Sirona Dental CAD/CAM System
CEREC AC
With CEREC Omnicam

Operating Instructions for the Acquisition Unit

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

- US6885464
- US6813035
- US7522764
- US7388678
- US7801632
- US8062034
- US8111909
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Thank you for purchasing your CEREC AC® 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 read and follow these operating instructions carefully and Always keep them within easy reach.

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

Your
CEREC AC team,
2 General information

Please read this document completely and follow the instructions exactly. You should always keep it within reach. Original language of the present document: German.

2.1 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 this document. Such information is highlighted as follows:

- **DANGER**: An imminent danger that could result in serious bodily injury or death.
- **WARNING**: Potentially dangerous situation that could result in serious bodily injury or death.
- **CAUTION**: Potentially dangerous situation that could result in slight bodily injury.
- **NOTICE**: Potentially harmful situation which could lead to damage of the product or an object in its environment.
- **IMPORTANT**: Instructions for use and other important information.

**Tip**: Information for facilitating work.
2.1.2 **Formats and symbols used**

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

<table>
<thead>
<tr>
<th>Format</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Prerequisite</td>
<td>Requests you to do something.</td>
</tr>
<tr>
<td>1. First action step</td>
<td></td>
</tr>
<tr>
<td>2. Second action step</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>&gt; Alternative action</td>
<td></td>
</tr>
<tr>
<td>☐ Result</td>
<td></td>
</tr>
<tr>
<td>see &quot;Formats and symbols used [→ 7]&quot;</td>
<td>Identifies a reference to another text passage and specifies its page number.</td>
</tr>
<tr>
<td>● List</td>
<td>Identifies a list.</td>
</tr>
<tr>
<td>&quot;Command/menu item&quot;</td>
<td>Identifies commands, menu items or quotations.</td>
</tr>
</tbody>
</table>

2.2 **Warranty**

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

2.3 **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.
2.4 **Legend**

- **Year of manufacture**
  
- **Safety labels**
  Identifies labels/imprints on the unit (see Safety labels).

- **Product disposal symbol** (see "Disposal [→ 59]").

- **Storage battery pack disposal symbol** (see "Disposal of the storage battery pack" [→ 60])

- **Storage battery pack recycling symbol** (see "Disposal of the storage battery pack" [→ 60])

- The CEREC AC 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


NOTICE
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 60601-1:2000 (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.

Only for Brazil:


Registro ANVISA nº 80745400003.
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.xxxx) (K083496) in the Camlog Implant System. The CAD/CAM software is intended to design and fabricate the inCoris mesostructure. The inCoris mesostructure and TiBase two-piece abutment is compatible with the following implant systems:

- Nobel Biocare Replace (K020646)
- Nobel Biocare Branemark (K022562)
- Friadent Xive (K013867)
- Biomet 3i Osseotide (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

**NOTICE**

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

**NOTICE**

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

**NOTICE**

Do not damage the unit!
The unit can be damaged if opened improperly.
It is expressly prohibited to open the unit with tools!

4.1.2 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.
4.1.4 Movement and stability of the unit

NOTICE

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 Changes to the product

Modifications to this unit which may affect the safety of the operator, patients or third parties are prohibited by law!
4.1.7 **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 assumes the risk of using non-approved accessories.

4.1.7.1 **Included accessories**

- Storage battery pack, order no.: 61 87 582

4.2 **Safety labels**

**Fuses**

![Fuse diagram]

**NOTICE**

Use ONLY fuses of the same type!
Plug connections of external interfaces

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 1.5m surrounding the patient).

CAUTION

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

NOTICE

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

**CAUTION**

Risk of burns due to hot surface!

➢ Never touch the heater plate (A)!
4.3 Electrostatic charge

4.3.1 ESD warning labels

![ESD warning label]

**CAUTION**

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures.

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.

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" [→ 18].
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.

Background

Integrated circuits (logical circuits and microprocessors) are used to implement a wide variety of functions in dental/X-ray/CAD/CAM systems.

The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter.

It is obvious that integrated circuits which are connected to plugs leading outside of the unit via cables are sensitive to electrostatic discharge.

Even voltages which are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current which melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the system.

To prevent this from happening, the ESD warning label next to the plug warns of this hazard. ESD stands for ElectroStatic Discharge.

