Sirona Dental CAD/CAM System
CEREC AC
With CEREC Bluecam

Operating Instructions for the acquisition unit (valid for USA)

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

- US6885464
- US6813035
- US7522764
- US7388678
- US7801632
- US8062034
- US8111909
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1 Dear Customer,

Thank you for your purchase of this CEREC AC® unit from Sirona.

This device enables you to produce dental restorations, e.g. from ceramic material with a natural appearance (CEramic REConstruction).

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

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

Your
CEREC AC team

1.1 Contact information

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

Manufacturer's address
Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany
Tel.: +49 (0) 6251/16-0
Fax: +49 (0) 6251/16-2591
e-Mail: contact@dentsplysirona.com
www.dentsplysirona.com
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 Structure of the document

2.1.1 Identification of the danger levels

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

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANGER</td>
<td>An imminent danger that could result in serious bodily injury or death.</td>
</tr>
<tr>
<td>WARNING</td>
<td>A possibly dangerous situation that could result in serious bodily injury or death.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>A possibly dangerous situation that could result in slight bodily injury.</td>
</tr>
<tr>
<td>NOTE</td>
<td>A possibly harmful situation which could lead to damage of the product or an object in its environment.</td>
</tr>
<tr>
<td>IMPORTANT</td>
<td>Application instructions and other important information.</td>
</tr>
</tbody>
</table>

Tip: Information for simplifying work.
2.1.2 Formats and symbols used

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

<table>
<thead>
<tr>
<th>✓</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>First action step</td>
</tr>
<tr>
<td>2.</td>
<td>Second action step</td>
</tr>
<tr>
<td>or</td>
<td>Alternative action</td>
</tr>
<tr>
<td>➢</td>
<td>Result</td>
</tr>
<tr>
<td>➢</td>
<td>Individual action step</td>
</tr>
</tbody>
</table>

| Prompts you to do something. |

| See "Formats and symbols used [→ 7]" |
| 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. |

2.2 Battery warranty

The battery is subject to wear and the warranty period of 6 months therefore deviates from the period specified for the entire device.

2.3 Legend

20XX

Year of manufacture

Safety labels

Identifies labels/imprints on the unit (see Safety labels [→ 13]).

Product disposal symbol (see "Disposal [→ 70]”).

Storage battery pack disposal symbol (see "Disposal of the storage battery pack” [→ 71])

Storage battery pack recycling symbol (see "Disposal of the storage battery pack” [→ 71])

The CEREC AC acquisition unit may contain an RF transmitter in the form of a WLAN card or a separate wireless module.
Radio approval for Australia/New Zealand

Follow the operating instructions.
To ensure safe operation of the unit, the user must follow the operating instructions.

Symbols on the packaging
Take note of the following symbols on the packaging:

Top

Protect from moisture

Fragile; handle with care

Temperature during storage and transport

Relative humidity during storage and transport

Air pressure during storage and transport
3 General description

3.1 Certification

CE mark


NOTE

CE mark for connected products

Further products which are connected to this unit must also bear the CE mark.

Compliance

Anyone creating or changing a medical electrical system through a combination with other devices in accordance with standard EN 60601-1-1:2001 based on 60601-1-1:2000 (specification for the safety of medical electrical systems)/UL 60601-1 Part 1: first edition 2003 is responsible for ensuring that the requirements of these standards are met to the full extent in order to ensure the safety of patients, operators and the environment.
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. For the SSO 3.5 L and SBL 3.3 L titanium bases, the indication is restricted to the replacement of single lateral incisors in the maxilla and lateral and central incisors in the mandible. 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.xxx) (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 implant 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)
- Straumann Bone Level (K053088, K062129, K060958)
- Biomet 3i Certain (K014235, K061629)
- Nobel Biocare Active (K071370)

**CAUTION**

Small diameter implants and large angled abutments in the anterior region of the mouth due to possible failure of the implant system.

**CAUTION**

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

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

NOTE
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.

NOTE
Restrictions regarding installation site
The system is not intended for operation in areas subject to explosion hazards.

NOTE
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 Connecting the unit

Perform connection by following the directions given in the present operating instructions.

4.1.3 General safety information

⚠️ CAUTION
Do not damage the monitor
DO NOT touch the LCD screen with sharp or pointed objects. If the LCD monitor is damaged (e.g. the glass screen is broken), prevent any leaking liquid from coming into contact with your skin, mucous membranes (eyes, mouth), or foodstuffs and be careful not to inhale any escaping vapors. Rinse any parts of your body or items of clothing already contaminated by the liquid with ample amounts of water and soap.

⚠️ CAUTION
Note on the prevention, recognition, and elimination of unintended electromagnetic effects:
The CEREC AC acquisition unit is Class B equipment (classified according to CISPR 11, EN 60601-1-2: 2007 based on IEC 60601-1-2:2007 and A1:2004). This system may be operated in a residential area provided that it is used under the responsibility of a medical specialist.
4 Safety
4.1 Basic safety information

NOTE
Install only approved software
To prevent interference with the runtime reliability of the program, only software approved by Sirona may be installed.

NOTE
Ventilation openings must not be obstructed.

4.1.4 Movement and stability of the unit

NOTE
The unit can overturn or slip away
For reasons of tilt stability, the unit must be pulled by its front handle when being moved. If you push the unit, obstacles on the floor could block its wheels, thus causing it to overturn.
The two front wheels of the unit have brakes which can be locked to ensure secure positioning. If the unit is steeply inclined or standing on a slippery surface and lateral forces are acting on it, it may slide even though the wheel brakes are locked.
> Always make sure that the unit's footprint is a flat, nonskid surface.

4.1.5 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.

4.1.6 Modifications to the product

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

4.1.7 Accessories

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

4.1.7.1 Included accessories
- Camera support (6 pcs), Order No.: 59 45 360
- Storage battery pack, order no.: 61 87 582
4.2 Safety labels

Fuses

NOTE
Use ONLY fuses of the same type!
CAUTION
Additional devices connected to external interfaces must be tested according to the relevant standards, e.g.:
They must be installed outside of the patient area (a radius of 1.5 m surrounding the patient).

CAUTION
Low voltages are applied to the sockets for connecting external interfaces.
➢ Do not touch the pins of the connectors.

NOTE
The externally connected cables must not be subjected to pulling stress.

CAUTION
In order to maintain electrical safety, the rear doors of the acquisition unit must be kept closed while it is in operation. The acquisition unit must not be operated inside of the patient area (within a radius of 1.5 m surrounding the patient) with the doors open.
4 Safety

4.3 Electrostatic charge

4.3.1 ESD warning labels

Risk of injury or damage to components from electrostatic discharge

For electrical components labeled with an ESD warning label, observe the following instructions.

➢ Apply the ESD protective measures.
➢ Do not touch connector pins or sockets without applying ESD protective measures first.
➢ Do not establish any connections between these connectors without applying ESD protective measures first.
4.3.2 **ESD protective measures**

ESD stands for ElectroStatic Discharge.

ESD protective measures include:

- Procedures for preventing electrostatic charge build-up (e.g. air conditioning, air moistening, conductive floor coverings and non-synthetic clothing)
- Discharging the electrostatic charges of your own body on the frame of the UNIT, the protective ground wire or large metallic objects
- Connecting yourself to ground using a wrist band.

**Training**

We therefore recommend that all persons working with this system be instructed on the significance of this warning label. Furthermore, they also should receive training in the physics of electrostatic discharges which can occur in the practice and the destruction of electronic components which may result if such components are touched by electrostatically charged USERS.

The content of this training is explained in the Chapter "About the physics of electrostatic charges" [→ 16].

4.3.3 **About the physics of electrostatic charges**

**What is an electrostatic charge?**

An electrostatic charge is a voltage field on and in an object (e.g. a human body) which is protected against conductance to ground potential by a nonconductive layer (e.g. a shoe sole).

**Formation of an electrostatic charge**

Electrostatic charges generally build up whenever two bodies are rubbed against each other, e.g. when walking (shoe soles against the floor) or driving a vehicle (tires against the street pavement).

**Amount of charge**

The amount of charge depends on several factors:

Thus the charge is higher in an environment with low air humidity than in one with high air humidity; it is also higher with synthetic materials than with natural materials (clothing, floor coverings).

Electrostatic discharge must be preceded by electrostatic charging.

The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

The transient currents resulting from these discharges have a magnitude of 10 amperes. They are not hazardous for humans because they last for only several nanoseconds.
4 Safety

4.4 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.

4.5 Disturbance of data transmission

Data communication between the acquisition unit and the CEREC MC XL milling and grinding unit should preferably be established via the wireless interface CEREC Radio Device or WLAN.

As for all wireless connections (e.g. cell phones), 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 interface (CEREC Radio Device) or WLAN, which generally ensures 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 wireless interface connection, and instead connect the LAN cable with the CEREC MC XL milling and grinding unit.
4.6 Integration in a network or connection to a modem

NOTE
Observe the following installation regulations
The following installation regulations apply to integration of the acquisition unit in a network or connection of the acquisition unit to a modem:

Network
The acquisition unit may only be operated in a network if it is connected to a HUB/switch. The HUB/switch must:
- be located in the room where the acquisition unit is operated, permanently installed.
- be grounded via an additional ground wire.

