D). You can configure the milling unit in the network with this address.

Switching the unit off

- ✓ The unit has finished the machining operation.
- Briefly press the ON/OFF button on the front panel.
- ↵ When you let go of the button, the unit switches off.

5.5 Repacking

NOTICE

Repack only drained units!

Drain the unit! See "Removing water from the unit". [→ 41]

- ✓ The water tank is empty.
 - ✓ The main switch on the back side of the unit is set to the 0 (OFF) position.
1. Disconnect the power cable and the connecting cable from the back side of the unit and stow them away.
 2. Stow away the calibration tools in the drawer.
 3. Check the unit for completeness according to the scope of supply!
 4. Pack the unit securely.

5.6 Scope of supply

The detailed scope of supply is specified in the document "Checklist CEREC MC XL".

5.7 Storage

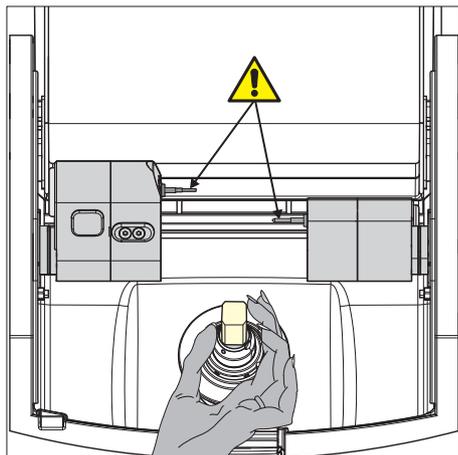
NOTICE

Only drained units may be stored!

Drain the unit! See chapter on "Removing water from the unit". [→ 41]

Store the unit in a closed and dry room at a temperature of -10°C to 50°C for a maximum period of 12 months.

6 Operation



⚠ CAUTION

Risk of injury on calibration pins/milling instruments

If you reach into the milling chamber (e.g.: when inserting/removing a ceramic block, changing milling instruments, or inserting/removing a calibration phantom), you may injure your hand on the calibration pins/milling instruments.

Be careful not to brush against the calibration pins or milling instruments with your hand.

Always insert your hand in the milling chamber underneath the calibration pins and milling instruments.

6.1 Configuration (CEREC MC XL)

In the Device area, various settings can be subsequently modified.

1. Click the "Configuration" button in the system menu.
2. Click on the "Devices" button.
3. Click on the unit that you wish to configure.

Manual block fixing

If you use the manual block clamp, the check box in front of "Manual block chuck" must be ticked.

De-activating a bur set (only for milling units with 4 motors)

It may sometimes prove necessary to deactivate a bur set, e.g. as long as it is not possible to replace a defective milling instrument or in case a milling motor is defective or cannot be calibrated.

In all of these cases, you can deactivate sets 1 and 2 separately. A deactivated set will simply be ignored during milling, calibration etc.

NOTICE

Risk of collision

The restoration may become damaged if longer milling instruments are present in the deactivated bur set than in the active set.

- Ensure that milling instruments installed in the deactivated bur set are no longer than those in the active set.

- ✓ The check box in front of "Two Bur Sets" is ticked.
- Remove the check box in front of the bur set to be deactivated.

Scanner

Do not tick the check box in front of "Scanner".

Bar code reader

If a bar code reader is used, e.g. for inCoris ZI, the corresponding box must be activated. The bar code reader will then always be used to read a bar code, even when the scanner is also active. The scanning function can, however, still be used in this case.

6.2 Calibrating the unit

NOTICE

Use only the supplied calibration tools

Use only the supplied calibration pins and the corresponding calibration phantom when calibrating the milling unit.

Unit is calibrated ex works

Unit is calibrated ex works. No additional calibration is required during initial startup. Proceed as described below when performing a subsequent calibration.

NOTICE

Faulty milling result

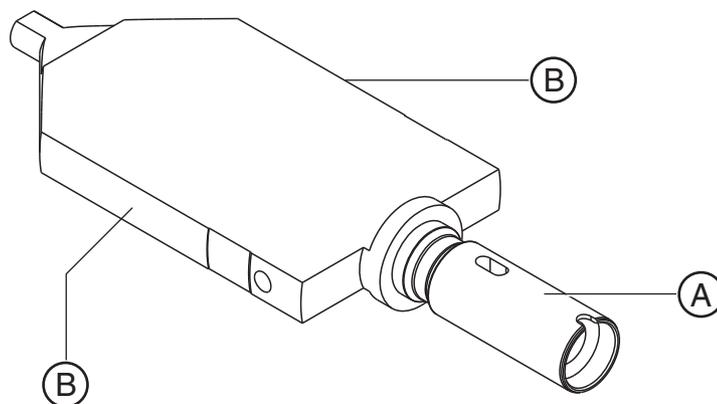
If the unit is not calibrated, the milling result may be faulty.