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures.
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

Note on wireless communication

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

**NOTICE**

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

<table>
<thead>
<tr>
<th>Protection</th>
<th>Cross-section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laid protected</td>
<td>2.5 mm²</td>
</tr>
<tr>
<td>Laid unprotected</td>
<td>4 mm²</td>
</tr>
</tbody>
</table>

**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.
## Technical information

### 5.1 Technical description

**CAD system for high-precision intraoral optical impressions**

- High-resolution, heated oral camera (3D camera) with removable reflective sleeve (reflective sleeve 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: Triangulation
- Light source: White LED, unpolarized, visible spectral range
- Image acquisition: Image control inside the camera
- Image data transfer: Gigabit Ethernet Standard

**Monitor**

- 19" TFT LCD flat display, true color, resolution SXGA (1280 x 1024 pixels)
PC hardware (V2.2.5)

Special PC with the following equipment:

- Processor: Intel i7 3930K
- Memory: 2 x 8GB, 1600 MHz DDR3 RAM
- DVD-R(W)/CD-R(W): SH-224 combi drive
- Hard disk: 500 GB 2.5" S-ATA
- Network card: Ethernet 10/100/1000 Mbit/s onboard
- WLAN card: TP-Link TL-WDN4800
- Sound card: Realtek HD Audio onboard
- Graphics card: 2 graphics cards:
  - NVIDIA GeForce GTX 650 Ti
  - NVIDIA GeForce GTX 760
- Supply board: 61 46 048 D3573 Sirona

PC software

- Operating system: Windows Embedded Standard 7, 64Bit
- Installation: The operating system is 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
100 - 240 VAC /50 - 60 Hz

Rated current
4.7 - 1.8 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
24VDC / 2.5Ah
Sirona Order Number: 61 87 582 D3492
Observe accompanying documents

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%
No condensation

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 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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.

Portable and mobile radio equipment must not be used within the recommended working clearance from the UNIT and its cables, which is calculated based on the equation suitable for the relevant transmission frequency.

Recommended working clearance:
<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>Conducted RF interference</td>
<td>$3 \ V_{\text{eff}}$</td>
<td>$3 \ V_{\text{eff}}$</td>
<td>$d = [1.2] \sqrt{P}$</td>
</tr>
<tr>
<td>IEC 61000-4-6</td>
<td>150 kHz to 80 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiated RF interference</td>
<td>$3 \ V/m$</td>
<td>$3 \ V/m$</td>
<td>$d = [1.2] \sqrt{P}$</td>
</tr>
<tr>
<td>IEC 61000-4-3</td>
<td>80 MHz to 800 MHz</td>
<td></td>
<td>at 80 MHz to 800 MHz</td>
</tr>
<tr>
<td></td>
<td>$3 \ V/m$</td>
<td></td>
<td>$d = [2.3] \sqrt{P}$</td>
</tr>
<tr>
<td></td>
<td>800 MHz to 2.5 GHz</td>
<td></td>
<td>at 800 MHz to 2.5 MHz</td>
</tr>
</tbody>
</table>

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></td>
<td>(d = [1.2] \sqrt{P})</td>
</tr>
<tr>
<td>0.01</td>
<td>0.12</td>
</tr>
<tr>
<td>0.1</td>
<td>0.38</td>
</tr>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>100</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 Sirona products are carefully checked prior to shipment. Please perform an incoming inspection immediately after delivery.

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

NOTICE

Damage during transport

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

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

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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Monitor ON/OFF switch</td>
<td>H</td>
</tr>
<tr>
<td>B</td>
<td>Membrane keyboard</td>
<td>I</td>
</tr>
<tr>
<td>C</td>
<td>CEREC camera</td>
<td>J</td>
</tr>
<tr>
<td>D</td>
<td>Heater plate</td>
<td>K</td>
</tr>
<tr>
<td>E</td>
<td>Locking brake</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Foot control/foot pedal</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Right trackball button</td>
<td></td>
</tr>
</tbody>
</table>
Components of the Omnicam

<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>

**NOTICE**

CEREC Omnicam is calibrated

The CEREC Omnicam is calibrated ex works (see "Calibrating CEREC Omnicam [→ 51]").
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>C Power connection</td>
</tr>
<tr>
<td>B</td>
<td>Main switch</td>
<td>D USB port</td>
</tr>
<tr>
<td></td>
<td>I = ON, 0 = OFF</td>
<td></td>
</tr>
</tbody>
</table>
6.4.2 Operating state LED

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

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 Plug connections

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.
6.4.4 Insert battery (optional)

1. Open the lower door on the back panel.

**NOTICE**

*Open with coin.*

Use a coin to open the latch. Turn counter-clockwise.

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.

6.4.5 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.
6.4.6 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.

6.4.7 Switching the units on

**NOTICE**

Do not put the unit into operation at low temperatures!

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

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

**CAUTION**

Use only the supplied power cord

Use only the power cord supplied by Sirona to connect the acquisition unit to the power supply.

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**.
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.

**NOTICE**

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

**6.4.8 Switching the units off**

**NOTICE**

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.

**NOTICE**

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) [→ 57]).