Cross-section of the protective ground wire
- laid protected: 2.5 mm²
- laid unprotected: 4 mm²

Modem
At least one of the following specifications must be fulfilled in order to operate the acquisition unit on a modem:
- If a modem is connected, the acquisition unit may only be operated outside of the patient area (radius of 1.5 m surrounding the patient).
- An RS232 isolator compliant with EN 60 601-1-1 with a dielectric strength of at least 1.5 kV must be installed at the modem end in the RS232 connecting cable between the acquisition unit and the modem.
5 Technical information

5.1 Technical description

CAD system for high-precision intraoral optical impressions

- High-resolution, heated oral camera (3D camera) with removable prism tube (prism tube sterilizable with hot air)
- Integrated image processing
- High processing power due to state-of-the-art processor
- Trackball
- Hand and foot controlled enter keys
- Wipe-disinfectable membrane keyboard
- Hard disk
- DVD-R(W)/CD-R(W) drive
- Ethernet port
- USB port
- 1 integrated loudspeaker

High-resolution 3D intraoral camera with control and image processing electronics

- Measuring technique: active triangulation
- Pixel size: 28 µm x 28 µm
- Low-noise CCD sensor: 680 x 480 pixels (=326,400 pixels)
- Light source: Blue LED, polarized, 470 nm
- Image acquisition: Image control inside the camera
- Image acquisition: 16 MB ultrafast SDRAM
- Image processing: Intensity measurement of 1.4 mil. pixels in 0.070 sec.
- Image data transfer: Dependent on fast USB 2.0 standard

Monitor

- 19” TFT LCD flat display, true color, resolution SXGA (1280 x 1024 pixels)
PC hardware (LQ)

Special PC with the following equipment:

- Processor: Intel i7, 950
- Memory: 3 x 2048 MB, 1066 MHz DDR3 RAM
- DVD-ROM/CD-R(W): SH-22x combi drive
- Hard disk: Western Digital WD3200BEKT (320GB Serial ATA, 2.5”)
- Network card: Ethernet 10/100/1000 Mbit/s onboard
- WLAN card: Linksys WMP600N
- Sound card: Realtek HD Audio onboard
- Graphics card: N450GTS M2D1GD5 (PCIe 16x, 1GB))
- Supply board: 61 37 413 D3492 Sirona

PC software

- Operating system: Windows 7 professional, 64 bit
- Installation: The operating system and applications are installed at the factory.

Housing

All units are integrated in a mobile housing with easily movable/lockable castors.

No water or air connection required.
5.2 Technical data

Type designation | CEREC AC Acquisition unit
Rated line voltage for Europe | 230 VAC / 50Hz
Rated current for Europe | 1.5 A
Rated line voltage for USA | 115 VAC / 60Hz
Rated current for USA | 2.7 A
Rated line voltage for Japan | 100 VAC / 50Hz and 60Hz
Rated current for Japan | 3.0 A
Type of protection against electric shock | Class I device
Type of protection against electric shock (camera) | Type BF applied part

Degree of protection against ingress of water | Ordinary device (without protection against ingress of water)
Pollution degree | 2
Installation category | II
Operating mode | Continuous operation
Battery-backed operation for 6 minutes
Storage battery pack for battery-backed operation | 24 VDC / 2.5 Ah
Sirona Order Number: 61 87 582 D3492
Observe accompanying documents

Label: CAUTION

Transport and storage conditions
Temperature | -25°C to 60°C (-13°F to 140°F)
Relative humidity | 10% to 75%
Air pressure | 700 hPa to 1060 hPa

Operating conditions
Ambient temperature | 10°C to 35°C (50°F to 95°F)
Relative humidity | 30% to 85%
Air pressure | 700 hPa to 1060 hPa
Operating altitude | ≤ 3000 m
5.3 Electromagnetic compatibility

Observance of the following information is necessary to ensure safe operation regarding EMC aspects.

CEREC AC complies with the requirements for electromagnetic compatibility (EMC) according to IEC 60601-1-2:2001 and A1:2004. CEREC AC is hereinafter referred to as "UNIT".

5.3.1 Electromagnetic emission

The UNIT is intended for operation in the electromagnetic environment specified below.

The customer or user of the UNIT should make sure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emission measurement</th>
<th>Conformity</th>
<th>Electromagnetic environment - guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions according to CISPR 11</td>
<td>Group 1</td>
<td>The UNIT uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>RF emissions according to CISPR 11</td>
<td>Class B</td>
<td>The UNIT is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.</td>
</tr>
<tr>
<td>Harmonics according to IEC 61000-3-2</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations / flicker according to IEC 61000-3-3</td>
<td>coincides</td>
<td></td>
</tr>
</tbody>
</table>
### 5.3.2 Interference immunity

The UNIT is intended for operation in the electromagnetic environment specified below.

The customer or user of the UNIT should make sure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Interference immunity tests</th>
<th>IEC 60601-1-2 Test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD) according to IEC 61000-4-2</td>
<td>± 6 kV contact ± 8 kV air</td>
<td>± 6 kV contact ± 8 kV air</td>
<td>Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>Electrical fast transient/burst according to IEC 61000-4-4</td>
<td>± 1 kV for input and output lines ± 2 kV for power supply lines</td>
<td>± 1 kV for input and output lines ± 2 kV for power supply lines</td>
<td>The quality of the line power supply should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>Surge voltages according to IEC 61000-4-5</td>
<td>± 1 kV differential mode voltage ± 2 kV common mode voltage</td>
<td>± 1 kV differential mode voltage ± 2 kV common mode voltage</td>
<td>The quality of the line power supply should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>Voltage dips, short interruptions and variations of the power supply according to IEC 61000-4-11</td>
<td>&lt;5% (U_t) for ½ period (&gt;95% dip of (U_t)) 40% (U_t) for 5 periods (60% dip of (U_t)) 70% (U_t) for 25 periods (30% dip of (U_t)) &lt;5% (U_t) for 5sec. (&gt;95% dip of (U_t))</td>
<td>&lt;5% (U_t) for ½ period (&gt;95% dip of (U_t)) 40% (U_t) for 5 periods (60% dip of (U_t)) 70% (U_t) for 25 periods (30% dip of (U_t)) &lt;5% (U_t) for 5sec. (&gt;95% dip of (U_t))</td>
<td>The quality of the line power supply should be that of a typical commercial or hospital environment. Continued operation of the UNIT is possible following interruptions of the power supply, since the UNIT is powered by an uninterruptible power supply backed up by a storage battery.</td>
</tr>
<tr>
<td>Magnetic field of power frequencies (50/60 Hz) according to IEC 61000-4-8</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td>
</tr>
</tbody>
</table>

Note: \(U_t\) is the AC supply voltage prior to application of the test level.
## Electromagnetic compatibility

### Interference immunity tests

<table>
<thead>
<tr>
<th>Conducted RF interference</th>
<th>IEC 60601-1-2 Test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 61000-4-6</td>
<td>3 $V_{\text{eff}}$</td>
<td>3 $V_{\text{eff}}$</td>
<td>$d= [1.2] \sqrt{P}$</td>
</tr>
<tr>
<td></td>
<td>150 kHz to 80 MHz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Radiated RF interference   | IEC 61000-4-3              |                  |                                           |
|                            | 3 V/m                      | 3 V/m            | $d= [1.2] \sqrt{P}$                      |
|                            | 80 MHz to 800 MHz          | 3 V/m            | at 80 MHz to 800 MHz                     |
|                            | 3 V/m                      | 3 V/m            | at 800 MHz to 2.5 GHz                    |
|                            | 800 MHz to 2.5 GHz         |                  |                                           |

where $P$ is the nominal transmitter output in watts (W) specified by the transmitter manufacturer and $d$ is the recommended working clearance in meters (m).

Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey\(^1\) should be less than the compliance level\(^2\) in each frequency range. Interference is possible in the vicinity of equipment bearing the following graphic symbol.

### Remark 1

The higher frequency range applies at 80 MHz and 800 MHz.

### Remark 2

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

1. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM/FM radio and TV broadcasts, cannot be predicted theoretically with accuracy. An investigation of the location is recommended to determine the electromagnetic environment resulting from stationary RF transmitters. If the measured field strength in the location in which the UNIT is used exceeds the applicable RF compliance level specified above, the UNIT should be observed to verify normal operation. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the UNIT.

2. Over the frequency range 150kHz to 80 MHz, field strengths should be less than 3 V/m.
### 5.3.3 Working clearances

The UNIT is intended for operation in an electromagnetic environment, where radiated RF interference is checked. The customer or the user of the UNIT can help prevent electromagnetic interference by duly observing the minimum distances between portable and/or mobile RF communication devices (transmitters) and the UNIT. These values may vary according to the output power of the relevant communication device as specified below.

<table>
<thead>
<tr>
<th>Rated maximum output power of transmitter [W]</th>
<th>Working clearance according to transmission frequency [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 kHz to 80 MHz</td>
</tr>
<tr>
<td>0,01</td>
<td>(d = [1.2]\sqrt{P})</td>
</tr>
<tr>
<td>0,1</td>
<td>0,12</td>
</tr>
<tr>
<td>1</td>
<td>0,38</td>
</tr>
<tr>
<td>10</td>
<td>1,2</td>
</tr>
<tr>
<td>100</td>
<td>3,8</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

For transmitters whose maximum nominal output is not specified in the above table, the recommended working clearance \(d\) in meters (m) can be determined using the equation in the corresponding column, where \(P\) is the maximum nominal output of the transmitter in watts (W) specified by the transmitter manufacturer.

