

cercon
smartceramics

Cercon[®] brain expert Instructions for use

Cercon smart ceramics –
the zirconium oxide
full ceramic system

These operating instructions help you to use the Cercon® brain expert, briefly referred to as the device, properly, safely and economically.

These operating instructions are aimed towards the following target groups:

- Persons who own the device,
- Persons who operate the device,
- Persons who clean the device,
- Persons who maintain the device,
- Persons who decommission the device,
- Persons who transport the device,
- Persons who store the device and
- Persons who store the device.

Each of these persons must have read and understood the contents of these operating instructions. The owner must make the operating instructions accessible to the above specified persons prior to use.

Comply with the binding accident prevention regulations which are applicable in the country of use and at the point of use.

Compliance with the instructions contained in these operating instructions helps to avoid dangers and to increase the reliability and the service life of the device.

Structural features in the text


Various elements within the operating instructions are provided with defined structural features. This enables the following elements to be easily distinguished:

Standard text

Cross-references

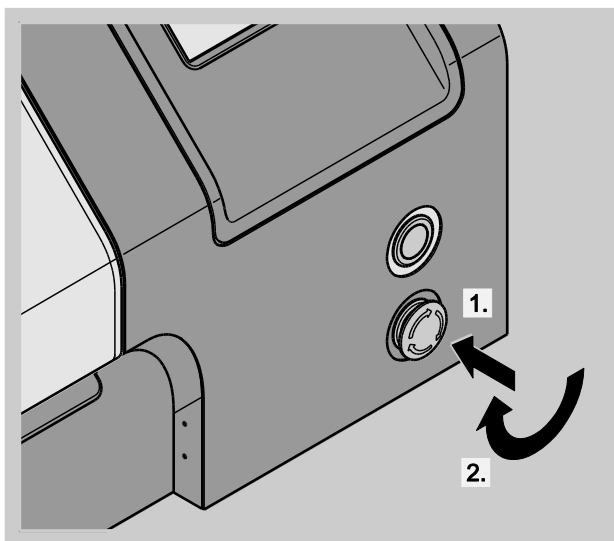
MENU AND BUTTON FIELD DESIGNATIONS

- Lists
- Action steps.

 These tips contain additional information such as special information on the economic use of the device.

Structural features in figures

The figures contain illustrations in various grey scales. Elements for a previously described action are emphasised in white. Executing movements are emphasised via movement or direction arrows. If several action steps are illustrated in a figure, the sequence is clarified by means of numbers (1., 2., ...):



If reference is made to elements in a legend or in the preceding text, these are provided with item numbers (1), (2):