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

Patients must not be treated (generation of intra-oral impressions) unless the unit is connected to the practice's electricity-supply system.

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.

**NOTICE**

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.

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>Monitoring window</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATX Power Supply V 0.82</strong></td>
<td>Line voltage switched on and battery available.</td>
</tr>
<tr>
<td>SMP5-System</td>
<td>Status</td>
</tr>
<tr>
<td>Line</td>
<td>Active</td>
</tr>
<tr>
<td>Battery</td>
<td>Ok</td>
</tr>
<tr>
<td>Fan</td>
<td>Ok</td>
</tr>
<tr>
<td>Temperature</td>
<td>Ok</td>
</tr>
</tbody>
</table>

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 0.82</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMP5-System</td>
<td>Status</td>
</tr>
<tr>
<td>Line</td>
<td>Active</td>
</tr>
<tr>
<td>Battery</td>
<td>Test</td>
</tr>
<tr>
<td>Fan</td>
<td>Ok</td>
</tr>
<tr>
<td>Temperature</td>
<td>Ok</td>
</tr>
</tbody>
</table>

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.

**Attention**

**Battery critical low**

**System will shutdown in 23 seconds**
### 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>Fan blocked, status message in monitoring window.</td>
</tr>
<tr>
<td><strong>Line</strong> Active</td>
<td></td>
</tr>
<tr>
<td><strong>Battery</strong> Ok</td>
<td></td>
</tr>
<tr>
<td><strong>Fan</strong> Error</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature</strong> Ok</td>
<td></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.

<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>Warning window with 30s countdown until the PC shuts down. A continuous signal is then sounded via the system loudspeaker.</td>
</tr>
<tr>
<td><strong>Line</strong> Active</td>
<td></td>
</tr>
<tr>
<td><strong>Battery</strong> Ok</td>
<td></td>
</tr>
<tr>
<td><strong>Fan</strong> Ok</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature</strong> High</td>
<td></td>
</tr>
</tbody>
</table>

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

### Attentions

**Fan error**

**System will shutdown in 27 seconds**

The temperature monitor has two message thresholds. The first message threshold is output as the message "High" in the temperature result field. The "High" 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.

No battery is inserted.
7 Operation

7.1 Camera warm-up time

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

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

From CEREC SW software version 4.0.4 and unit serial number 121 001, you can now set the end temperature to which the camera heater warms the Omnicam mirror sleeve.

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

7.2 Adjusting the CEREC Omnicam

You can adjust the CEREC Omnicam in the device configuration.

1. In the software, navigate to the system menu, and click on the "Configuration" button.
2. Click on the "Devices" button.
3. Click on the "Omnicam" button.

Audio feedback

Using the "Sound:" selection box, you can switch the audio feedback for acquisitions on or off. You can control the volume using the slide bar.

From software version CEREC SW 4.3, you have the option of choosing between three different sounds.

Accepting settings

➢ Click on the "Ok" button.

Discarding settings

➢ Click on the "Cancel" button.

7.3 Select camera mode

Software versions 4.2 and higher feature camera modes for intraoral and extraoral scans in the "ACQUISITION" phase.

In addition, in the "ACQUISITION" phase the "Mode" button appears on the right-hand side.

1. Go to phase "ACQUISITION".
2. Click the "Mode" button to switch between the camera modes for intraoral and extraoral acquisitions.
7.4 Taking acquisitions with the CEREC Omnicam

**CAUTION**

**Hot surface!**

The output window of the CEREC Omnicam is preheated in the camera holder. When removing the CEREC Omnicam from its holder, the surface temperature of the mirror sleeve can be up to 51°C. This may cause an unpleasant heat sensation on contacting a person's skin or mucous membrane. These temperatures will not damage anyone's skin or mucosal membrane.

After removing the CEREC Omnicam from its camera holder, the temperature of the mirror sleeve drops within a number of minutes (< 5 minutes) to less than 43°C. The CEREC Omnicam is therefore suitable for use in the patient's mouth for an unlimited period of time.

At an ambient temperature from 30°C, only select the three lower heater settings.

**NOTICE**

**Image brightness**

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

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

**IMPORTANT**

**Do not use cotton rolls in the scan area**

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

✔ The teeth are blow-dried

1. Change to phase "ACQUISITION":
   - The camera is ready for acquisition.
   - A live image appears which can be used to look around the patient's mouth.

2. Remove the CEREC Omnicam from its holder.
   - As soon as the camera is pointed over a tooth or the gums, or the foot control is pressed, data acquisition begins. During the continuous data acquisition, a color 3D model is generated automatically on the screen.
   A white field indicates in which area data will be acquired. If the automatic data flow breaks off, the white field is lost and the audio signal changes. In this case, move the camera to any area which has already been acquired. The acquisition procedure continues.