**Remark 1**

An additional factor of 10/3 is applied when calculating the recommended working clearance between transmitters in the 80 MHz to 2.3 GHz frequency range in order to reduce the probability that a mobile/portable communication device unintentionally brought into the patient area could lead to interference.

**Remark 2**

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.
6 Installation and startup

6.1 Transport and unpacking

All products from Sirona 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.

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damage during transport</td>
</tr>
<tr>
<td>If the product was damaged during transport, please contact your carrying agent.</td>
</tr>
</tbody>
</table>

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

To prevent damage to the LCD monitor, it must be removed during transport of the unit.

6.2 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.

6.3 Scope of supply

The detailed scope of supply is specified in the document "Checklist".
6.4 Initial startup

6.4.1 Controls and functional elements

Overview of the front panel

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Monitor ON/OFF switch</td>
</tr>
<tr>
<td>B</td>
<td>Membrane keyboard</td>
</tr>
<tr>
<td>C</td>
<td>CEREC camera</td>
</tr>
<tr>
<td>D</td>
<td>Heater plate</td>
</tr>
<tr>
<td>E</td>
<td>Locking brake</td>
</tr>
<tr>
<td>F</td>
<td>Foot control/foot pedal</td>
</tr>
<tr>
<td>G</td>
<td>Right trackball button</td>
</tr>
<tr>
<td>H</td>
<td>Center trackball button</td>
</tr>
<tr>
<td>I</td>
<td>Left trackball button</td>
</tr>
<tr>
<td>J</td>
<td>Trackball</td>
</tr>
<tr>
<td>K</td>
<td>Keys for monitor settings</td>
</tr>
</tbody>
</table>
6.4 Initial startup

Components of the Bluecam

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Operating state LED</td>
</tr>
<tr>
<td>B</td>
<td>ON button</td>
</tr>
</tbody>
</table>

NOTE

CEREC Bluecam is calibrated
The CEREC Bluecam is calibrated ex works (see "Calibrating the Bluecam").

WARNING

The CEREC Bluecam is not sterile upon delivery. The reprocessing steps mentioned in chapter „Maintenance [→ 50]“ must be done before first usage.
Overview of rear side

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Fuses</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Main switch</td>
<td>I = ON, 0 = OFF</td>
</tr>
<tr>
<td>C</td>
<td>Power connection</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>USB port</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

Waiting time after shutting down

If you have shut down the device using the main switch, wait at least 10 seconds before restarting.

If you do not observe the waiting time, the PC power supply cannot be switched on.

- You have not waited the specified time. The PC power supply cannot be switched on.
- Switch the unit off.
- Wait a further 10 seconds.
- Switch the unit on again.
6.4.2 Operating state LED

|   |Operating state LED
|---|---|
|A |ON button

LED not lit: Acquisition unit is switched off at main switch.
LED lights up yellow: Acquisition unit is switched on at main switch, Windows is shut down and the PC is switched off.
LED lights up green: Acquisition unit is switched on at ON button and ready for operation.
6.4.3 Line voltage

➢ Check the set line voltage. The value of the line voltage must be visible in the window with the module inserted (230V in Europe, 100V in Japan and 115V in the USA). If the set voltage does not agree with the actual line voltage, you must change this setting:

**WARNING**

Risk of electric shock

Electric shock due to inserted power plug.
➢ Disconnect the power plug before selecting the line voltage.

✓ The line voltage can be switched from 230V to 100V or 115V and vice versa.

1. To do this, unlatch the fuse module with a screwdriver and pull the module out.
2. Then pull out the voltage selection insert and turn it so that the correct line voltage value is visible after it is reinserted.
3. Reinsert the fuse module.

6.4.4 Plug connections

1. Connect the unit to the line voltage with the power cord.
2. Carefully plug the connector of the camera cable into the Bluecam, watching out for the guide nose and screw it down tight clockwise.
3. Check the plug connections of the power supply and the Bluecam. The camera cable must be connected to the Bluecam and securely screwed on. The Bluecam always remains connected.

NOTE
The Bluecam is a high-precision optoelectronic scanning instrument for non-contact impression taking which requires careful handling. Incorrect handling (impacts, dropping) leads to failure of the Bluecam.
>
Always deposit the sensitive Bluecam in its holder!

4. If the Bluecam must be replaced, carefully plug in the connector, watching out for the guide nose, and screw it down tight.

Notes on network installation

The network card is installed.
The cable with the RJ-45 connectors establishes the network connection. The network software and the driver for the network card must be installed by your network administrator.

The acquisition unit is equipped with a WLAN card that is preconfigured for operation with an MC XL milling unit. The integration of the acquisition unit into the practice network with the aid of the WLAN card is not supported by Sirona.
6.4.5 Insert battery (optional)

1. Open the lower door on the back panel.

**NOTE**

Open with coin.

Use a coin to open the latch. Turn counterclockwise.

2. Remove the battery cover.

3. Insert the battery into the battery compartment with the mounting screw and screw it down.

4. Plug in the battery plug.

5. Attach the battery cover.

6. Put the door back in position and lock it.

6.4.6 Using a trackball

1. Turn the collar (A) counterclockwise and remove it.

2. Insert the ball supplied.

3. Lay the collar (A) into position and turn it clockwise until it snaps into place.
6.4.7 Changing from right-handed to left-handed operation

In the factory default setting, the left button trackball button corresponds to a foot control entry. If you would like to change this assignment to the right trackball button, your CEREC service technician can do this for you.

6.4.8 Switching the units on

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not put the unit into operation at low temperatures!</td>
</tr>
<tr>
<td>If you move the unit to the operating site from a cold environment, condensation may form and result in a short circuit.</td>
</tr>
<tr>
<td>✔ Install the unit at room temperature.</td>
</tr>
<tr>
<td>➢ Wait until the unit has reached room temperature and is absolutely dry (for at least one hour)</td>
</tr>
<tr>
<td>☉ The unit is dry and can be put into operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use only the supplied power cord</td>
</tr>
<tr>
<td>Use only the power cord supplied by Sirona to connect the acquisition unit to the power supply.</td>
</tr>
</tbody>
</table>
If the acquisition unit is switched on at the main switch, it can be activated with the ON button. The monitor is switched on and off automatically (if it was switched on before the acquisition unit was switched off).

You can switch the monitor on and off with the monitor ON/OFF switch.

1. Switch the acquisition unit on at the main switch.
2. Switch the acquisition unit on at the ON switch.

**NOTE**

Possible data loss and PC malfunction:
Switching the acquisition unit off at the ON button during operation may cause data loss and PC malfunctions.

> Always switch the unit off as described in the chapter "Switching the units off".

3. Switch the monitor on.
4. Switch the milling unit on (see the Operating Instructions for the Milling Unit).
5. After loading the operating system, start the "CEREC SW" application by double-clicking on the "CEREC SW" icon.
6. For descriptions of further software actions, an online help function can be invoked with "F1" or via the Help... menu option.

**NOTE**

Internet Explorer V 5.0 or higher must be installed on your system in order to use the online help function.
6.4.9 **Switching the units off**

**NOTE**

Proper shutdown procedure
The operating system must always be shut down properly to prevent data loss.

1. Exit all programs.
2. Power down the operating system.
   - The PC automatically switches off. The operating state LED lights up yellow.

**NOTE**

Do not switch off while battery (optional) is being charged
The battery will be charged only if the power cord is plugged in and the main switch at the back of the unit is switched on (see also Charging the battery (optional) [→ 68]).

3. Switch the acquisition unit off at the main switch.
   - The operating state LED goes out.

**NOTICE:** Now you can also switch the milling unit off if necessary.

6.5 **Battery-backed operation (optional)**

**Introduction**

The acquisition unit PC has a battery-backed power supply. It is thus possible to operate the acquisition unit for a short time with no line voltage connected.

**CAUTION**

No treatment without connected line voltage
Treating a patient (generating intraoral acquisitions) is not permitted if the unit is not connected to the power supply of the practice.

The following parameters are constantly checked by the installed monitoring software in order to monitor the battery back-up function:

- Line voltage present:
- Charge set of storage battery pack
- Fan function
- Temperature of power supply

When the unit is running in the battery-powered mode, this is indicated by a message displayed at the bottom of the screen. It is accompanied by a rhythmic beep.

This beep changes to a continuous signal 30 seconds before the system shuts down due to insufficient battery power. A corresponding display then appears in the center of the screen. The user thus has time to finish his last actions on the PC.

As soon as 30 seconds have elapsed, the operating system is shut down.
NOTE
The operating time of the storage batteries is not constant. It depends on the charge state, the load and the age of the storage batteries.

NOTE
In battery mode, the CEREC AC acquisition unit must remain connected to the mains supply for at least two hours after using the battery buffering to charge the storage batteries. At least every three months the CEREC AC acquisition unit must be connected to the mains supply to charge the storage batteries.