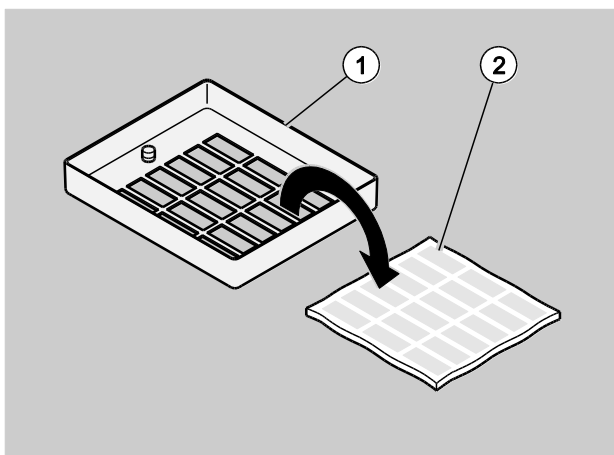


Table of contents

<p>Safety 5</p> <p>Duties of the owner 5</p> <p>Personnel selection and qualification 5</p> <p>Proper use 5</p> <p>Improper use 6</p> <p>Prohibition regarding independent conversions and modifications 6</p> <p>Notice regarding residual dangers 6</p> <p>Personal protective measures 6</p> <p>Fundamental safety instructions 7</p> <p>Structural features of the notes on dangers 9</p> <p>Structural features of the notes regarding material and environmental damage 9</p> <p>Unpacking and installing 10</p> <p>Scope of delivery and overview of the device 12</p> <p>Scope of delivery 12</p> <p>Front and rear view 13</p> <p>Securing attaching parts 14</p> <p>Safety facilities 17</p> <p>Main switch 17</p> <p>Emergency stop button 17</p> <p>Device hood 17</p> <p>Description 18</p> <p>Function 18</p> <p>Equipment features 18</p> <p>Workplace 18</p> <p>Control panel 19</p> <p>Data on the type plate 19</p> <p>Initially commissioning 19</p> <p>Prior to operation 20</p> <p>Fundamental operation 22</p> <p>Switching on 23</p> <p>Controlling the device via the Cercon® art computer software 23</p> <p>Controlling the device via the control panel 23</p> <p>Changing default settings 27</p> <p>Selecting cases 28</p>	<p>Inserting raw material 30</p> <p>Nesting cases 33</p> <p>Milling cases 34</p> <p>Cancelling a programme 36</p> <p>Following use 36</p> <p>Programme end 36</p> <p>Removing working results 37</p> <p>Switching off 40</p> <p>Cleaning 40</p> <p>Each time following operation 40</p> <p>Inadequate working results 42</p> <p>Externally visible soiling 43</p> <p>Maintenance 44</p> <p>Maintenance overview 45</p> <p>Checking and replacing filters 46</p> <p>Replacing milling cutters 47</p> <p>Replacing fuses 50</p> <p>Rectifying malfunctions or faults 52</p> <p>Decommissioning 58</p> <p>Transportation and storage 59</p> <p>Disposal 61</p> <p>Disposing of the packaging 61</p> <p>Disposing of the device 61</p> <p>Usable raw material 62</p> <p>Technical data 63</p> <p>List of standards 64</p> <p>Declaration of conformity 65</p> <p>Contacting the manufacturer 66</p> <p>Index 67</p>
---	---

Safety

This chapter contains information

- On proper use,
 - On improper use,
 - On the duties of the owner,
 - On basic safety instructions and
 - On residual dangers.
- Read this chapter through carefully before commissioning, operating or cleaning the device.
- Observe and comply with the notes on dangers and the safety instructions during all activities on the device.
- Enclose these operating instructions if the device is passed on.
- Observe the relevant operating instructions if optional accessories or optional devices are used.

Duties of the owner

- The owner must obtain an operating permit from the responsible authorities and must comply with the related laws and regulations, e.g.:
 - Personnel safety
 - Material safety
 - Disposal.
- The owner of the device must make sure that only qualified personnel operates and cleans the device.
- The owner of the device must make sure that the device is only operated under constant supervision by qualified personnel.
- The owner of the device must make the following documents accessible to the operating and cleaning personnel:
 - These operating instructions,
 - The relevant, applicable accident prevention regulations referring to the workplace,
 - Other nationally applicable regulations.

- The owner must ensure compliance with all notes on dangers and safety instructions.
- The owner must install suitable lamps for illuminating the device.
- The owner must clearly define the personnel's operating responsibilities.
- Personnel undergoing training, on-the-job training, familiarisation or on training courses may only operate the device under the constant supervision of a qualified person.

Personnel selection and qualification

The following qualifications are required to work on and with the device:

- Knowledge of processing ceramic materials and plastics from the field of dental technology.
- Completed dental technician training course.

Proper use

The device must only be used to process dental prostheses for humans.

The device must only be operated in commercial companies by qualified personnel.

The device must only be installed and operated in accordance with the technical data and the environmental conditions.

See Technical data, page 63.

The device is a milling unit. It is operated as a DeguDent CAD/CAM system component in dental laboratories. The operating instructions of all system components which are used must be observed.

The device must be operated with a Cercon® art PC and software.

The device must be operated with a class M suction unit (Cercon® clean).

The device must only be operated and cleaned under consideration of the legal regulations regarding personal protective clothing.

Proper use also includes observing and complying with all of the information in these operating instructions, particularly the fundamental safety information and notes on dangers.

All other use is regarded as improper.

The device must only be used for milling materials approved by DeguDent.

Improper use

The following cases constitute improper use:

- Milling raw materials other than those specified,
- Operation without a suction unit or with a suction unit which differs from that specified,
- Unsupervised operation,
- Operation by unqualified personnel and
- Without the personal protective clothing required in the regulations.

Improper use of the device may lead to personal injury and material damage.

DeguDent accepts no liability for damage which occurs as a result of improper use.

Prohibition regarding independent conversions and modifications

- Do not carry out any independent conversions or modifications on the device or accessories.
Conversions or modifications are impermissible without the approval of DeguDent.
- Never disassemble or dismantle the device or its components.

Notice regarding residual dangers

Sources of danger on the device have been eliminated as far as possible in design terms. Residual dangers may nevertheless arise during operation of the device.