3. Activate the foot control or point the camera cursor to the Omnicam icon in the bottom left corner to end the acquisition procedure.
Proceeding with the scanning procedure

1. Activate the foot control or click on the Omnicam icon with the cursor.  
   - The scanning procedure begins.

2. Proceed with the scanning procedure as described above.

7.5 Directing the camera

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>After each use</strong></td>
</tr>
<tr>
<td>Clean and disinfect the camera after each patient.</td>
</tr>
<tr>
<td>➢ Follow the instructions on cleaning and disinfection in order to avoid cross-contamination between patients.</td>
</tr>
</tbody>
</table>

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

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

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

Divide the acquisition into four consecutive sequences:

1. Occlusal
2. Buccal
3. Lingual
4. Proximal
7.5 Directing the camera

7.5.1 Occlusal scan

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

1. Move the CEREC Omnicam to the starting position. For this purpose, the CEREC Omnicam is in the occlusal view of the tooth, which is next to the prepared tooth in the distal direction.

2. Scan in the mesial direction. To do so, slowly move the CEREC Omnicam in the occlusal direction from the distal-positioned tooth over the prepared tooth to the mesial-positioned tooth.

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

7.5.2 Buccal scan

✔ The CEREC Omnicam is on the adjacent tooth, in the mesial direction to the preparation.

1. Rotate the CEREC Omnicam between 45° to maximum 90° toward the buccal.

2. Guide the CEREC Omnicam over the entire buccal distance in the distal direction over the prepared tooth. With full jaw acquisitions, limit the buccal scan to no more than a quadrant.

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

**Tip:** Practice guiding the camera between 45° and 90°.
7.5.3 Lingual scan

✔ The CEREC Omnicam is on the tooth that is positioned next to the preparation in the distal direction.

1. Rotate the CEREC Omnicam from 90° in the buccal direction to around 45° to maximum 90° in the lingual direction on the other side.
2. Guide the CEREC Omnicam over the entire lingual distance in the mesial direction over the prepared tooth.

7.5.4 Approximal surface scan

Scan the approximal surfaces of the prepared tooth.

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

7.5.5 Buccal registration

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

✔ The jaw with the preparation is scanned.

1. Scan the occlusal and buccal view of the antagonist (see the section Occlusal scan [→ 42] and Buccal scan [→ 42]).
2. Perform a buccal scan of the bite block prior to completing the registration.
7.5.6 Acquisition in the anterior region

**Acquisitions for the anterior tooth region in the lower jaw**

The acquisitions are described using the 4th quadrant. The process is the same for the 3rd quadrant.

✔ Before acquiring the anterior tooth region, if necessary acquire the posterior tooth region (occlusal, buccal, labial, and approximal). Refer to chapter Occlusal scan [→ 42], Buccal scan [→ 42], Lingual scan [→ 43] and Approximal surface scan [→ 43].

✔ Start the acquisition of the posterior tooth region with the posterior tooth region of the 4th quadrant.

1. End the acquisition of the posterior tooth region or start the acquisition of the anterior tooth region when you can still see the premolars (tooth number: 44) in the viewing panel. To do so move the camera from occlusal to labial.

2. From the starting point under 1) guide the camera mesial labial over the front teeth parallel to the chin line up to the 1st position of the neighboring quadrant (in this case tooth number: 31).

3. Guide the camera from there in the distal direction back to the premolars (tooth number: 44), i.e. acquire the front teeth labial a second time. This movement is also parallel to the chin line.

4. Once you get to the premolars, guide the camera occlusal over the zenith above the premolars by turning the camera in a position vertical to the chin line (i.e. like a recorder or clarinet).

5. Pass the camera incisal over the front teeth in the mesial direction by moving the camera with a slight tipping movement over the incisal edge from labial to lingual. When doing so emphasize the labial movement in order to acquire the lingual area of the front teeth well. In this phase move the camera somewhat slower than when the camera is moving parallel to the chin line.

6. When you arrive at the premolars (tooth number 34), follow the movement along the chin line by turning the chair and at the same time turn the camera in the occlusal direction over the zenith of the premolars - with the camera tip in the distal direction of the side teeth in the 2nd quadrant.

7. But do not go in the distal direction yet, rather guide the camera in parallel to the chin line labial in the mesial direction and back again in order to complete the labial acquisition of the front teeth (up to tooth number 31 and back again in the mesial direction to the premolars).

8. Now guide the camera again buccal in the distal direction and as per the measuring regulation for the posterior tooth region in Chapter Occlusal scan [→ 42], Buccal scan [→ 42], Lingual scan [→ 43] and Approximal surface scan [→ 43].
This acquisition regulation for the anterior tooth region provides the connection with the acquisition regulation for the posterior tooth region to acquire the whole jaw.