Preparing a calibration

1. Take the calibration pins and calibration phantom out of the drawer of the unit.
2. In the software, navigate to the system menu and click on the "Configuration" button.
3. Press the "Devices" button.
4. Click on the unit that you wish to calibrate.
5. Click on the "Calibrate" step.
 - ↳ If two bur sets are set:
A dialog then opens where you can select the bur set to be calibrated or the two bur sets to be calibrated consecutively. The date of the last calibration is also displayed.
6. If necessary, select the desired bur set.
You can also select the desired bur set on the milling unit (up/down arrow).
7. Click on the "Start" button.
 - ↳ The milling unit then moves into position to insert the calibration tools.
A dialog box prompts you to insert the calibration pins and the calibration phantom and to close the milling chamber door again.

Inserting the calibration pins and phantom

1. Press the catch of the milling chamber door and open the door.
2. Loosen the milling instruments with the torque wrench and remove them.



Calibration phantom

NOTICE

Grasp the calibration phantom correctly

Grasping the calibration phantom by its wide surfaces may cause calibration errors.

- Always grasp the calibration phantom by its clamping shank (A) when removing it from the storage box.
- Always grasp the calibration phantom by its narrow surfaces (B) when inserting it in the block clamp.

3. Remove the adapter sleeve (see "Using the manual block clamp" [→ 30]).
4. To insert the calibration phantom in the block clamp, grasp it by its narrow surfaces (B).
5. Clamp the calibration phantom with the ball pressure screw. Use the block clamp tool for this purpose.
6. Insert the calibration pins in the motor mount by hand. Tighten the corresponding chuck with the torque wrench until a clicking sound can be heard.
7. Close the milling chamber door.

Performing a calibration

- Confirm your selection in the "Calibrate milling unit" window with the "Start" button.
 - 👉 The automatic calibration begins and takes approx. 12 minutes. Wait until the calibration has been completed.

Inserting milling instruments

1. Open the milling chamber door following calibration.
2. Loosen the calibration pins with the torque wrench and remove them.
3. Loosen the ball pressure screw.
4. Remove the calibration phantom by grasping it by its narrow surfaces (B).

NOTICE

Store the calibration tools in a safe place

Store the calibration pins and the calibration body in a safe place (e.g. in a storage box in the unit drawer).

5. Insert the milling instruments in the motor mount by hand. Tighten the corresponding chuck with the torque wrench until a clicking sound can be heard.
6. Close the milling chamber door.
 - ↳ The dialog box for selecting the milling instruments then appears.
7. Select the inserted milling instruments and confirm by clicking the "Start" button in the window.
 - ↳ The motor mounts move to their starting positions.
The "Calibration succeeded" dialog box appears.

Completing the calibration

1. Click on the "OK" button.
2. Click on the "Exit Configuration" step.

6.3 Starting the milling process

Preparations

- ✓ Download or design a restoration (see operator's manual).
- ✓ You are in the "MILL" phase and have selected the milling unit, tested the settings and positioned the restoration in the block.
- Click on the "Start Milling" step.
 - ↳ The milling unit then moves to the insertion position.

Starting the milling process

1. Depending on the configuration, you will now be prompted to enter the bar code (see also "Entering the bar code").
2. Press the catch of the milling chamber door and open the door.

NOTICE

Error message during touch process!

Always be sure to insert the ceramic block that you selected for the restoration. Otherwise an error message will be displayed during the touch process.

3. Place the selected ceramic block in the block clamp.
4. Clamp the ceramic block with the ball pressure screw. Also use the block clamp tool (see "Using a manual block clamp [→ 30]").
5. Close the milling chamber door and confirm the procedure by clicking "Start".
 - ↳ The estimated time required for the milling process will then appear in a message window.

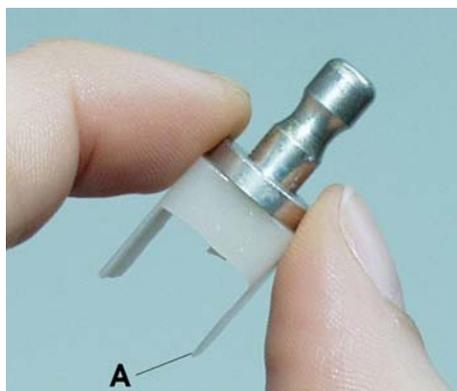
NOTICE

Aborting the milling process

You can abort the milling process at any time by pressing the "Stop" button.

Completing the milling process

1. When the milling process has been completed, open the milling chamber door.
2. Remove the restoration.



⚠ WARNING

Risk of injury on the remainder of the ceramic block

The remaining portion of the ceramic block may have sharp edges (e.g. A) that could injure you if it is not removed carefully.