Dangers to persons or impairments to the device and other material assets may occur if the device:

- is operated by unqualified personnel,
- is operated improperly,
- is cleaned improperly,
- is maintained improperly,
- is decommissioned improperly,
- is transported improperly,
- is stored improperly or
- is disposed of improperly.

Personal protective measures

- Make sure that all legal regulations regarding personal protective clothing are adhered to when operating the device.
- Make sure that working areas on the device are not cluttered.
- Make sure that working areas are adequately illuminated.

See Workplace, page 18.

Fundamental safety instructions

This section contains the fundamental safety instructions for handling the device.

- Comply with all fundamental safety instructions and notes on dangers contained in these instructions.
- The legal threshold limit value (TLV) for methylmethacrylate in Germany is 210 mg/m³. To ensure safe and sustainable compliance, the measured value must not exceed 25% of the TLV. This in turn requires that the room in which Cercon brain expert is used to process this material to have a volume of at least 28m³. In rooms with a smaller volume, the air exchange rate must be increased by a suitable HVAC installation.
- Check the device and all parts for visible damage. Contact DeguDent in the event of damage. The device must only be used in flawless condition.
- Always have a DeguDent service technician carry out repair and maintenance work.
- Make sure that the device is only initially commissioned by DeguDent service technicians.
- Make sure that the device is only transported by four persons using the intended carrying handles.
- Only use the device in dental laboratories.
- Make sure that the device is only operated under the supervision of qualified personnel.
- The device must only be installed and operated in accordance with the technical data and the environmental conditions.

See Technical data, page 63.

- Make sure that the instructions are available for perusal at the owner's premises. The owner must make sure that this information is accessible to the personnel working on the device prior to the start of work.
- Make sure that all legal accident prevention and environmental protection regulations are adhered to during all work on the device.

Avoiding dangers caused by electrical current

- Only operate the device if it is connected and fused according to the technical data.
- Do not operate the device with damaged electrical cables.
 - Do not kink or crush the electrical cables.
 - Do not expose the electrical cables to fluids such as e.g. leak detector spray.
 - Replace damaged electrical cables before switching the device on again.
- Always have a DeguDent service technician carry out repair and maintenance work.
- Only have work on the current supply carried out by a specialist electrician (under consideration of DIN 57100/VDE 0100, Part 701) who is familiar with the following:
 - Working on the voltage supply.
 - Working on electrical devices and components.
- The earthing contact plug must be freely accessible so that the device can be easily and quickly disconnected from the mains electricity in the event of an emergency.
- Keep the device dry
- Avoid exposing the device to dripping or splash water. Do not place objects filled with fluids, such as e.g. glasses, onto the hood of the device.
- The following must be observed when cleaning externally visible soiling:
 - Prior to cleaning, interrupt the current supply using the main switch.
 - Also remove the earthing contact plug from the mains electricity inlet.
 - Use a slightly moistened microfibre cloth.
 - Only use the cloth for this purpose.

See Externally visible soiling, page 43.

- Switch the main switch off in the event of malfunctions. Additionally remove the earthing contact plug from the mains electricity inlet.

Avoiding dangers caused by compressed air

- Keep the compressed air system in flawless condition and inspect it regularly.
- Have repair work on the device carried out by a DeguDent service technician only.

Avoiding fire hazards

- The device must only be operated on a load-bearing, even surface.
- The device must not be operated in an environment which is at risk from fire.
- Do not cover the device, and do not place any objects onto the hood of the device, e.g. covers or glasses.
- The device must not be installed or operated in the vicinity of combustible or explosive objects.

Avoiding dangers of suffocation

- Do not allow children to play with film or other parts of the packaging.
- Store the film or other parts of the packaging in a location which is inaccessible to children.

Avoiding risks of cutting injuries

- Never touch the milling cutter's blade
- Only touch the milling cutter in shaft area.
- Only store the milling cutter in the supplied containers.

Avoiding risks of respiratory tract, skin and eye irritation

Dusts or fine dusts, which cause respiratory tract, skin and eye irritation, may occur when working with zirconium dioxide.

- Make sure that the maximum workplace concentration (MAK) of 1 mg/m³ for zirconium dioxide is not exceeded.
- Make sure that MAK measurements for zirconium dioxide are carried out according to the German hazardous substances ordinance (GefStoffV) in

accordance with the German health and safety at work act.