Monitoring program

The monitoring program is represented in the task bar by the following symbol:

The color of the symbol has the following meaning:
- Green = line voltage present, fan functioning, temperature OK.
- Yellow = Unit running in battery-powered mode, all other operating parameters OK.
- Red = error

Following a double-click on the symbol, the following monitoring window opens:

<table>
<thead>
<tr>
<th>ATX Power Supply V.0.84</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SMP5-System</td>
<td>Status</td>
</tr>
<tr>
<td></td>
<td>Line</td>
</tr>
<tr>
<td></td>
<td>Battery</td>
</tr>
<tr>
<td></td>
<td>Fan</td>
</tr>
<tr>
<td></td>
<td>Temperature</td>
</tr>
</tbody>
</table>

The following information is displayed in the monitoring window:
### Monitoring window

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.82</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Active</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** Line voltage switched on and battery available.

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.82</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Off</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Active (00:15)</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** When the line voltage is switched on, a battery test is performed one time. You can repeat this test at any time by clicking the right mouse button inside this window.

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.84</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Active</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Error</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** Battery-powered operation in the event of power failure. The time in brackets shows how long the battery has been active. A rhythmic beep is sounded via the system loudspeaker.

### Attention

**Battery critical low**

**System will shutdown in 23 seconds**

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.84</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Active</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Error</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** When the battery charge is almost depleted, the shutdown window opens. The operating system is then shut down after 30s and the PC can then be switched off. A continuous signal is then sounded via the system loudspeaker.

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.84</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Active</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Error</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** Fan blocked, status message in monitoring window.

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.84</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong></td>
<td>Status</td>
</tr>
<tr>
<td><strong>Line</strong></td>
<td>Active</td>
</tr>
<tr>
<td><strong>Battery</strong></td>
<td>Ok</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Error</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Ok</td>
</tr>
</tbody>
</table>

**Explanation:** Warning window with 30s countdown until the PC shuts down. A continuous signal is then sounded via the system loudspeaker.
### Monitoring window

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.84</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong> Status</td>
<td>The temperature monitor has two message thresholds. The first message threshold is output as the message &quot;High&quot; in the temperature result field. The &quot;High&quot; reading is displayed in the red-and-black flashing mode. No countdown window appears since, depending on the load and ambient conditions, the unit can keep operating for a few minutes, or even for a longer period of time if the temperature level decreases again. Direct shutdown occurs if the 2nd threshold is reached.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>Ok</td>
</tr>
<tr>
<td>Fan</td>
<td>Ok</td>
</tr>
<tr>
<td>Temperature</td>
<td>High</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATX Power Supply V 0.82</th>
<th>No battery is inserted.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMPS-System</strong> Status</td>
<td>Restarting delay</td>
</tr>
<tr>
<td>Line</td>
<td>Active</td>
</tr>
<tr>
<td>Battery</td>
<td>---</td>
</tr>
<tr>
<td>Fan</td>
<td>Ok</td>
</tr>
<tr>
<td>Temperature</td>
<td>Ok</td>
</tr>
</tbody>
</table>

---

**Restarting delay**

Once the power supply has been switched off, it can only be switched back on again after 10 seconds have elapsed.
7 Operation

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
</table>
| **After each use**
Reprocess the camera after each patient.
➢ Follow the instructions in chapter „CEREC Bluecam [→ 51]“ in order to avoid cross-contamination between patients.

7.1 Setting the acquisition system to 3D camera

<table>
<thead>
<tr>
<th>IMPORTANT</th>
</tr>
</thead>
</table>
| These settings only apply to software version 3.8.

✓ To use the 3D camera, the acquisition system must be set to "3D camera".
✓ You can only execute the following settings if the "Settings“ menu is changed to "Master Mode".
1. In the menu line, select the command "Settings" / "Configuration" / "Acquisition system".
   ➤ The "Configuration” window appears.
2. Select "3D camera" and confirm with "OK".
   ➤ The 3D camera will remain selected until it is set back to "Scanner“ or "inEos".
7.2 General

Aligning the Bluecam

The direction of acquisition must coincide with the insertion axis of the preparation prepared by the dentist.

If the Bluecam is held at an oblique angle to the prepared insertion axis, the wall closer to the lens will be registered with an undercut; the wall further away from the lens will be fully displayed, thus causing the occlusal margin angle to be presented unfavorably there and obstructing the automatic margin detection.

 Depth of focus and focusing

The telecentric optics, which cause objects to be displayed with a constant size regardless of how far away from the prism they are, have a depth of focus which is sufficient to capture deep preparations.

The image definition is determined by the distance between the Bluecam and the preparation.

➢ Check the monitor to determine whether the cervical steps and the occlusal margins are simultaneously displayed with sufficient definition. The center of focus should be aimed at the vertical center of the preparation, e.g. at the occlusal base.

Angle of incidence/steepness

If the angle of incidence of the Bluecam is too large, the mesial cervical step moves outside of the focal depth range of the Bluecam as shown in the illustration. Distally, the cervical step is concealed by the distal neighbors with the excessively steep angle shown here. This leads to an inadequate "optical impression".
7.3 Preparations

7.3.1 Surface

The surface of the preparation is captured with an especially fast and precisely functioning optical measuring technique. This measuring technique requires a non-glare, diffusely reflecting surface. The surface must be covered with a thin, opaque coating in order to obtain even light dispersion, exclude blinding effects and obtain clear surface definition. This is the precondition for a high-contrast image and good optical acquisition.

**NOTE**

**Thin and even coating**
Please try to deposit as thin and even a coating as possible on all surfaces, especially in the edge and marginal regions.

**NOTE**

The extraoral 3D image acquisition of a model may be adversely affected by bright light.
Set the model up so that it is not located directly in the beam path of an extreme light source and not exposed to direct sunlight.

7.3.2 CEREC Optispray

1. Clean and dry the surface to be coated.
2. Place the spray head with cannula/nozzle onto the spray can.
3. Check that the cannula/nozzle is seated correctly before each use by pulling it gently.
4. Shake the container before use.
5. Cover the respective area with the spray in a targeted manner. The cannula/nozzle can be rotated as required to enable optimal coating from all directions. The spray nozzle should be held approx. 10-15 mm away from the object.
6. Take an optical impression with the Bluecam as usual.
7. After taking the 3D optical impression, clean the surface with an air/water spray.
8. Replace the cannula/nozzle after each use.
7.3.3 **Direction of application**

It is essential that the material is applied perfectly, especially in the edge and marginal areas. It is therefore advisable to aim the cannula directly at all edge and marginal areas. Spraying directly onto the base may result in an excessively thick layer, which in turn can result in fitting inaccuracy.

7.3.4 **Marking the cervical step**

The cervical and lateral edges are coated from the proximal direction. If the cervical step is located at the same height as the edge of the gingiva, the spray may cover the borderline between these two structures.

This boundary can be marked again by running a fine probe along the step or laterally pulling a rubber cofferdam.

Before you start spraying, you can loosely insert dental floss and then carefully remove it again.

**NOTE**

Avoid applying too much or not enough coating. We recommend blowing the object clean with compressed air after spraying.

7.4 **Camera support**

Using the camera support gives you the following advantages:

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

**CAUTION**

**Using the camera support**

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

Pushing on the camera support

➢ Push the camera support onto the camera as illustrated.

Positioning the camera

**CAUTION**

Hot surface!
The prism of the camera is preheated in the camera holder. The surface temperature may be as high as 50°C. This may cause an unpleasant heat sensation on contact with a person's skin or mucous membrane. These temperatures will not damage the skin or mucosal membrane.

1. Position the camera over the teeth to be scanned.

Supporting the 3D camera

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

**NOTE**

Powder on the surface of the prism
If the prism touches powdered surfaces, then powder usually remains on the prism surface and generates dark spots in the image.
The powder can be wiped off from the prism with a soft cloth.
7.6 Acquisition control with software version 3.8

The acquisition control of the Bluecam functions as follows:

**Manual acquisition control**

- A window is opened for a new restoration.
- Position the cursor on the acquisition icon (e.g. "Acquire preparation").

1. **Press the foot control upward and keep it pressed.**
   - A live video image appears with a green cross.
2. Release the foot control.
   - The optical impression is automatically transferred to the 3D preview (e.g. the Preparation image field).
3. Additional optical impressions can be captured by repeating steps 1 to 3.
4. By positioning the cursor on another acquisition icon (e.g. "Acquire occlusion" or "Acquire antagonist") and repeating steps 2 to 4, additional acquisitions can be taken in the occlusion or antagonist models.
5. To exit the acquisition process, click the icon marked "Next".
7 Operation
7.6 Acquisition control with software version 3.8

Automatic acquisition control

✓ A window is opened for a new restoration.
1. Position the cursor on the acquisition icon (e.g. "Acquire preparation").

2. Press the foot control upward briefly.  
   As soon as a sharp optical impression can be captured, images are automatically generated and transferred to the 3D preview.

3. Press the foot control upward briefly. 
   The optical impression is completed.
4. By positioning the cursor on another acquisition icon (e.g. "Acquire occlusion" or "Acquire antagonist") and repeating steps 2 to 3, additional acquisitions can be taken in the occlusion or antagonist models.
5. To exit the acquisition process, click the icon marked "Next".

Changing from automatic to manual acquisition control

If you press the foot control upward and keep it pressed during an automatic exposure, this changes the program back to manual acquisition control.
7.7 Acquisition control with CEREC SW

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

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

**NOTE**

**Image brightness**

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

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

**Changing from automatic to manual acquisition control**

You can change from automatic to manual acquisition control.

✓ You are now using automatic acquisition control.