**Acquisitions for the anterior tooth region in the upper jaw**

➢ Conduct the acquisitions for the upper jaw as described here for the lower jaw. But it is necessary to change the grip for the premolars (step 6 above) in order to move the camera tip in the mesial direction and to ensure that the cable does not form a loop. A favorable location for this change is the occlusal view of the premolars.

**Tip:** The grip change offers a good opportunity to dry the 2nd quadrant. It takes around 3 seconds before it is possible to restart the acquisition flow.

**Tip:** Note a slightly asymmetric process for left-handers.

**Tip:** Be sure to thoroughly practice passing over the incisal ridge.

If the data stream is interrupted at this point, proceed as follows:

1. Return to an occlusal surface of a premolar which has already been acquired.
2. Approach the anterior teeth again from this occlusal surface.

### 7.5.7 Completing measurements

✔️ The acquisitions are complete.

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

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

### 7.6 Software for the CEREC Omnicam

#### 7.6.1 Mode

You have a choice between the Measure (3D) and Movie (2D) modes and between intraoral acquisitions and extraoral acquisitions.

#### 7.6.1.1 3D acquisition mode

1. Click on the "Mode" button.
2. Click on the Measure (3D) button.
3. Acquire the 3D model as described in the chapter on Directing the camera [ → 41].
7.6.1.2 2D film mode

Video recording

Using the video mode, you can record patient situations and play them back.

1. Click on the "Mode" button.
2. Click on the "Movie (2D)" button.
   - In the camera view base board, a red button appears.
3. Click on the red button in the camera view base board.
   - The video mode starts.
   - During the acquisition, a red dot with a letter R appears in the top left corner of the camera view. The dot indicates that a recording is being taken.
4. Record the video with the CEREC Omnicam.
5. End the recording by clicking on the red button in the camera view base board with the cursor.

The video recording is automatically deleted if you switch to the "MODEL" phase.

Deleting an existing video

Only one video is possible per patient. The existing video must therefore be deleted before a new one can be recorded.

✔ A video recording exists.
✔ You are in the Movie (2D) acquisition mode.
➢ Click on the "Recycle Bin" button in the camera view base board.

Playing back a video

You can play back, rewind or fast forward the video using the button in camera view.

7.6.1.3 Switching between modes

You can use the "Mode" button to switch between the acquisition modes.
7.6.2 Cut out model areas

You can cut out model areas with the “Cut” function, which you can find via the tool wheel on the right-hand side of the acquisition phase. These can be areas in which parts of cotton rolls or cheeks were unintentionally acquired.

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

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

Undo and reset

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

With the "Reset" button in the tools you can reset changes that were made with the tool.

7.6.3 Image catalogs

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

- Lower Jaw

- Upper Jaw

- Buccal

Deleting acquisitions

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

➢ Grab the image with your mouse and move it using drag & drop to the recycle bin.
✓ The image is deleted.
7.6.4 Additional acquisitions

7.6.5 Acquisition assistance

Acquisition assistance is available in software versions CEREC SW 4.2 and higher. This function is activated on delivery.

The acquisition assistance provides help during the acquisition process.

Activate acquisition assistance

1. Open the "Configuration" > "Devices" > "Omnican" dialog.
2. Check "Acquisition Hints".
3. To deactivate the acquisition assistant, remove the check mark.

Function

The acquisition assistant provides feedback on whether the camera was guided well.

With the acquisition assistance you can improve the framework from the scan data in order to provide better overlapping and thus improve the "ring" of the individual acquisitions.

This may also be the case if you have the impression that the whole area has a texture and no additional acquisition is required in your personal opinion.

You can find further information about the acquisition assistant in the software user handbook.
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.

**NOTICE**

Annual maintenance performed by trained technical personnel is recommended.

8.1 Care and cleaning agents

**NOTICE**

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

**Approved care and cleaning agents**

**NOTICE**

**Not for LCD monitors**
Do not use the agents listed in the following for the LCD monitor!
You can use these agents for all other surfaces, including the camera.

<table>
<thead>
<tr>
<th>Approved in the USA</th>
<th>Approved in the USA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alpro</strong></td>
<td><strong>Kerr Corporation</strong></td>
</tr>
<tr>
<td>• Minuten Spray classic</td>
<td>• CaviCide</td>
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<tr>
<td>• Minuten Wipes</td>
<td>• Cavi Wipes</td>
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<tr>
<td>• Plasti Sept</td>
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<td>• Plasti Sept Wipes</td>
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<tr>
<td><strong>Merz</strong></td>
<td><strong>Dürr</strong></td>
</tr>
<tr>
<td>• Pursept-A</td>
<td>• FD 312</td>
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<tr>
<td><strong>Dürr</strong></td>
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<td>Not approved in the USA</td>
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<td></td>
<td>• CaviCide</td>
</tr>
<tr>
<td></td>
<td>• Cavi Wipes</td>
</tr>
</tbody>
</table>
8.2 Care and cleaning of the monitor screen

Cleaning

The monitor screen can be wiped off with a soft cloth.