- Avoid skin or mucous membrane contact with zirconium dioxide.
- Do not allow zirconium dioxide dusts to get into the eyes.
- When working with zirconium dioxide, wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Do not inhale or swallow zirconium dioxide dusts.
- When grinding zirconium dioxide, work with an extraction facility and wear a dust mask.
- Do not drink, eat or smoke when working with zirconium dioxide.
- Only use a class M suction unit approved by DeguDent (Cercon® clean) to extract the dusts.
- Make sure that the suction unit functions perfectly.
- Wash your hands and face thoroughly after working with zirconium dioxide and prior to breaks.
- Only have repair work on the device carried out by a DeguDent service technician.

Avoiding environmental damage

- Dispose of the device and its accessories according to the legal regulations.

Avoiding damage to the device

- The device must only be operated on a load-bearing, even surface. This must be suitable for absorbing any residual vibrations which occur.
- To guarantee adequate air circulation and filter maintenance, keep the device a minimum distance of 50 cm away from walls or objects.
- Keep the device a minimum height of 70 cm away from ceilings or objects.
- Do not expose the device to direct sunlight or other sources of strong light.
- Use only materials approved by DeguDent for milling.
- Only have repair work on the device carried out by a DeguDent service technician.

Avoiding inadequate working results

- The device must only be operated on a load-bearing, even surface. This must be suitable for absorbing any residual vibrations which occur.
- To guarantee adequate air circulation and filter maintenance, keep the device a minimum distance of 50 cm away from walls or objects.
- To obtain optimal milling results, adhere to a temperature range of 15–25°C. 20°C +/- 2°C are recommended.
- Do not expose the device to direct sunlight or other sources of strong light.
- Use only materials approved by DeguDent for milling.
- Only have repair work on the device carried out by a DeguDent service technician.

Structural features of the notes on dangers

These operating instructions contain the following categories of notes on dangers:



DANGER

Notes containing the word DANGER warn of a hazardous situation which leads to death or to severe injuries.



WARNING

Notes containing the word WARNING warn of a hazardous situation which may possibly lead to death or to severe injuries.



CAUTION

Notes containing the word CAUTION warn of a situation which may lead to slight or moderate injuries.

Structural features of the notes regarding material and environmental damage

ATTENTION!

These notes warn of a situation which may lead to material or environmental damage.

Unpacking and installing

The device is operated together with CAD/CAM system components, a Cercon® art PC and software.

- Observe the operating instructions of all system components which are used.
- The room where Cercon® base PMMA disks are manufactured in Cercon® brain expert must not have a room volume of less than 28m³. Should the room volume be lower the air exchange needs to be increased by additional technical room ventilation.
- If operating instructions are not available to you, contact DeguDent.

The device must only be installed and operated in accordance with the specified technical data and environmental conditions.

See Technical data, page 63.

- Check the Shockwatch® indicator mounted on the packaging.

This provides information on possible damage to the device.

- Follow the instructions on the Shockwatch® sticker.

This is located next to the Shockwatch® indicator on the packaging.



WARNING

Risk of injury due to transportation damage on the device or accessories and undersized rooms.

- If the Shockwatch® indicator is coloured red, follow the instructions on the Shockwatch® sticker.
- The room where Cercon® base PMMA disks are manufactured in Cercon® brain expert must not have a room volume of less than 28m³. Should the room volume be lower the air exchange needs to be increased by additional technical room ventilation.

ATTENTION

Scratched surfaces due to metallic, sharp-edged objects e.g. belt buckles or tools during transportation.

- Transport the device without coming into contact with sharp-edged objects.
- Only transport the device in the original packaging.

-
- Open the packaging.



CAUTION

Risk of injury due to the heavy device's falling down.

- Only transport the device with four persons using the intended carrying handles.
- Make sure that the four carrying handles are properly mounted on the device.
- Each person grips one of the four carrying handles on the sides of the device with both hands.
- Each person grips one carrying handle simultaneously with the left hand on the left-hand side and with the right hand on the right-hand side of the handle.

-
- Only transport the device with four persons using the intended carrying handles.

The device is supplied with four mounted carrying handles.

After installing the device, the carrying handles are removed and packaged by the DeguDent service technician.

The carrying handles remain with the owner of the device.

- ❗ To obtain optimal milling results, a temperature range of 15–25°C must be adhered to. 20°C +/- 2°C are recommended.

- Position the device, with the base of the device pointing down, on a load-bearing, non-combustible, even surface. This must be suitable for absorbing residual vibrations.
- To guarantee adequate air circulation and filter maintenance, keep the device a minimum distance of 50 cm away from walls or objects.
- Keep the device a minimum height of 70 cm away from ceilings or objects.
- Remove the box containing the accessories from the device packaging.