Always grasp the remainder of the ceramic block by its metal holder.

3. Loosen the ball pressure screw.
4. Remove the remainder of the ceramic block. When removing the remaining block from blocks with 6 mm diameter block holders, make sure that the adapter sleeve remains in the machine!
5. Close the milling chamber door.

⚠ CAUTION

Do not use defective milling results!

Milling results must be judged by the user (dentist or dental technician) and must not be used if defects are detected!

NOTICE

If you have not used the milling unit for a rather long time, we recommend you should switch it off and then open the milling chamber door so that the milling chamber can dry out.

6.4 Entering the bar code

Barcode Reader active

If you have activated the option "Barcode Reader" in the unit configuration dialog (e.g. for inCoris ZI), you must read in both bar codes with the bar code reader. To do this, hold the bar code reader tilted to a slight angle and move it over both of the bar codes on the block continuously and evenly.

If the reading process fails, you can read-in the bar code once again by pressing "Retry" (button 1 on the unit display). Alternatively, you also can enter the substitute code (8-digit character string, e.g. *1234XYZ) on the PC manually.

No barcode reader present

- Enter the replacement code (8-character string, e.g. *1234XYZ) manually on the PC.

6.5 Using the manual block clamp

Store the block clamp tool in the corresponding holder (see also "Gluing on the tool holder" [→ 17]).

You can attach the holder to a suitable location with the adhesive pad. Clean and degrease the contact surface beforehand.

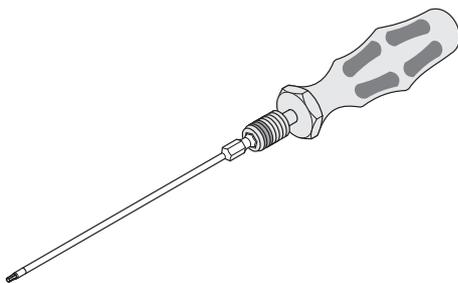
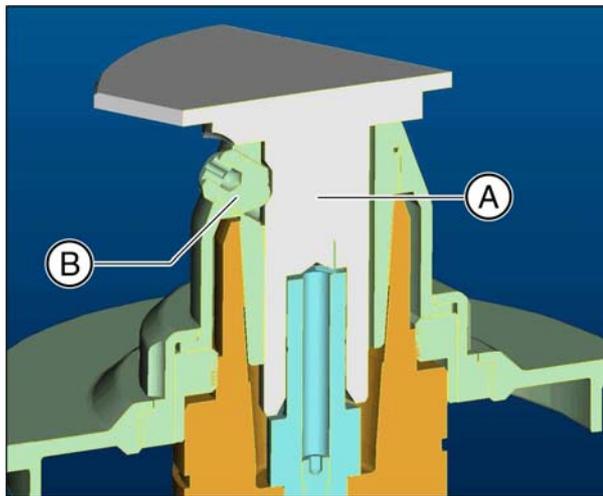
NOTICE

Wear of the ball pressure screw

The high clamping forces cause wear of the ball pressure screw.

- Replace the ball pressure screw every 500 clamping operations.

Blocks with 10 mm diameter block holders



NOTICE

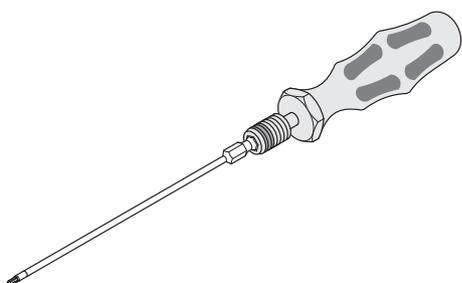
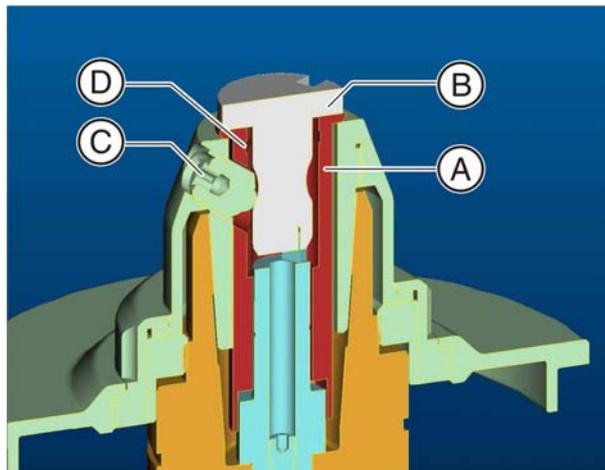
Fasten the block tightly

If the block is not tightened sufficiently, this may result in falsification of the milling result and fracturing of its ceramic material.