NOTICE

Never spray the monitor screen with a disinfectant or cleaning agent!

8.3 Surfaces (without monitor)

NOTICE

Use only care and cleaning agents which have been approved by Sirona (see Care and cleaning agents!)

Cleaning

NOTICE

Do not allow liquids to penetrate into the ventilation slots!

NOTICE

Never use corrosive cleaning agents, wax or solvents.

Remove any dirt and disinfectant residues regularly using a mild commercial cleaning agent.

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.

NOTICE

The only way to prevent damage is to wipe off medicaments immediately with a damp cloth and a cleaning agent!
8.4 Cleaning and setting the trackball cover ring

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.

### NOTICE

**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.

8.5 Calibrating CEREC Omnicam

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

Recalibrate the CEREC Omnicam in the following cases:

- following transport (shaking stress) or during first commissioning,
- after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C)
- with temperature differences of over 15°C between the last calibration and operation
- In general, carrying out a calibration is the correct process in the event of errors in the acquisition process (such as poor image quality or the lack of a 3D preview). In many cases, the errors can be corrected in doing so.
Prior to the first calibration

Ensure to take note of the serial number of the calibration set when starting the calibration, which must be used at this point. The number displayed in the software and the serial number on the calibration set must be identical.

The serial number of the calibration set to be used has been set on the CEREC AC with Omnicam at the factory. Prior to the first calibration after changing the PC and when switching the calibration set, you must enter the serial number of the calibration set to be used in the software. If you do not wish to do this, you can continue with "Start calibration [→ 52]".

When entering the serial number, the following steps should be followed:

1. Start the CalibRegistry.exe application on the USB stick included with delivery of the calibration set.
2. Enter the 8-digit Sirona ID. You can find the ID on the sticker on the calibration set.
   - With all future calibration work involving the “CEREC SW” software, you will be prompted to use this calibration set.

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 “Omnicam” button.
4. Click on the “Calibrate” button.
   - The camera view is displayed in one window.
5. Follow the prompt to set up the calibration set with the corresponding ID number. At this point, check that this ID matches the ID on your calibration set. If this is not the case, go back to "Prior to the first calibration [→ 51]".
Calibrate the camera

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

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

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

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

End calibration
✓ The software indicates that the calibration was completed successfully.
➢ Click on the "OK" button.
   - The CEREC Omnicam is calibrated.
8.6 CEREC Omnicam - maintenance and care

Components of the Omnicam

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Press detent to release</td>
</tr>
<tr>
<td>B</td>
<td>Mirror sleeve</td>
</tr>
<tr>
<td>C</td>
<td>Sapphire glass</td>
</tr>
<tr>
<td>D</td>
<td>Camera window</td>
</tr>
<tr>
<td>E</td>
<td>Calibration set</td>
</tr>
</tbody>
</table>

The CEREC Omnicam is a very sensitive optical device and must therefore be handled with the utmost care. Protect the sapphire glass and the camera window against scratching and clean them with a lint-free cloth and ethanol (commercially available cleaning alcohol).

Removing the mirror sleeve

1. Press the mirror sleeve against the camera body.
2. Press detent A.

**NOTICE**

Risk of damaging the camera window or sapphire glass.

➢ Push the mirror sleeve straight toward the front; do not tilt it.

3. Pull off the mirror sleeve.
Sterilizing

**CAUTION**

If the CEREC Omnicam accidentally falls down, check to make sure that the camera window and sapphire glass are not damaged. If the CEREC Omnicam has been damaged, it must no longer be used on patients. The CEREC Omnicam must be recalibrated.

**NOTICE**

Not sterilizable!

Do not under any circumstances sterilize the CEREC Omnicam or the video cable!

The mirror sleeve can be sterilized with hot air (180°C, 30 min) (*not in the autoclave!*).

Refitting the mirror sleeve

**NOTICE**

Risk of damaging the camera window or sapphire glass.

➢ The mirror sleeve must not come into contact with the camera window.

➢ Push the mirror sleeve straight toward the camera body; do not tilt it.

➢ Carefully refit the mirror sleeve until it locks in place.
8.7 Replacing the main fuse

**WARNING**

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

**NOTICE**

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

![Diagram of fuse module]

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

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.

8.8 Charge battery (optional)

**NOTICE**

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 storage battery is permanently charged during operation on line 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.
8.9 Replace battery (optional)

1. Open the lower door on the back panel.

**NOTICE**

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.
Disposal

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

Please observe the disposal regulations applicable in your country.