ATTENTION!

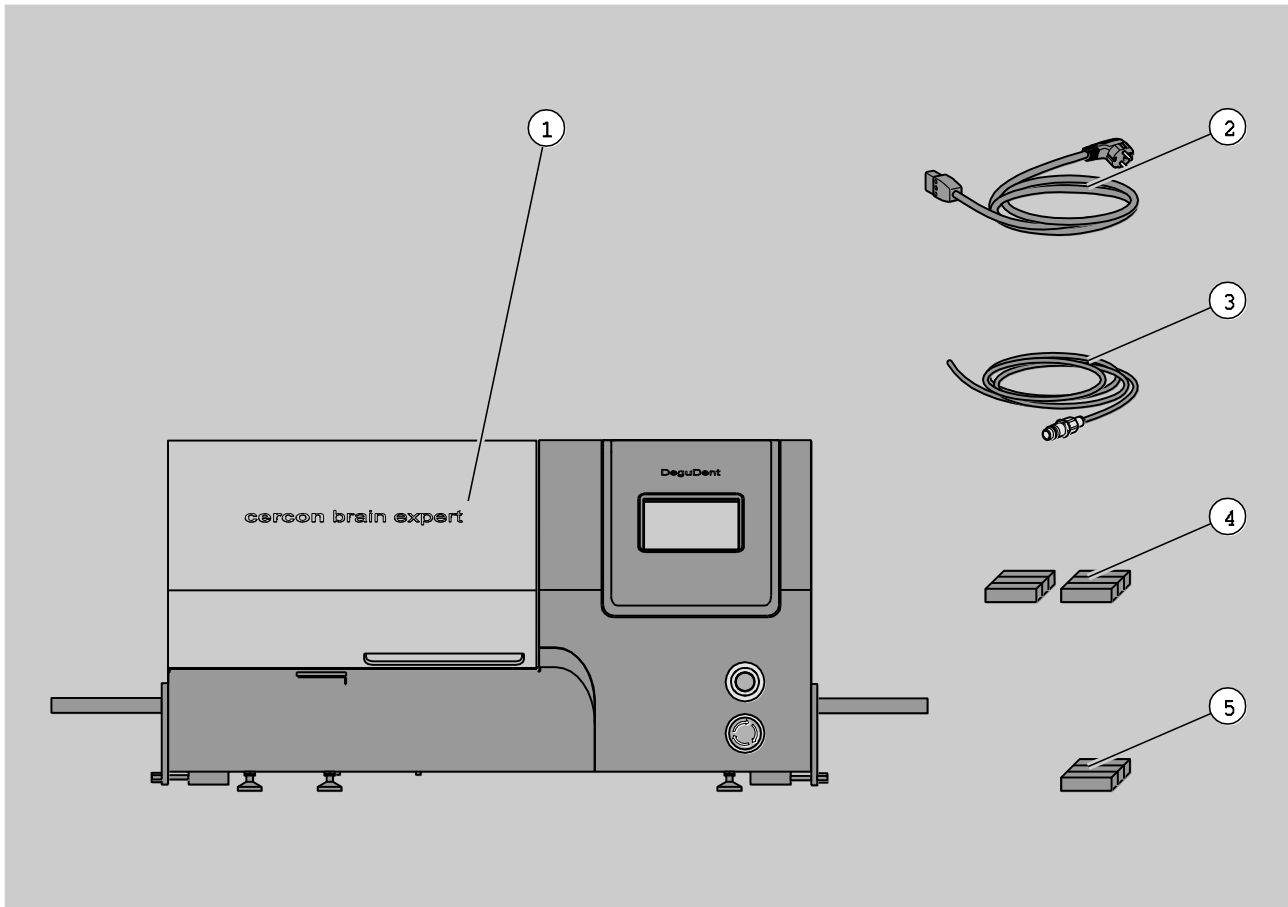
Damage due to sharp-edged objects e.g. belt buckles or tools during transportation.

- Transport the accessories without coming into contact with sharp-edged objects.

-
- Open the packaging for the accessories.
 - Remove the accessories from the packaging.
 - Remove the protective packaging for the accessories.
 - ❗ To prevent the device or the accessories from becoming damaged during subsequent transportation or storage, retain the original packaging for the device and the accessories.