- **Fasten the block tightly using the block clamp tool with torque wrench until you hear a click.**
- Check to make sure that the block is seated very firmly.

1. Place the block (A) directly into the block clamp.
2. **Clamp** the ceramic block **securely** with the ball pressure screw (B). Use the block clamp tool with torque wrench for this purpose.
 - ↪ The block is pressed laterally against the contact surface of the block clamp and simultaneously pulled in axially. The plate of the block holder thus rests on the block clamp.

Blocks with 6 mm diameter block holders



NOTICE

Fasten the block tightly

If the block is not tightened sufficiently, this may result in falsification of the milling result and fracturing of its ceramic material.

- **Fasten the block tightly using the block clamp tool with torque wrench until you hear a click.**
- Check to make sure that the block is seated very firmly.

1. Insert the adapter sleeve (A) into the block clamp.

NOTICE

Insert the adapter sleeve

The slot at the bottom end of the adapter sleeve must lie above the radial pin of the block fastener in order to be inserted fully.

The hole for the ball pressure screw is then automatically in the correct position, i.e. coincides with the threaded hole in the block clamp.

2. Insert the block (B) into the block adapter sleeve.
3. **Clamp** the ceramic block **securely** with the ball pressure screw (C). Use the block clamp tool with torque wrench for this purpose.
 - ↳ The block is pressed laterally against the contact surface of the block clamp and simultaneously pulled in axially. The plate of the block holder thus rests on the block clamp.

Removing the adapter sleeve

1. Loosen the ball pressure screw.
2. Place the block clamp tool in the inner groove (D) and pull out the adapter sleeve.

7 Maintenance

NOTICE

Observe country-specific Regulations!

Some countries have legal regulations which require regular safety inspections of electrical devices or systems by the operator.

NOTICE

Perform maintenance regularly!

Have maintenance performed on your unit annually by trained technical personnel / a service engineer.

NOTICE

Observe error messages

You must observe error messages shown on the display on in the software. If the error message does not disappear even after you have performed the prompted action, contact your service engineer.

NOTICE

Machine care

Interval: Once a month

- **Clean** the block chuck and block clamping nut according to the the cleaning set instructions (REF 61 77 161).
- **Clean** the chucks of the milling instruments according to the cleaning set instructions (REF 61 77 161).
- If the jets of water do not strike the milling instruments, carefully remove any foreign particles from the water nozzles with a probe.

NOTICE

Do not confuse the block screw with the ball pressure screw

When operating a CEREC 3 milling unit and a CEREC MC XL milling unit in the same room, be careful not to confuse the block screw of the CEREC 3 with the ball pressure screw of the CEREC MC XL.

NOTICE

Using the tank cap opener

If you find the tank cap, tank drain or filter insert hard to open by hand, use the tank cap opener (see "Using the tank cap opener" [→ 41]).

NOTICE

Wear of the ball pressure screw

The high clamping forces cause wear of the ball pressure screw.

- Replace the ball pressure screw every 500 clamping operations.

7.1 Changing the water

7.1.1 General information

NOTICE

Damage to the pump and milling drives!

An excessively high ceramic content in the cooling water will damage the pump and milling drives.

Change the water regularly!

When the water is due to be changed, a message window appears on your monitor to remind you that it is time to change the water.

Preventing odors

All milling additives contain a biologically degradable preservative. Despite this, however, odors may still develop under unfavorable conditions.

Observe the following:

- Change the water at least once a week.
- With ambient temperatures above 25°C, change the water every 2 to 3 days to prevent foul odors.
- Drain the tank if you do not intend to operate the unit for more than one week.
- Clean the tank if the odors recur.
- Add DENTATEC milling additive and fill the tank up to the brim with water. Let it stand for at least 24 hours and then rinse it out thoroughly with water once again.

NOTICE

Damage to surfaces!

When undiluted, DENTATEC milling additive etches plastic surfaces and can cause discoloration.

- Do not place DENTATEC on the unit.
- Do not spill DENTATEC.

NOTICE

Permissible milling additive

Use only DENTATEC as a milling additive.

7.1.2 Changing the water

To change the water, proceed as follows:

- ✓ The unit is switched on.
 - ✓ No milling/scanning process is running.
1. Pull out the water tank at the front of the unit.

2. Open the drain opening.
3. Drain the water tank.
4. Turn the tank cap counter-clockwise and take it off. If you find the tank cap hard to open by hand, use the tank cap opener (see "Opening the tank cap" [→ 41]).
5. Unscrew the side cap.
6. Remove the filter insert from the tank and clean the filter thoroughly under running water.
7. Rinse the water tank.
8. Insert the cleaned filter with its cap into the unit and screw it tight.
9. Close the drain opening.

NOTICE

Foaming not permissible!