Disposal procedure

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

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

When disposing of equipment permanently, please proceed as follows:

In Germany

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

1. You can find a form for placing a disposal order on the company's homepage (www.enretec.de) under the menu item "Disposal of electric and electronic devices". The form can either be downloaded or completed online.

2. Fill the form out with the relevant information and send it as an online order or fax it to enretec GmbH at +49 (0)3304 3919 590. Alternatively, for initiating a waste disposal order or for questions, the following contact options are available:
   Telephone: +49(0)3304 3919 500;
   E-mail: pickup@eomRECYCLING.com
   ; Mailing address: enretec GmbH, Geschäftsbereich eomRECYCLING
   Kanalstraße 17, 16727 Velten

Any non-permanently installed equipment will be picked up at its installation site in the practice. Permanently installed equipment will be picked up curbside at your address by appointment.

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

Worldwide (outside Germany):

Please contact your local dental equipment specialist for country-specific information on disposal.
9.1 Disposal of the storage battery pack

The storage battery pack located in the acquisition unit 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 PC Diagnostic Tool

10.1 Check BIOS Configuration

Check the BIOS configuration before using the PC diagnostic tool. If the configuration is set incorrectly, the PC diagnostic tool will not recognize the hard drive and cannot check it. The PC diagnostic tool then registers errors for tests 14 and 15.

1. Call up the UEFI/BIOS by repeatedly pressing the "Delete" button during start up.

2. Activate the relevant side with the RIGHT/LEFT cursor buttons or by clicking the "Advanced" tab with the mouse.

3. Select the "Onboard Devices Configuration" option there.
4. Set the entry "ASM1061 Storage Controller" to "IDE Mode".
5. In the menu go to "Exit" and "Save Changes & Reset" or press the "F10" button to save the settings.
6. Confirm the confirmation prompt with "Yes".

10.2 Start diagnostic tool

<table>
<thead>
<tr>
<th>Test</th>
<th>Suitable for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Diagnostics</td>
<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.
2. Repeatedly press the "F8" button until the PC switches to the boot menu.
3. Insert the diagnostics tool CD into the drive.
4. Select the "P3: TSSTcorp CDDVDW SH-222AB" menu option.
5. Confirm your selection with the "Return" key on the keyboard.
   Tip: After a minute the "Customer Diagnostics" test starts automatically if you do not press an arrow button first.

6. Select the test using the arrow keys.
7. Confirm your selection with the "Return" key on the keyboard.
   Tip: The test starts.
10.3 Test procedure

10.3.1 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. 30 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 [→ 68] .

**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.
10.3.2 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. 30 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 [→ 68].
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.
10.3.3 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 [→ 68].

Ending the "Sirona Windows Diagnostics" test

➢ Click the "Stop" button.
  ✓ The individual test windows close.
  ✓ The PC is switched off.

10.4 Troubleshooting

The recommended procedure is as follows. If troubleshooting and/or a component replacement cannot eliminate the fault, replace the PC.

In this case, specify which test was defective when returning the defective PC.
10.4.1 Customer Diagnostics & Technician Diagnostics