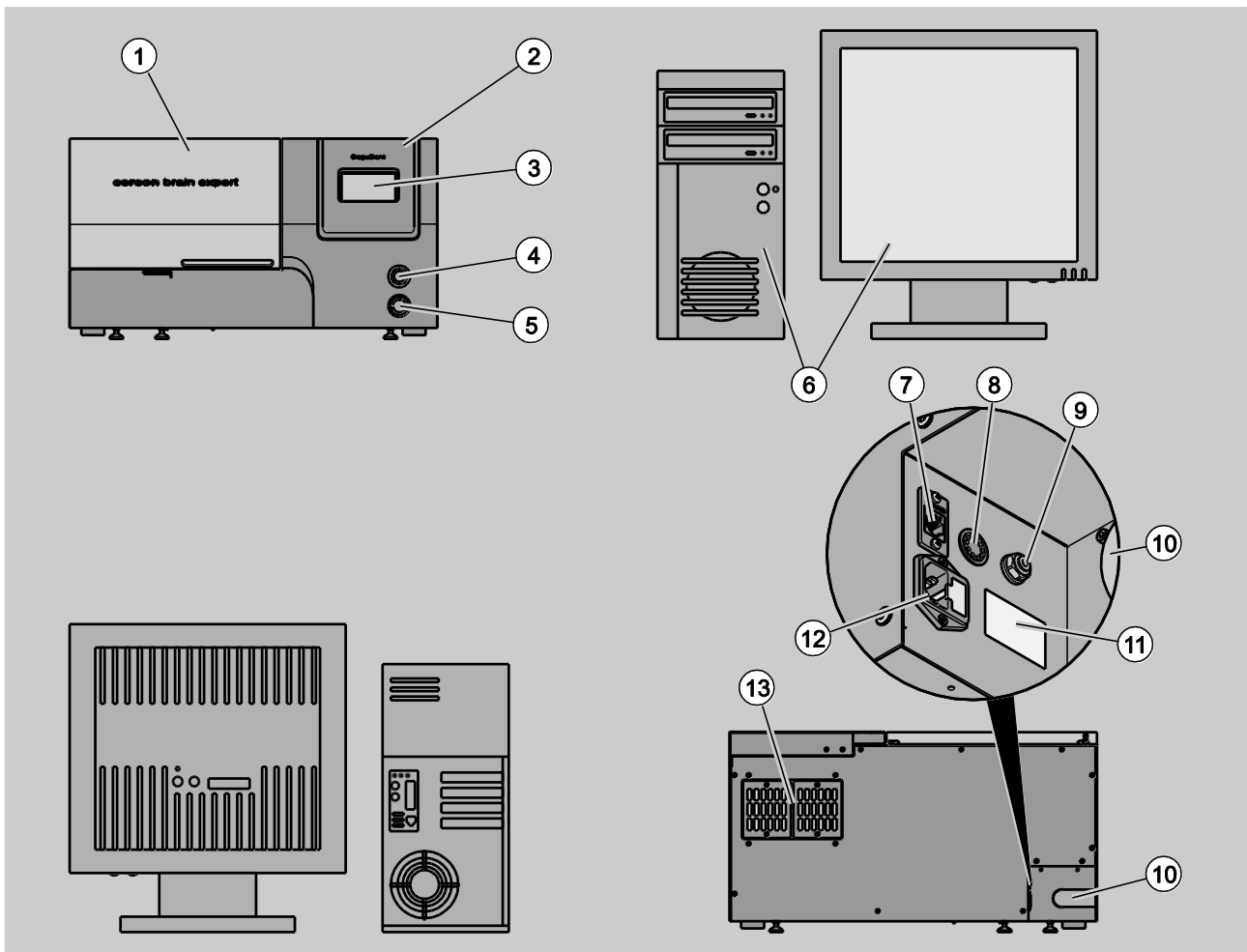
Scope of delivery and overview of the device

Scope of delivery



- | | | | |
|---|---|---|--|
| 1 | Device | 2 | Mains connection cable |
| 3 | Compressed air hose | 4 | Two milling cutters each for processing zirconium dioxide, with rated diameters of 1.0 mm, 2.0 mm and 3.0 mm |
| 5 | Two milling cutters for processing PMMA and cast, with rated diameters of 1.0 mm, 2.0 mm and 3.0 mm | | |

Front and rear view



- | | | | |
|----|---|----|--|
| 1 | Device hood | 2 | Control panel |
| 3 | Touch screen | 4 | Main switch |
| 5 | Emergency stop button | 6 | Computer and monitor (optional) |
| 7 | Network connection for computer control system | 8 | Suction unit connection for suction unit control cable |
| 9 | Compressed air connection for compressed air hose | 10 | Suction unit air outlet connection for suction unit hose |
| 11 | Type plate | 12 | Mains electricity inlet with fuse holder |
| 13 | Filter caps with filters | | |

➤ Check that the scope of delivery is complete.