If any cleaning agents are used, this will create foam, which is not permitted.

Do not use any cleaning agents.

10. Add approx. 75 ml of DENTATEC to the tank.
11. Fill the tank with water until the filter insert is completely immersed (up to the bottom edge of the cover thread, approx. 3 liters).
12. Wait for a short time until the filter insert is completely soaked; then add an appropriate amount of water.
13. Close the water tank by tightening the tank cap clockwise by hand.
Do not use the tank cap opener for this.
14. Push the water tank back into the housing.

7.2 Milling instruments

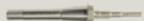
NOTICE

Second burr set

The following information on the two burr sets is only applicable if the second burr set (optional) is also installed.

7.2.1 Overview of materials and milling instruments

The following table shows the two pairs of milling instruments, the positions where they must be inserted and the materials that can be milled with each instrument pair:

Material	Left		Right	
All chairside materials*	Step Bur 12 S		Cylinder Pointed Bur 12 S	
	Step Bur 12			
VITA CAD-Temp multiColor	Step Bur 20		Cylinder Pointed Bur 20	

* Chairside materials:

Silicate Ceramic:

Sirona CEREC Blocs
 Sirona CEREC Blocs PC
 VITA VITABLOCS® Mark II
 VITA VITABLOCS® TriLuxe
 VITA VITABLOCS® TriLuxe forte
 VITA VITABLOCS® RealLife
 IVOCCLAR VIVADENT IPS Empress® CAD
 IVOCCLAR VIVADENT IPS Empress® CAD Multi
 IVOCCLAR VIVADENT IPS e.max® CAD
 3M ESPE Paradigm™ C Glass Ceramic

Composite:

VITA CAD-Temp monoColor**
 IVOCCLAR VIVADENT TelioCAD
 Merz artBloc® Temp**
 Merz artegral® ImCrown
 3M ESPE Paradigm™ MZ 100

** only Step Bur 12 S and Cylinder Pointed Bur 12 S

	REF
Step Bur 12 S	62 40 167
Cylinder Pointed Bur 12 S	62 40 159
Step Bur 12	62 60 025
Step Bur 20	62 59 597
Cylinder Pointed Bur 20	62 59 589

If you primarily process materials from one of the two groups, equip both bur sets with the same pair of milling instruments.

If you frequently process materials from both groups, equip the bur sets as follows:

Milling instrument "Left"	Milling instrument "Right"	Burr set
"Step Bur 20"	"Cyl. Pointed Bur 20"	Burr set 1
"Step Bur 12 S"	"Cyl. Pointed Bur 12 S"	Burr set 2

7.2.2 Changing milling instruments (burs)

NOTICE

Milling instruments without chuck

In order to ensure that no grease residues from previously used chucks remain in the **clamping cone** when using milling instruments without a chuck, we **urgently** recommend **degreasing** the clamping cone.

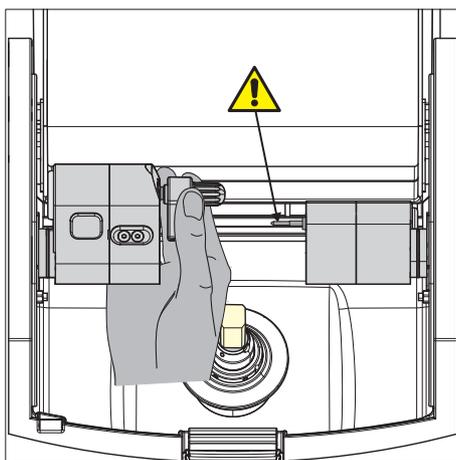
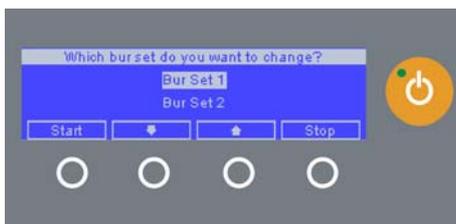
NOTICE

Regular replacement of milling instruments

Change the milling instruments as soon as the system prompts you to do this.

Change the milling instruments after using them to mill 25 restorations at the latest.

- ✓ The torque wrench from the draw of the milling unit is ready-to-hand.
- 1. In the software, navigate to the system menu and click on the "Configuration" button.
- 2. Press the "Devices" button.
- 3. Click on the unit, whose milling instruments you wish to replace.
 - ↳ If two bur sets are set:
A dialog then opens where you can select the bur set to be calibrated or the two bur sets to be calibrated consecutively. The date of the last calibration is also displayed.
- 4. If necessary, select the desired bur set.
You can also select the desired bur set on the milling unit (up/down arrow).
- 5. Click on the "Start" button.
 - ↳ The motors travel to the change position for the milling instruments.
The dialog box for changing the milling instruments opens.
- 6. Press the catch of the milling chamber door and open the door.