1. Place the cursor on the camera icon.

2. Press the foot control upward and keep it pressed.
   - A green cross appears in the live image. Manual acquisition control is active.

You can exit manual acquisition control in the same way.
Automatic acquisition control

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

1. Position the CEREC camera above the powdered preparation as described.

2. Once a sharp acquisition is possible, images are generated and transmitted to the 3D preview automatically. Observe undercuts on all lateral edge lines of the preparation.

3. Move the camera until all required images have been acquired.
   - The model is restored automatically in the 3D preview during the acquisition.

4. Then check the above points once again. Take care that the optical impression is sufficiently bright, sharp and free of motion blurring. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

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

Manual acquisition control

1. Press the foot control upward and keep it pressed.
   - A live video image appears with a green cross in the camera view.

2. Release the foot control.
   - The acquisition is automatically transferred to the 3D preview.

3. Additional acquisitions can be created by repeating steps 1 and 2.
   - The model is restored automatically in the 3D preview during the acquisition.

4. Then check the above points once again. Take care that the optical impression is sufficiently bright, sharp and free of motion blurring. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the scan icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw or buccal registration.
7.8 Acquiring a 3-unit bridge

To produce bridge frameworks of up to 3 elements, you can acquire the tooth situation with the CEREC Bluecam. Make sure there is always dental substance visible in the overlap area of the acquisitions (areas A). Start by taking the 1st scan on the distal end. Then guide the camera over the preparation in the mesial direction.
8 Maintenance

WARNING

Danger of touching live parts
If the housing is damaged, there is a possibility of touching live parts inside the unit. If the housing is damaged, the unit must be put and left out of operation until it has been professionally repaired.

NOTE

Regular inspection
Some countries have legal regulations which require regular safety inspections of electrical devices or systems by the operator.
Sirona would like to draw your attention to the fact that a so-called "retest" (repeat test) must be carried out for the CEREC AC acquisition unit every three years at the latest. In addition, this retest also must be performed following every repair or retrofit of components such as the PC, the PC power supply, the isolating transformer, the CEREC Bluecam and the camera cable.

NOTE

Annual maintenance performed by trained technical personnel is recommended.

8.1 Care, cleaning, disinfection and sterilization

NOTE

Use only chemical products recommended by Sirona.

8.1.1 Cleaning and disinfection agents

Kerr Corporation
- CaviCide
- Cavi Wipes

Patterson
- pdCARE
- pdCARE Wipes

> 60% isopropyl alcohol

8.1.2 Monitor screen

Cleaning

NOTE

Never spray the monitor screen with a disinfectant or cleaning spray.

The monitor screen must be wiped off with a soft cloth.
8.1.3 Non-critical surfaces excluding monitor screen

**NOTE**
Do not allow liquids to penetrate into the ventilation slots!

**NOTE**
Never use corrosive cleaning agents, wax or solvents.

➢ Use a new cotton gauze moistened with one of the cleaning agents listed in the „Cleaning and disinfection agents [→ 50]“ section to disinfect the non-critical contact surfaces of the CEREC AC like the camera cradle, keyboard, and track ball. Discard this gauze.

Do not use any **colored cloths** for cleaning, since they may cause discoloration of the surfaces, e.g. in combination with disinfectants!

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

**NOTE**
The only way to prevent damage is to **wipe off medicaments immediately** with a damp cloth and a cleaning agent!

8.1.4 Trackball holder

1. Rotate the cover ring counterclockwise and remove it.
2. Clean inner surface of cover ring (A) with ethanol (commercially available cleaning alcohol).
3. Remove the ball.
4. Wipe out the calotte (spherical cap).
5. Insert the ball.
6. Fit the cover ring and turn it clockwise until it is firmly tightened.

**NOTE**
**Setting the ease of action of the ball**
For cover rings with various detent positions, the ease of action of the ball can be set by selecting the corresponding detent position.

8.1.5 CEREC Bluecam

**CAUTION**
If the CEREC Bluecam accidentally falls down, check to make sure that the front lens and prism are not damaged. If the CEREC Bluecam has been damaged, it must no longer be used on patients.
The CEREC Bluecam must be recalibrated.

**NOTE**
Do not sterilize the CEREC Bluecam or the camera cable!

**NOTE**
The prismatic tubes are not autoclave sterilizable!
8.1.5.1 CEREC Bluecam without sapphire glass

8.1.5.1.1 General information

The CEREC Bluecam is a very sensitive optical device and must therefore be handled with the utmost care. Protect the front lens and the prism against scratching and clean them with a clean lint-free cloth and ethanol (commercially available cleaning alcohol) whenever a film is noticed during imaging.

Dental health care providers are advised to select the reprocessing method that aligns with their infection control process. An effective infection control program is practical, reasonable, and reproducible.

Two methods have been validated to reprocess the CEREC Bluecam without sapphire glass between patient care:

- High-level disinfection of the prismatic tube without sapphire glass
- Dry heat sterilization of the prismatic tube without sapphire glass

One of these methods is strongly recommended to be used for the reprocessing of the prismatic tube.

8.1.5.1.2 Components of the CEREC Bluecam without sapphire glass

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Press detent to release</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Prismatic tube</td>
<td>E</td>
</tr>
<tr>
<td>C</td>
<td>Prism without sapphire glass (bCL / bCB)</td>
<td>F</td>
</tr>
</tbody>
</table>

188x681

8.1.5.1.1 General information

The CEREC Bluecam is a very sensitive optical device and must therefore be handled with the utmost care. Protect the front lens and the prism against scratching and clean them with a clean lint-free cloth and ethanol (commercially available cleaning alcohol) whenever a film is noticed during imaging.

Dental health care providers are advised to select the reprocessing method that aligns with their infection control process. An effective infection control program is practical, reasonable, and reproducible.

Two methods have been validated to reprocess the CEREC Bluecam without sapphire glass between patient care:

- High-level disinfection of the prismatic tube without sapphire glass
- Dry heat sterilization of the prismatic tube without sapphire glass

One of these methods is strongly recommended to be used for the reprocessing of the prismatic tube.

8.1.5.1.2 Components of the CEREC Bluecam without sapphire glass

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
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<td>Prism without sapphire glass (bCL / bCB)</td>
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</tr>
</tbody>
</table>

188x681

8.1.5.1 General information

The CEREC Bluecam is a very sensitive optical device and must therefore be handled with the utmost care. Protect the front lens and the prism against scratching and clean them with a clean lint-free cloth and ethanol (commercially available cleaning alcohol) whenever a film is noticed during imaging.

Dental health care providers are advised to select the reprocessing method that aligns with their infection control process. An effective infection control program is practical, reasonable, and reproducible.

Two methods have been validated to reprocess the CEREC Bluecam without sapphire glass between patient care:

- High-level disinfection of the prismatic tube without sapphire glass
- Dry heat sterilization of the prismatic tube without sapphire glass

One of these methods is strongly recommended to be used for the reprocessing of the prismatic tube.

8.1.5.1.2 Components of the CEREC Bluecam without sapphire glass

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Press detent to release</td>
<td>D</td>
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<td></td>
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</tr>
<tr>
<td>B</td>
<td>Prismatic tube</td>
<td>E</td>
</tr>
<tr>
<td>C</td>
<td>Prism without sapphire glass (bCL / bCB)</td>
<td>F</td>
</tr>
</tbody>
</table>
8.1.5.1.3 Removing the prismatic tube

![Diagram of Removing the Prismatic Tube]

<table>
<thead>
<tr>
<th>A</th>
<th>Detent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Press the prismatic tube against the camera body.</td>
</tr>
<tr>
<td>2.</td>
<td>Press detent A.</td>
</tr>
</tbody>
</table>

**NOTE**
Risk of damaging the front lens or prism.
➢ Push the prismatic tube straight toward the front, do not tilt it.

3. Pull off the prismatic tube.

8.1.5.1.4 Refitting the prismatic tube

**NOTE**
Do not use CEREC 2 / CEREC 3 prismatic tubes.

**NOTE**
Risk of damaging the front lens or prism.
➢ The prismatic tube must not touch the front lens.
➢ Push the prismatic tube straight toward the camera body; do not tilt it.

➢ Carefully refit the prismatic tube until it locks in place.
8.1.5.1.5 Prismatic tube (without sapphire) reprocessing overview

See detailed instructions after summary.

Prismatic tube for CEREC Bluecam without sapphire glass

<table>
<thead>
<tr>
<th>Pre-Cleaning process</th>
<th>HLD process</th>
<th>Dry heat sterilization process</th>
</tr>
</thead>
<tbody>
<tr>
<td>(while prismatic tube is attached to the camera)</td>
<td>1. Use CIDEX® OPA or Sporox II Sterilizing and Disinfecting Solution as disinfectant for high-level disinfection per manufacturer’s instructions.</td>
<td>➢ Dry heat 160°C (Sterident Model 200) for 120 minutes (wrapped or unwrapped)</td>
</tr>
<tr>
<td>1. Clean with a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards and pH neutral soap or use a clean lint-free cloth which has been soaked in CaviCide or use Cavi Wipes or use pdCARE Wipes or use a clean lint-free cloth which has been soaked in &gt;60% isopropyl alcohol</td>
<td>2. Leave the prismatic tube in CIDEX® OPA for 12 minutes or in Sporox II for 30 minutes at 20°C.</td>
<td>or Dry heat 160°C (SteriSURE) for 60 minutes (wrapped or unwrapped).</td>
</tr>
<tr>
<td>2. Dry the prismatic tube with a clean lint-free cloth.</td>
<td>3. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards.</td>
<td></td>
</tr>
<tr>
<td>4. Dry the prismatic tube with a clean lint-free cloth.</td>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

8.1.5.1.6 Pre-cleaning of the prismatic tube

Cleaning process immediately after using the CEREC Bluecam: While the prismatic tube is attached to the camera, wipe off so that any surface contamination cannot harden and adhere to the surface of the prismatic tube.

Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards and pH neutral soap or use a clean lint-free cloth which has first been soaked in one of the cleaning products listed in the „Cleaning and disinfection agents [→ 50]“ section to remove visible contamination.

Then dry the prismatic tube with a clean lint-free cloth.
8.1.5.1.7 Disinfecting the camera body

NOTE
Do not spray the CEREC Bluecam or immerse it in cleaning agents or disinfectants!

➢ Use a new cotton gauze moistened with one of the cleaning products listed in the „Cleaning and disinfection agents [→ 50]“ section. Wipe the camera body first and then the prismatic tube. This step disinfects the camera body and removes cleaning residues from the prismatic tube. Then dry the prismatic tube with a clean lint-free cloth.

8.1.5.1.8 High-level disinfection of the prismatic tube without sapphire glass

NOTE
Dry heat sterilization and high-level disinfection must not be combined.

The complete process for high-level disinfection is as follows:

With HLD set

A HLD set to support the HLD process should be ordered from Sirona with REF 63 46 907.

1. Remove the CEREC camera support (if present).
2. Pre-cleaning (see „Pre-cleaning of the prismatic tube [→ 54]“).
3. Remove the prismatic tube from the CEREC Bluecam (see „Removing the prismatic tube [→ 53]“).
4. Place the protective cap on the camera and place the camera in the camera cradle.
5. Use one of the following disinfectants for the high-level disinfection: CIDEX® OPA, Sporox II.

CAUTION
Observe the disinfectant’s manufacturer’s safety indications!
6. Cautiously fill the HLD container up to the 40ml marked ("Bluecam" mark) level per manufacturer’s instructions. A funnel can be used to assist with filling the liquid. Do not spill any disinfectant. If spillage occurs please follow disinfectant’s manufacturer’s safety indications for cleaning.

NOTE

Only place the prismatic tube into the container and not the entire CEREC Bluecam.
Ensure that the prismatic tube is placed upright in the disinfectant (glass down) so that the solution cannot penetrate the inside of the prismatic tube.

7. Insert the prismatic tube in the correct position (glass down).
8. Place the lid on the container and leave the prismatic tube at least 12 minutes for CIDEX® OPA or 30 minutes for Sporox II in the disinfectant. While exceeding the recommended immersion time may not cause damage to the prismatic tube, the prismatic tube should be removed as soon as possible after the recommended time.
9. Remove the prismatic tube from the container.
10. Thoroughly rinse the prismatic tube with tap water of potable water quality that meets Federal Clean Water Standards for at least 30 seconds. Ensure that no water is able to penetrate into the interior of the mirror sleeve.
11. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards for this purpose.
12. Dry the prismatic tube using a clean soft, lint-free cloth.
13. Store the prismatic tube in such a way that it is protected from contamination until the next use.
14. Remove the protective cap from the camera before use.
15. Carefully re-attach the prismatic tube (see "Refitting the prismatic tube [→ 53]").

Without HLD set (in case the HLD set is not available)

1. Remove the CEREC camera support (if present).
2. Pre-cleaning (see „Pre-cleaning of the prismatic tube [→ 54]“).
3. Remove the prismatic tube from the CEREC Bluecam (see “Removing the prismatic tube [→ 53]”)
4. Place the protective cap on the camera and place the camera in the camera cradle.
5. Use one of the following disinfectants for the high-level disinfection: CIDEX® OPA, Sporox II.

⚠️ CAUTION

Observe the disinfectant’s manufacturer’s safety indications!
6. Choose a container. Find an example on the left.

7. Cautiously fill the container to a filling level of 20mm - 25mm (13/16in - 1in) under the small hole (A) of the prismatic tube when immersed. A funnel can be used to assist with filling the liquid. Do not spill any disinfectant. If spillage occurs please follow disinfectant's manufacturer's safety indications for cleaning.

**NOTE**

Only place the prismatic tube into the container and not the entire CEREC Bluecam.

Ensure that the prismatic tube is placed upright in the disinfectant (glass down) so that the solution cannot penetrate the inside of the prismatic tube.

8. Insert the prismatic tube in the correct position (glass down).

9. Leave the prismatic tube at least for 12 minutes for CIDEX®OPA or 30 minutes for Sporox II in the disinfectant. While exceeding the recommended immersion time may not cause damage to the prismatic tube, the prismatic tube should be removed as soon as possible after the recommended time.

10. Remove the prismatic tube from the container.

11. Thoroughly rinse the prismatic tube with tap water of potable water quality that meets Federal Clean Water Standards for at least 30 seconds. Ensure that no water is able to penetrate into the interior of the mirror sleeve.

12. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards for this purpose.

13. Dry the prismatic tube using a clean soft, lint-free cloth.

14. Store the prismatic tube in such a way that it is protected from contamination until the next use.

15. Remove the protective cap from the camera before use.

16. Carefully re-attach the prismatic tube (see "Refitting the prismatic tube → 53").
8.1.5.1.9 **Dry heat sterilization of the prismatic tube without sapphire glass**

**NOTE**

Dry heat sterilization and high-level disinfection must not be combined.

The process for dry heat sterilization is as follows:

1. Remove the CEREC camera support (if present).
2. Pre-cleaning (see „Pre-cleaning of the prismatic tube [→ 54]“).
3. Remove the prismatic tube from the CEREC Bluecam (see “Removing the prismatic tube [→ 53]”).
4. Sterilize the prismatic tube using dry heat at 160°C for 120 minutes (wrapped or unwrapped) or 60 minutes (wrapped or unwrapped). The CPAC Sterident Model 200 and the CPAC SteriSURE have been validated by Sirona Dental Systems. For 120 minutes 160°C the CPAC Sterident Model 200 is to be used. For 60 minutes 160°C the CPAC SteriSURE is to be used. Use only pouches which are suitable for dry heat sterilization cycle of at least 160 °C, 120 minutes.
5. Store the prismatic tube in such a way that it is protected from contamination until the next use.
6. Carefully re-attach the prismatic tube and allow it to lock in place. See section “Refitting the prismatic tube [→ 53]”.

**NOTE**

The prismatic tube changes its color which will not have any negative impact upon the prismatic tube’s durability.

8.1.5.2 **CEREC Bluecam with sapphire glass**

8.1.5.2.1 **General information**

The CEREC Bluecam is a very sensitive optical device and must therefore be handled with the utmost care. Protect the front lens and the prism against scratching and clean them with a clean lint-free cloth and ethanol (commercially available cleaning alcohol) whenever a film is noticed during imaging.

Dental health care providers are advised to select the reprocessing method that aligns with their infection control process. An effective infection control program is practical, reasonable, and reproducible.

One method has been validated to reprocess the CEREC Bluecam with sapphire glass between patient care:

- High-level disinfection of the prismatic tube with sapphire glass [→ 61]

This method is strongly recommended to be used for the reprocessing of the prismatic tube with sapphire glass.
8.1.5.2.2 Components of the CEREC Bluecam with sapphire glass

![Diagram of components](image)

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Press detent to release</td>
</tr>
<tr>
<td>B</td>
<td>Prismatic tube</td>
</tr>
<tr>
<td>C</td>
<td>Prism with sapphire glass (bCL sa / bCB sa)</td>
</tr>
<tr>
<td>D</td>
<td>Camera support</td>
</tr>
<tr>
<td>E</td>
<td>Protective cap</td>
</tr>
<tr>
<td>F</td>
<td>Front lens</td>
</tr>
</tbody>
</table>

8.1.5.2.3 Removing the prismatic tube

![Removing the prismatic tube](image)

1. Press the prismatic tube against the camera body.
2. Press detent A.

**NOTE**

Risk of damaging the front lens or prism.

> Push the prismatic tube straight toward the front, do not tilt it.

3. Pull off the prismatic tube.
8.1.5.2.4 Refitting the prismatic tube

**NOTE**
Do not use CEREC 2 / CEREC 3 prismatic tubes.

**NOTE**
Risk of damaging the front lens or prism.
➢ The prismatic tube must not touch the front lens.
➢ Push the prismatic tube straight toward the camera body; do not tilt it.
➢ Carefully refit the prismatic tube until it locks in place.

8.1.5.2.5 Prismatic tube (with sapphire glass) reprocessing overview

See detailed instructions after summary.

---

### Pre-Cleaning process
(while prismatic tube is attached to the camera)

1. Clean with a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards and pH neutral soap
   - or
   - use a clean lint-free cloth which has been soaked in CaviCide
   - or
   - use Cavi Wipes
   - or
   - use pdCARE Wipes
   - or
   - use a clean lint-free cloth which has been soaked in >60% isopropyl alcohol
2. Dry the prismatic tube with a clean lint-free cloth.