<table>
<thead>
<tr>
<th>Test</th>
<th>Test description / condition</th>
<th>Action if problems occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Script</td>
<td>Control command without a test function</td>
<td>n.a.</td>
</tr>
<tr>
<td>Activity is rotating cursor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test CPU-1</td>
<td>The CPU test checks the control, address, data, and flag register of the system processor.</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test CPU-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test NPU-1</td>
<td>When testing the floating point unit (NPU, Numeric Processing Unit) the system's mathematics processor and the interface between the two functions are checked.</td>
<td></td>
</tr>
<tr>
<td>Test NPU-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Timer</td>
<td>In this test a number is loaded into the three timer channels and then a check is made on whether the countdown takes place at the right speed in the individual channels (not too fast or too slow).</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test Keyboard Controller</td>
<td></td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test INT #1</td>
<td>The test tool checks the system interrupt controller. These controllers contain the interrupt mask register, in-service register, interrupt request register, and all of the interrupt request lines. All channels on the interrupt controllers are checked for problematic, incorrect, or defective interrupts.</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test INT #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test DMA #1</td>
<td>During the test all of the registers and status ports of the two DMA controllers are checked. The DMA controller is extremely important for system operation, as it has separate channels which the E/A devices can use to directly access the system RAM. This enables high data transfer rates without using the microprocessor.</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test DMA #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test SM Bus</td>
<td>This test checks the SMBus. This bus is mainly used in systems to manage the battery and sensor. The SMBus is also used to access the SPD data on the memory modules.</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Test Description</td>
<td>Test Description / Condition</td>
<td>Action if Problems Occur</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Test WDC__TYP HDD____Short Self-Test</strong></td>
<td>A range of destruction-free tests on the hard drives installed in a system are conducted with these functions. Controller search and read tests are conducted to check the overall condition of a drive.</td>
<td>1. For the CEREC AC with Omnicam check the setting of the ASM1061 Storage Controller (refer to Check BIOS Configuration [→ 61].&lt;br&gt;2. Check the hard disk's SATA line.&lt;br&gt;3. Check the hard disk's power supply.&lt;br&gt;4. Exchange the hard drive including the hard drive cable.</td>
</tr>
<tr>
<td><strong>Test 3 Minute(s) Drive #1 __Size of HDD____RndRd</strong></td>
<td>Use this function to test the installed CD-ROM-/CDR/W-/DVD drive. The test checks the test ROM directly; no software drivers have to be loaded. The test medium is the CD test tool</td>
<td>1. Check the CD for scratches or other dirt.&lt;br&gt;2. Check the SATA line between the PC and DVD drive.&lt;br&gt;3. Check the power supply line between the PC and DVD drive.&lt;br&gt;4. Replace the DVD drive.&lt;br&gt;5. Check the SATA connection from the mainboard to the SATA slot sheet in the PC.&lt;br&gt;6. Check the connection of the power supply from the mains power unit to the SATA Slot sheet in the PC.</td>
</tr>
<tr>
<td><strong>Test ATAPI #1 00000000-000050000</strong></td>
<td>Use this function to test the installed CD-ROM-/CDR/W-/DVD drive. The test checks the test ROM directly; no software drivers have to be loaded. The test medium is the CD test tool</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td><strong>Test Active</strong></td>
<td>USB test (at least 1 USB human device must be connected; for the AC this is usually a keyboard, trackball, camera, and UPS mains supply).</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td><strong>Test NET #1 SelfTest</strong></td>
<td>This test provides an internal check on all of the network cards.</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td><strong>Test Base Memory</strong></td>
<td>The &quot;Base RAM Test&quot; provides a check on the base RAM on the system board (up to 640 KB).</td>
<td>➢ Remove the memory and then re-insert it.</td>
</tr>
<tr>
<td><strong>Test Cache Memory</strong></td>
<td>This function provides a test on the low-level memory data and the low-level addresses in the external system cache in order to check its function.</td>
<td></td>
</tr>
<tr>
<td><strong>Test Extended Memory</strong></td>
<td>The &quot;Extended RAM Test&quot; provides a check on the extended RAM between 1 MB and 4 GB.</td>
<td></td>
</tr>
<tr>
<td><strong>Test Above 4 GB memory</strong></td>
<td>The &quot;Above 4 GB Memory Test&quot; enables you to check the extended RAM in the range above 4 GB.</td>
<td></td>
</tr>
<tr>
<td><strong>Test VGA RAM</strong></td>
<td>This test checks the graphics memory installed in the graphics card that is currently active.</td>
<td>➢ Replace the graphics card.</td>
</tr>
<tr>
<td><strong>Test VESA RAM</strong></td>
<td>This test enables you to check the text and graphics modes supported by a VESA compatible graphics card.</td>
<td>➢ Replace the graphics card.</td>
</tr>
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</table>
## 10.4.2 Sirona Windows Diagnostics

<table>
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<td>Processor(s)</td>
<td>Continuous load and testing of processor cores</td>
<td>➢ Replace the PC.</td>
</tr>
<tr>
<td>Motherboard Test</td>
<td>Continuous load and testing of mainboard functions</td>
<td>➢ Replace the PC.</td>
</tr>
</tbody>
</table>
| Stress Test Drive | Continuous load and testing of hard drive                                        | 1. Check the SATA cable of the hard drive.  
|                   |                                                                                  | 2. Check the cable of the hard drive power supply.  
|                   |                                                                                  | 3. Replace the hard drive including the hard drive cable.  |
| Memory Test       | Continuous load and testing of RAM                                              | ➢ Remove the memory and plug it back in.        |
| 2D test           | Continuous load and testing of the 2D properties of the graphics card            | ➢ Replace the graphics card.                    |
| Multimedia Test   | Continuous load and testing of the 3D properties of the graphics card            | ➢ Replace the graphics card.                    |
| USB Test          | USB Test (At least one USB human device must be connected, e.g. a keyboard,trackball,camera or UPS power supply) | ➢ Replace the PC.                               |
11 Appendix

11.1 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.

11.2 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.

11.2.1 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.

NOTICE

The front panel must remain open when completing the write operation.

NOTICE

Do not work with other programs and do not put the acquisition unit in the non-operative state during a write operation.

Checking the CD

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

**NOTICE**

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).
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