CAUTION

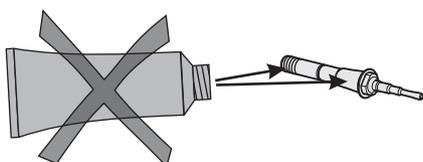
Risk of injury from milling instruments

If you put your hand in the milling chamber, you could injure it on the milling instruments.

Be careful not to brush against the milling instruments with your hand.

Apply the torque wrench as shown.

- 7. Loosen the worn-out or defective milling instrument with the torque wrench and pull it out manually.



NOTICE

Milling instrument without chuck

When replacing a **milling instrument with chuck** with a **milling instrument without chuck**, remove the installed instrument chuck and **degrease** the clamping cone.

8. **NOTICE! Do not grease the milling instrument without chuck!** Insert the new milling instrument into the motor mount by hand. Tighten the corresponding chuck with the torque wrench until a clicking sound can be heard.

NOTICE

Faulty milling results

Interchanging milling instruments leads to faulty milling results.

9. Close the milling chamber door.
10. Select the milling instrument(s) you have inserted on the PC monitor and click *"Start"*.
You can also select the milling instruments on the milling unit (up/down arrow) and confirm with *"Start"*.

NOTICE

Cleaning cooling water nozzles

The cooling water nozzles in the milling chamber always must be kept free of lime and milling dust deposits. The corresponding cooling water jet always must strike the milling instrument accurately!

- ✓ The cooling water nozzles are dirty.
- Clean the nozzles with a cleaning wire and the SPRAYVIT syringe (if available).

NOTICE

Use only suitable milling instruments!

Do not use any milling instruments from CEREC 2 or CEREC 3 units.

Replacing a defective milling instrument

If a milling instrument breaks during a milling operation, the corresponding motor travels to the change position. A dialog box which marks the side with the broken milling instrument with a red cross then opens.

- ✓ The milling instrument is broken.
1. Change the defective milling instrument as described above.
 2. Select the milling instrument which you have inserted.
 3. Press the *"Start"* button.

7.3 Care and cleaning agents

NOTICE

Approved care and cleaning agents

Use only care and cleaning agents which have been approved by Sirona!

A continuously updated list of approved agents can be downloaded from the Internet at the address "www.sirona.com". In the navigation bar, go to the menu items "*SERVICE*" / "*Care and cleaning*" and then open the document "*Care and cleaning agents*".

If you do not have any access to the Internet, please contact your dental depot to order the list.

REF 59 70 905

7.4 Cleaning surfaces

NOTICE

Care and cleaning agents

Use only cleaning and care agents which have been approved by Sirona, see Cleaning and care agents [→ 38].

NOTICE

Do not allow liquids to run into the ventilation slots!

7.4.1 Disinfecting

Wipe surfaces down with a surface disinfectant (wiping disinfectant).

Observe the manufacturer's instructions regarding restrictions for use.

7.4.2 Protection against medicaments

Due to their high concentrations and the substances they contain, many medicaments can dissolve, etch, bleach or discolor surfaces.

NOTICE

Damage to the surface

Clean the surface immediately with a moist cloth and a cleaning agent.

7.4.3 Cleaning

Remove dirt, grime and disinfectant residue regularly using mild, commercially available cleaning agents.

7.5 Replacing the main fuses

WARNING

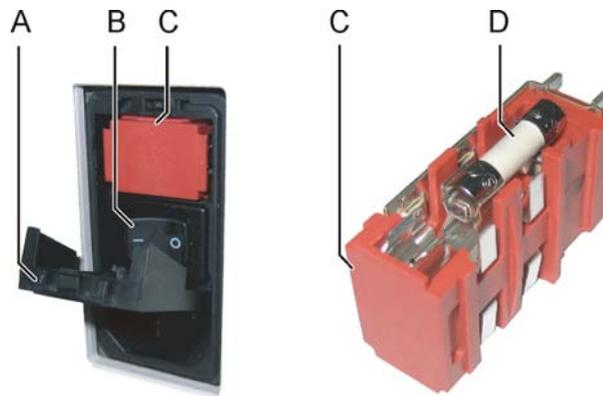
Electric shock

Disconnect the power plug at the unit end before replacing the fuses.

NOTICE

Fuse type

Use only fuses of the same type in the fuse holder!



Fuse holder

A	Cover	C	Fuse holder
B	CC	D	Fuse

Fuses: T5H250V Order No. 20 33 111

- ✓ The power plug must be disconnected.
- 1. Use a screwdriver to carefully pry off the cover of the fuses on the back side of the unit.
- 2. Pull out the fuse holder.
- 3. Replace the defective fuses.
- 4. Reinsert the fuse holder.
- 5. Close the cover.