### HLD process

1. Use CIDEX® OPA or Sporox II Sterilizing and Disinfecting Solution as disinfectant for high-level disinfection per manufacturer’s instructions.
2. Leave the prismatic tube in CIDEX® OPA for 12 minutes or in Sporox II for 30 minutes at 20°C.
3. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards.
4. Dry the prismatic tube with a clean lint-free cloth.

**Dry heat sterilization process**
➢ No sterilization possible.
8.1.5.2.6 Pre-cleaning of the prismatic tube

Cleaning process immediately after using the CEREC Bluecam: While the prismatic tube is attached to the camera, wipe off so that any surface contamination cannot harden and adhere to the surface of the prismatic tube.

Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards and pH neutral soap or use a clean lint-free cloth which has first been soaked in one of the cleaning products listed in the „Cleaning and disinfection agents [→ 50]“ section to remove visible contamination.

Then dry the prismatic tube with a clean lint-free cloth.

8.1.5.2.7 Disinfecting the camera body

NOTE

Do not spray the CEREC Bluecam or immerse it in cleaning agents or disinfectants!

➢ Use a new cotton gauze moistened with one of the cleaning products listed in the „Cleaning and disinfection agents [→ 50]“ section. Wipe the camera body first and then the prismatic tube. This step disinfects the camera body and removes cleaning residues from the prismatic tube. Then dry the prismatic tube with a clean lint-free cloth.

8.1.5.2.8 High-level disinfection of the prismatic tube with sapphire glass

The complete process for high-level disinfection is as follows:

With HLD set

A HLD set to support the HLD process should be ordered from Sirona with REF 63 46 907.

1. Remove the CEREC camera support (if present).
2. Pre-cleaning (see „Pre-cleaning of the prismatic tube [→ 61]“).
3. Remove the prismatic tube from the CEREC Bluecam (see „Removing the prismatic tube [→ 59]“).
4. Place the protective cap on the camera and place the camera in the camera cradle.
5. Use one of the following disinfectants for the high-level disinfection: CIDEX® OPA, Sporox II.

CAUTION

Observe the disinfectant's manufacturer's safety indications!
6. Cautiously fill the HLD container up to the 40ml marked ("Bluecam" mark) level per manufacturer’s instructions. A funnel can be used to assist with filling the liquid. Do not spill any disinfectant. If spillage occurs please follow disinfectant’s manufacturer’s safety indications for cleaning.

**NOTE**

Only place the prismatic tube into the container and not the entire CEREC Bluecam. Ensure that the prismatic tube is placed upright in the disinfectant (glass down) so that the solution cannot penetrate the inside of the prismatic tube.

7. Insert the prismatic tube in the correct position (glass down).
8. Place the lid on the container and leave the prismatic tube at least 12 minutes for CIDEX® OPA or 30 minutes for Sporox II in the disinfectant. While exceeding the recommended immersion time may not cause damage to the prismatic tube, the prismatic tube should be removed as soon as possible after the recommended time.
9. Remove the prismatic tube from the container.
10. Thoroughly rinse the prismatic tube with tap water of potable water quality that meets Federal Clean Water Standards for at least 30 seconds. Ensure that no water is able to penetrate into the interior of the mirror sleeve.
11. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards for this purpose.
12. Dry the prismatic tube using a clean soft, lint-free cloth.
13. Store the prismatic tube in such a way that it is protected from contamination until the next use.
14. Remove the protective cap from the camera before use.
15. Carefully re-attach the prismatic tube (see "Refitting the prismatic tube [→ 60]").

**Without HLD set (in case the HLD set is not available)**

1. Remove the CEREC camera support (if present).
2. Pre-cleaning (see „Pre-cleaning of the prismatic tube [→ 61]“).
3. Remove the prismatic tube from the CEREC Bluecam (see “Removing the prismatic tube [→ 59]”).
4. Place the protective cap on the camera and place the camera in the camera cradle.
5. Use one of the following disinfectants for the high-level disinfection: CIDEX® OPA, Sporox II.

**CAUTION**

Observe the disinfectant’s manufacturer’s safety indications!
6. Choose a container. Find an example on the left.

7. Cautiously fill the container to a filling level of 20mm - 25mm (13/16in - 1in) under the small hole (A) of the prismatic tube when immersed. A funnel can be used to assist with filling the liquid. Do not spill any disinfectant. If spillage occurs please follow disinfectant’s manufacturer’s safety indications for cleaning.

**NOTE**

Only place the prismatic tube into the container and not the entire CEREC Bluecam.

Ensure that the prismatic tube is placed upright in the disinfectant (glass down) so that the solution cannot penetrate the inside of the prismatic tube.

8. Insert the prismatic tube in the correct position (glass down).

9. Leave the prismatic tube at least for 12 minutes for CIDEX®OPA or 30 minutes for Sporox II in the disinfectant. While exceeding the recommended immersion time may not cause damage to the prismatic tube, the prismatic tube should be removed as soon as possible after the recommended time.

10. Remove the prismatic tube from the container.

11. Thoroughly rinse the prismatic tube with tap water of potable water quality that meets Federal Clean Water Standards for at least 30 seconds. Ensure that no water is able to penetrate into the interior of the mirror sleeve.

12. Wipe off the prismatic tube. Use a cotton gauze moistened with tap water of potable water quality that meets Federal Clean Water Standards for this purpose.

13. Dry the prismatic tube using a clean soft, lint-free cloth.

14. Store the prismatic tube in such a way that it is protected from contamination until the next use.

15. Remove the protective cap from the camera before use.

16. Carefully re-attach the prismatic tube (see "Refitting the prismatic tube [→ 60]").
8.2 Calibrating the Bluecam

**IMPORTANT**

If you are using software version 3.8, calibrate the Bluecam with the installed CEREC SW or CEREC Connect SW software.

The scanning technique used by the system requires the use of a calibrated Bluecam. The Bluecam is factory calibrated. If calibration should be required, you can use the supplied "Bluecam calibration set".

**NOTE**

Make sure that the surfaces of part A and part B in "Bluecam calibration set" are free from contamination.

Recalibrate the CEREC Bluecam in the following cases:
- following transport (shaking stress),
- after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C),
- with temperature differences of over 15°C between the last calibration and operation.

**NOTE**

The "Bluecam calibration set" must not be powdered.

**Start calibration**

1. In the software, navigate to the system menu and click on the "Configuration" button.
2. Click on the "Devices" button.
3. Click on the "Camera" button.
4. Click on the "Calibrate" button.
Part A Calibration
You will be prompted to fasten the calibration set with part A to the Bluecam.

A

Part A

1. Slide the calibration set with part A as far as it will go toward the camera handle.
2. Click on the "OK" button.
   - The program now automatically starts calibrating the Bluecam.

Part B Calibration
You will be prompted to fasten the calibration set to the Bluecam with part B.

B

Part B

1. Slide the calibration set with part B as far as it will go toward the camera handle.
2. Click on the "OK" button.
   - The program then automatically calibrates the Z scale of the Bluecam.

Completing the calibration
✓ The software reports that calibration is complete.
➢ Click on the "OK" button.
   - The Bluecam is calibrated.
8.3 Replacing the main fuse

**WARNING**

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

**NOTE**

Fuse type
Use only fuses of the same type in the fuse module!

---

**Diagram**

- A: Voltage selection insert
- B: Main fuses
- C: Fuse module
- D: Window

**Table**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Voltage selection insert</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
<td>Main fuses</td>
<td>D</td>
</tr>
</tbody>
</table>

Fuses: T8A H 250V  Order No. 62 33 188

- The power plug must be disconnected.
- 1. Unlatch the fuse module with a screwdriver and pull the module out.
- 2. Replace the defective fuses.
- 3. Reinsert the fuse module.
8.4 Replacing fuse F3

**WARNING**

Electric shock

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

**NOTE**

Fuse type

Use only fuses of the same type!

<table>
<thead>
<tr>
<th></th>
<th>Fuse holder</th>
<th>B</th>
<th>Fuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fuses: T2.5A L 250V Order No. 46 57 656

- The power plug must be disconnected.
- Use a screwdriver to unscrew the fuse holder.
- Replace the defective fuse.
- Screw the fuse holder back in.
8.5 Charge battery (optional)

**NOTE**

*Reduced buffer cycles*
After around 1000 buffer cycles the capacity of the battery fades due to the nature of the battery technology used.
If the buffer times are too short, you should replace the battery.

The battery is permanently charged during operation on mains voltage. This allows brief buffer operation after one hour of charging.

For a complete charge, the battery must be charged without interruption for at least 12 hours. Keeping the acquisition unit connected to the mains voltage and the power switch on is sufficient here. The PC does not have to be switched on for the charging process.

**NOTE**

*Reduced battery service life*
If the battery is not charged over a long period of time, this significantly reduces its service life.
> Always recharge the battery fully after buffer operation.
### 8.6 Replace battery (optional)

1. Open the lower door on the back panel.

**NOTE**

*Open with coin.*

*Use a coin to open the latch. Turn counterclockwise.*

2. Remove the battery cover.
3. Unplug the battery connector.
4. Unscrew the fastening screw and remove the battery.
5. Insert the new battery into the battery compartment with the fastening screw and screw it down.
6. Plug in the battery plug.
7. Attach the battery cover.
8. Put the door back in position and lock it.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A</td>
<td>Bottom door</td>
</tr>
<tr>
<td>B</td>
<td>Storage battery</td>
</tr>
<tr>
<td>C</td>
<td>Battery cover</td>
</tr>
<tr>
<td>D</td>
<td>Battery connector</td>
</tr>
</tbody>
</table>
9 Disposal

In accordance with Directive 2012/19/EU and national disposal regulations regarding old electrical and electronic devices, please be advised that such items must be disposed of in a special way within the European Union (EU). These regulations require the environmentally friendly recycling/disposal of old electrical and electronic devices. Such items must not be disposed of as domestic refuse. This has been expressed using the icon of the “crossed out trash can”.