See Scope of delivery, page 12.



WARNING

Risk of injury due to incomplete or damaged scope of delivery.

➤ If the device or other parts within the scope of delivery are damaged or missing, do not commission the device or other parts within the scope of delivery.

➤ Contact DeguDent in this case.

➤ If the device or other parts within the scope of delivery are damaged or missing, do not commission the device or other parts within the scope of delivery.

➤ Contact DeguDent in this case.

➤ Follow the operating instructions of all CAD/CAM system components which are used.

➤ If operating instructions are not available to you, contact DeguDent.

Securing attaching parts

The attaching parts must be secured to the device prior to commissioning the device:

- Suction unit hose
- Compressed air hose
- Suction unit control cable
- Mains connection cable.

The device must only be installed and operated in accordance with the specified technical data and environmental conditions.

See Technical data, page 63.

The device is operated together with the Cercon® brain expert PC.

➤ The device must be operated with a class M suction unit (Cercon® clean).

➤ Follow the operating instructions of all system components which are used.

➤ If operating instructions are not available to you, contact DeguDent.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



WARNING

Risk of injury due to incorrect or incorrectly adjusted optional accessories.

- Only use the optional accessories recommended by DeguDent.
 - Observe and comply with the operating instructions for the optional accessories.
-

ATTENTION!

Leaks due to tilting the attaching parts when securing on the device.

- Secure the attaching parts flush at the connections or apertures on the device.
- Check that the attaching parts are correctly seated on the device.
- If you discover that the attaching parts are tilted, correct their seating on the device.

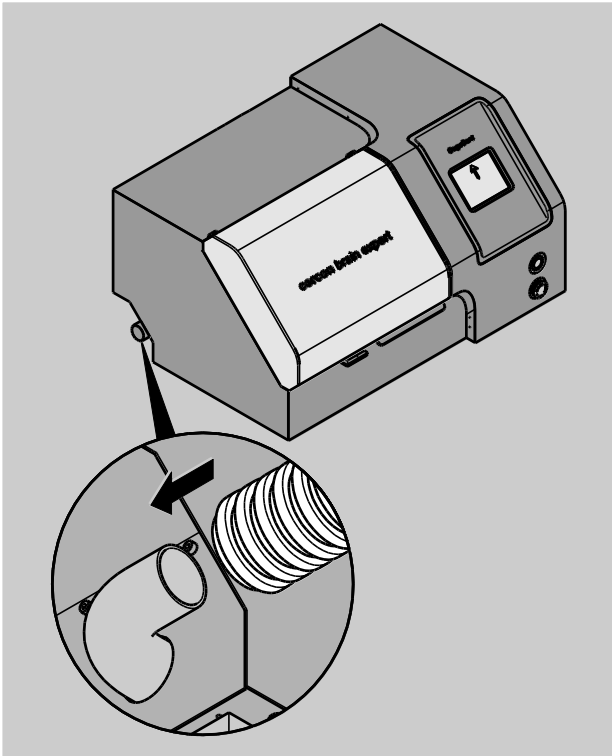
ATTENTION!

Device malfunctions due to a lack of or impermissible compressed air.

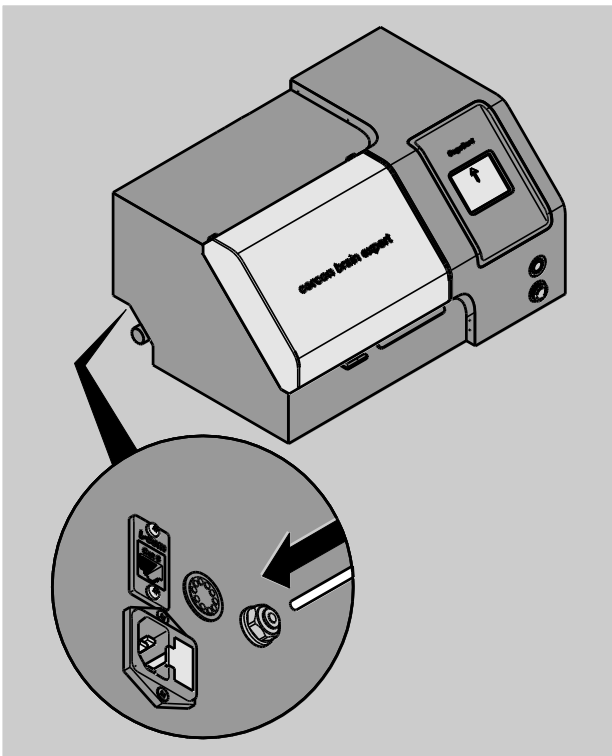
- Make sure that the compressed air supply is in accordance with the technical data (6.5–10 bar).
-