7.6 Changing the filter

NOTICE

Change the filter regularly!

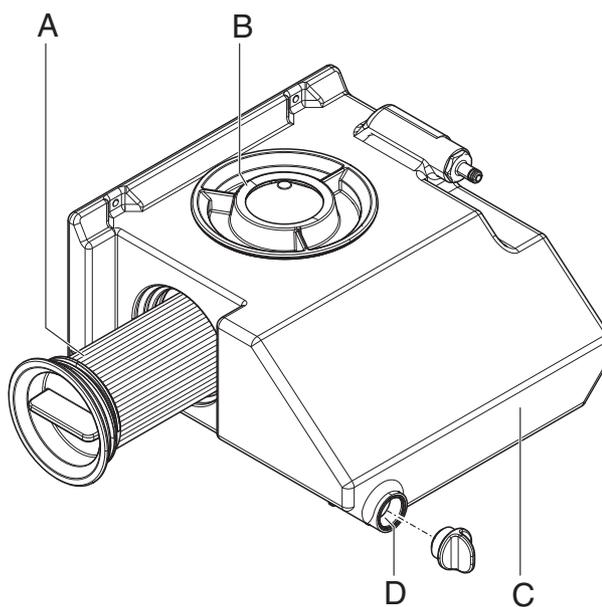
Clean the filter regularly and change it immediately when damaged. Otherwise, change it every 3 months.

If a message appears stating that the water pressure is too low, you must clean the filter or, if it is damaged, replace it immediately.

CAUTION

Filter

Use only filters approved by Sirona!



Water tank

A	Filter insert	C	Tank
B	Tank cap	D	Tank drain

- ✓ The tank is drained, see "Removing water from the unit" [→ 41].
- 1. Pull out the water tank at the front of the unit.
- 2. Unscrew the cover on the side and take it out of the tank along with the filter insert.
- 3. Rinse the water tank.
- 4. Insert a new filter with cover into the tank and screw it tight.
- 5. Fill the tank, see "Changing the water" [→ 33].

Filter insert: Order No. 61 29 519

NOTICE

Cleaning the filter

Clean the filter approx. every 12 to 15 units under running water, but at least with every water change.

7.7 Removing water from the unit

You must remove water from the unit if you will not be using it for a longer period of time or wish to transport it.

- ✓ No milling/scanning process is running.
- 1. Switch the unit off.
- 2. Pull out the water tank at the front of the unit.
- 3. Drain the water out of the water tank through the drain opening and reinsert the water tank in the unit.
- 4. Switch the unit on.

NOTICE

Pump button active at power-up

The *"Pump"* button appears on the display when the milling unit is switched on. You can start or stop the water pump by pressing this button.

- 5. Press the *"Pump"* button to switch the pump on.
 - ↳ The water pump then starts pumping the water out of the unit.
Let the pump run until no more water escapes from the nozzles.
- 6. Press the *"Pump"* button to switch the pump off.
- 7. Pull out the water tank and empty it.
- 8. Push it back into the housing.

7.8 Using the tank cap opener

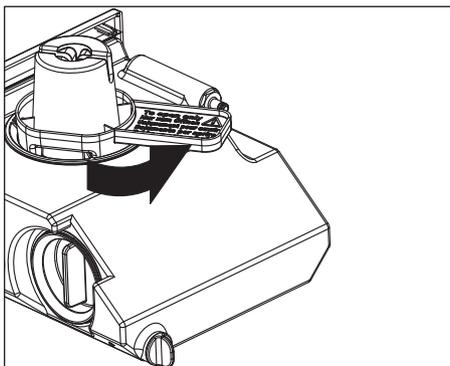
NOTICE

Risk of damage to the tank

Use the tank cap opener **only for opening** the tank cap, tank drain and filter insert.

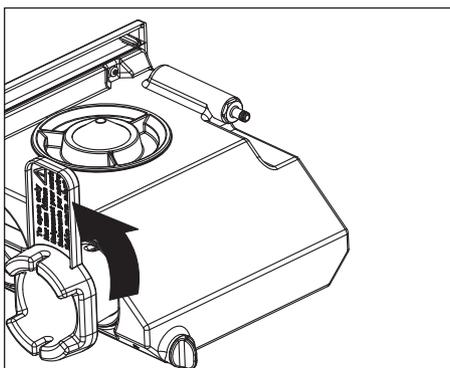
Do not use the tank cap opener for closing the tank cap. To close the tank cap, tank drain and filter insert it is sufficient to tighten them clockwise by hand.