Disposal procedure

We feel responsible for our products from the first idea to their disposal. For this reason, we give you an option to return our old electronic and electrical devices.

If you wish to dispose of your devices, please proceed as follows:

In Germany

To initiate return of the electrical device, please send a disposal request to enretec GmbH. You have the following options here:

- Use the “Returning an electrical device” button under the “eom” menu item on the enretec GmbH homepage (www.enretec.de).
- Alternatively, you can also contact enretec GmbH directly.

enretec GmbH
Kanalstraße 17
16727 Velten
Tel.: +49 3304 3919-500
E-mail: eom@enretec.de

In accordance with the national disposal regulations regarding old electrical and electronic devices (ElektroG), as the manufacturer, we assume the costs for disposing of the electrical and electronic devices in question. Disassembly, transport and packaging costs shall be borne by the owner/operator.

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

If your unit is not permanently installed, it will be collected from the practice. If it is permanently installed, it will be picked up curbside at your address by appointment.

Other countries

For country-specific information on disposal, contact your local dental dealers.
9.1 Disposal of the storage battery pack

The storage battery pack must be subjected to recycling if it becomes defective or reaches the end of its service life. Recycling is performed via Sirona.

The storage battery pack is marked with the adjacent symbol. Disposal of the storage battery pack with domestic refuse is not compatible with the objectives of environmentally sound recycling/disposal. Send in the replaced storage battery pack to Sirona (see the reverse side of these operating instructions for the mailing address).
10 Appendix

10.1 DVD playback

DVD videos can be played back on the acquisition unit via "Windows Media Center".

➢ Start the program via the corresponding icon or via "Start" / "All Programs" / "Windows Media Center"

The program features an online help function to familiarize you with the operation of the software.

10.2 Making backup copies

To increase the system's data security and protect themselves against data losses, users should make backup copies of the data regularly.

10.2.1 Creating (burning) a CD

The Nero Multimedia Suite 10 Essentials program is installed on the acquisition unit for burning data CDs.

➢ Start the program via the corresponding icon or via "Start" / "All Programs" / "Nero" / "Nero 10" / "NeroExpress".

The program features an online help function (F1) to familiarize you with the operation of the software.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>The front panel must remain open when completing the write operation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE</th>
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</thead>
<tbody>
<tr>
<td>Do not work with other programs and do not put the acquisition unit in the non-operative state during a write operation.</td>
</tr>
</tbody>
</table>

Checking the CD

Insert the CD in the drive and check its contents with the Windows Explorer.
10.3 Seal on PC slide-in module

**NOTE**
If the seal is broken, all warranty claims regarding the PC slide-module automatically expire.

The PC slide-in module may be opened only by an authorized dental technician. Only spare parts approved by us may be used in this module.

Following a repair, the seal supplied along with the spare parts must be affixed at the specified location (A).

10.4 PC Diagnostic Tool

10.4.1 Starting the diagnostic tool

<table>
<thead>
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<th>Test</th>
<th>Suitable for</th>
</tr>
</thead>
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<tr>
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<td>Suitable for the user, in order to check the PC components.</td>
</tr>
<tr>
<td>Technician Diagnostics</td>
<td>Suitable for the technician, in order to check the PC components.</td>
</tr>
<tr>
<td>Sirona Windows Diagnostics</td>
<td>Windows Stress Test, in order to test the PC at permanent load.</td>
</tr>
</tbody>
</table>

**Tip:** If one of the following steps does not work, further steps can be found in the Service Manual.

- The PC is switched off.

1. Switch on the PC and wait until the above message appears.
2. Hold down the "F11" key on the keyboard until the boot menu appears.
3. Insert the diagnostics tools CD into the drive.

4. Use the arrow keys to select "CD/DVD:..." in the menu and hit the "Enter" key.
   - The PC boots from the CD.

5. Wait until the light on the drive goes out.

6. Confirm your selection with the "Return" key on the keyboard.
   - The diagnostics tool starts and a selection menu appears.
   **Tip:** After one minute, if none of the arrow keys have been pressed, the "Customer Diagnostics" test starts automatically.

7. Select the test using the arrow keys.

8. Confirm your selection with the "Return" key on the keyboard.
   - The test starts.
10.4.2 Test procedure

10.4.2.1 Customer Diagnostics

✓ You have started the "Customer Diagnostics" test and the system configuration is displayed.

1. Using the information in the system configuration, check whether the system corresponds to the default settings. You can scroll up and down using the arrow keys.
   Tip: The test starts automatically after 3 minutes if you do not press an arrow key.
2. Press the "Esc" key on the keyboard.

 País The test starts. The entire test run takes approx. 20 minutes.
The result, i.e. "Pass" or "Fail", appears at the end of the test (see sections entitled "Test result: Pass" or "Test result: Fail").

3. On completion of the test, press any key to go on to the test dialog. 
   Tip: You can scroll to the individual test steps using the arrow keys. The corresponding result is shown in front of each test step.

4. To end the test, restart the PC.

**Test result: Pass**

No errors were found on the PC-specific hardware. Replacing the PC component or the PC is not advisable.

1. Perform the separate test for the supply board.
2. Perform an image restore with the restore set for troubleshooting.
3. Check the service instructions for other possible fault sources.

**Test result: Fail**

An error was found on the PC-specific hardware. Replacing the PC component or the PC may be required. An image restore is not advisable.

1. Check to find out which components did not pass the test.
2. Write down the defective test number and, if available, the error code and inform the technician of this as soon as possible.
3. Carry out the appropriate steps in the chapter entitled Troubleshooting.

End "Customer Diagnostics" test

1. Remove the PC diagnostic tool CD from the drive.
2. Switch the PC off by briefly pressing the on/off key.
10.4.2.2 Technician Diagnostics

✓ You have started the "Technician Diagnostics" test and the system configuration is displayed.

1. Using the information in the system configuration, check whether the system corresponds to the default settings. You can scroll up and down using the arrow keys.
   Tip: The test starts automatically after 3 minutes if you do not press an arrow key.

2. Press the "Esc" key on the keyboard.

   The test starts. The entire test run takes approx. 20 minutes.

   The result, i.e. "Pass" or "Fail", appears at the end of the test (see sections entitled "Test result: Pass" or "Test result: Fail").
3. On completion of the test, press any key to go on to the test dialog. 
   **Tip:** You can scroll to the individual test steps using the arrow keys. 
   The corresponding result is shown in front of each test step.

4. To end the test, restart the PC.

**Test result: Pass**

No errors were found on the PC-specific hardware. Replacing the PC component or the PC is not advisable.

1. Perform the separate test for the supply board.
2. Perform an image restore with the restore set for troubleshooting.
3. Check the service instructions for other possible fault sources.

**Test result: Fail**

An error was found on the PC-specific hardware. Replacing the PC component or the PC may be required.

An image restore is not advisable.

1. Check to find out which components did not pass the test.
2. Carry out the appropriate steps in the chapter entitled Troubleshooting.
3. Note the number of the failed test and the error code if available. 
   Attach this information to the returned PC when replacing a PC.

**End "Technician Diagnostics" test**

1. Remove the PC diagnostic tool CD from the drive.
2. Switch the PC off by briefly pressing the on/off key.
10.4.2.3 Sirona Windows Diagnostics

General

The "Sirona Windows Diagnostics" test loads the PC-specific components simultaneously over a long period of time. This period of time is determined by the user.

As a result of this load

- the temperature in the PC is significantly increased compared with normal operation. A temperature malfunction or any existing faults are thereby detected.
- Thanks to the temporal, unlimited test phase, sporadically occurring faults are more likely to be detected.

Tip: Only conduct the test if at least one of the "Customer Diagnostics" or "Technician Diagnostics" tests has been completed with a "pass" and without errors.

Performing the test

Tip: Allow the "Sirona Windows Diagnostics" test to run for at least 1 hour. For optimum results, allow the test to run overnight.

✓ You have started the "Sirona Windows Diagnostics" test and Windows starts in the test environment. The "Sirona Windows Diagnostics" test starts automatically.

➢ Check the result in the "Windows Stress Test" window.
Tip: You may have to rearrange the windows to be able to see the "Windows Stress Test" window.
Test result: Pass
No errors were found on the PC-specific hardware. Replacing the PC component or the PC is not advisable.

Test result: Fail
An error was found on the PC-specific hardware. Replacing the PC component or the PC may be required.
An image restore is not advisable.
1. Check the "Windows Stress Test" window for those components that did not pass the test.
2. Carry out the appropriate steps in the chapter entitled Troubleshooting.

Ending the "Sirona Windows Diagnostics" test
➢ Click the "Stop" button.
   ✴ The individual test windows close.
   ✴ The PC is switched off.

10.4.3 Rebooting the PC
➢ Switch the PC on again using the ON button.
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We reserve the right to make any alterations which may be required due to technical improvements.