Opening the tank cap



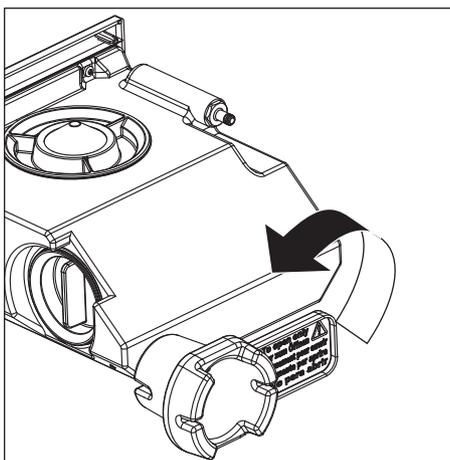
- ✓ The water tank has been pulled out and drained.
- Place the tank cap opener on the tank cap as shown, and take off the tank cap by unscrewing it counter-clockwise.

Opening the filter cap



- ✓ The water tank has been pulled out and drained.
- Place the tank cap opener on the filter cap as shown, and take off the filter cap by unscrewing it counter-clockwise.

Opening the tank drain



- ✓ The water tank has been pulled out.
- Place the tank cap opener on the filter drain as shown, and take off the filter drain by unscrewing it counter-clockwise.

8 Technical description

8.1 System requirements

The CEREC SW must only be installed on CEREC AC acquisition units.

The hardware version of the acquisition unit must be **PC Hardware HQ** with Windows 7 (64 bit) or higher.

If necessary, upgrade your operating system.

8.2 milling unit

8.2.1 General technical description

- Digital feed control with force monitoring for extremely sensitive processing of ceramic materials
- Process-controlled milling motors
- Positioning step size: 6.25 µm
- Milling repeatability: +/- 25 µm
- Milling speed: 1.0 - 1.5 mm/min.

Milling instruments (performance-monitored, backlash-free bearing)

- Grain size: 64 µm
- Speed: 42.000 rpm
- Step Bur 12 S
- Step Bur 20 (option, only in connection with inLab 3D software)
- Cyl. Pointed Bur 12 S
- Cyl. Pointed Bur 20 (option, only in connection with inLab 3D software)

8.2.2 Technical data

Type designation	Milling unit CEREC MC XL
Rated line voltage	100V - 230V AC
Rated power frequency	50/60 Hz
Rated current	1.5 - 3.5 A
Nominal power output	320 VA
Permissible line voltage fluctuations	±10% of nominal voltage
Type of protection against electric shock	Units of protection class 1
Degree of protection against ingress of water Water	Ordinary device (without protection against ingress of water)
Overvoltage category	II
Ambient conditions	For indoor use Pollution degree 2 Barometric pressure: 700 hPa – 1060 hPa
Temperature range	5 °C to 40 °C
Humidity range	80% rel. up to 31°C decreasing to 50% rel. up to 40°C
Operating mode	Continuous operation
Dimensions (WxHxD) in mm	700 x 425 x 420
Approx. weight	43 kg

8.2.3 Controller board

- 3x 2-axis stepping motor controller with microstepping
- 2 (4) DC motor controllers with integrated speed and current control and force monitoring
- Ethernet, RJ45 interface 10 Mbit/sec



9 Disposal

Your product is marked with the adjacent symbol. Within the European Economic Area, this product is subject to Directive 2002/96/EC as well as the corresponding national laws. This directive requires environmentally sound recycling/disposal of the product. The product must not be disposed of as domestic refuse!

Please observe the disposal regulations applicable in your country.

Disposal procedure

Please note that this product is subject to the stipulations in EC Directive 2002/96 governing waste electrical and electronic equipment and must be disposed of in line with these special requirements within the European Union (EU).

Prior to disassembly / disposal of the product, it must be fully prepared (cleaned / disinfected / sterilized).

When disposing of equipment permanently, please proceed as follows:

In Germany:

To initiate return of the electrical device, please send a disposal order to "enretec GmbH".



1. You can find a form for placing a disposal order on the company's homepage (www.enretec.de) under the menu item "Entsorgung elektrischer und elektronischer Geräte" (Disposal of electric and electronic devices). The form can either be downloaded or completed online.
 2. Fill out the form with the corresponding details and send it as an online order or fax it to enretec GmbH at +49(0)3304 3919 590. You can also get in touch with the following contacts for disposal orders and any questions relating to this you may have:
Phone: +49(0)3304 3919 500;
E-mail: pickup@eomRECYCLING.com
Mailing address: enretec GmbH, Geschäftsbereich eomRECYCLING
Kanalstrasse 17, 16727 Velten
- ↳ Any nonpermanently installed equipment will be picked up at its installation site in the practice. Permanently installed equipment will be picked up curbside at your address by appointment.

All disassembly, transport and packaging costs are to be borne by the owner/operator of the equipment. The disposal itself is free of charge.

Worldwide (outside Germany):

Please contact your local dental equipment specialist for country-specific information on disposal.

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

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