Securing attaching parts

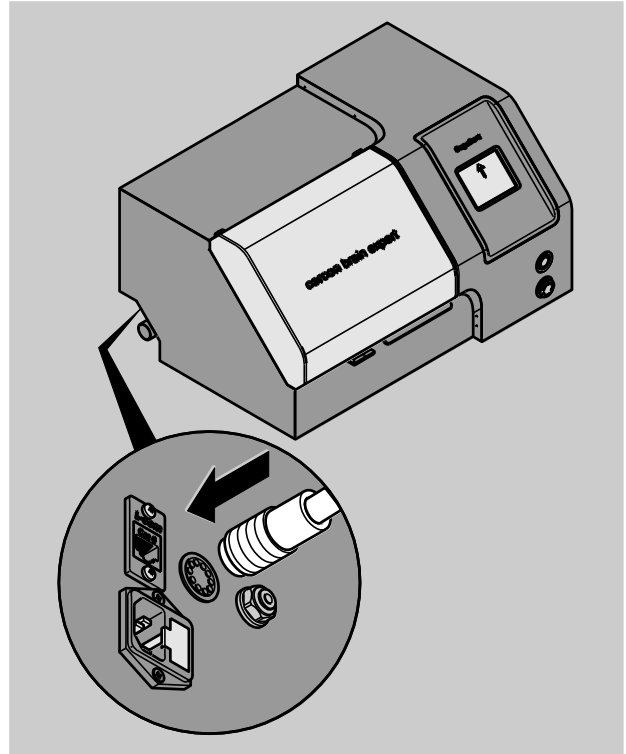
- Connect the suction unit hose onto the suction unit air outlet connection on the device.



- Make sure that the suction unit hose is seated firmly on the suction unit air outlet connection.
- Insert the compressed air hose into the compressed air connection opening.



- Make sure that the compressed air hose is seated firmly in the compressed air connection.
- Insert the suction unit control cable connector into the suction unit connection on the device.



- Make sure that suction unit control cable connector is seated firmly in the suction unit connection.
- Insert the network connector, with the bar pointing down, into the network inlet on the device.
The network connector engages.
- Insert the mains connector into the mains electricity inlet.

Safety facilities

Only use the device in technically flawless condition. All protective and safety facilities must function perfectly.

Main switch

The main switch (1) on the front side of the device can be used to switch the device on and off.

If the device is switched on, the main switch lights up white.

➤ Press the main switch to switch the device off.

The device is switched off. The main switch does not light up.

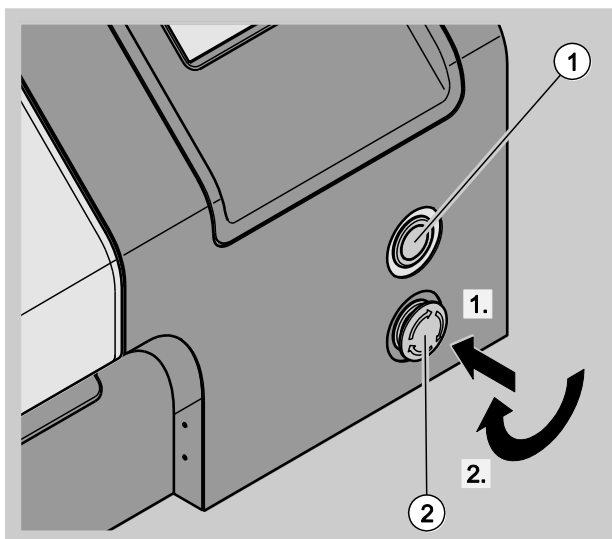
Emergency stop button

The emergency stop button (2) is used to brake the internal axes and spindles and to de-energise them.

➤ Press the emergency stop button.

The internal axes and spindles have been braked and de-energised. The button remains locked in its depressed position.

➤ To release the emergency stop button, press and turn the button in the direction of the arrow.

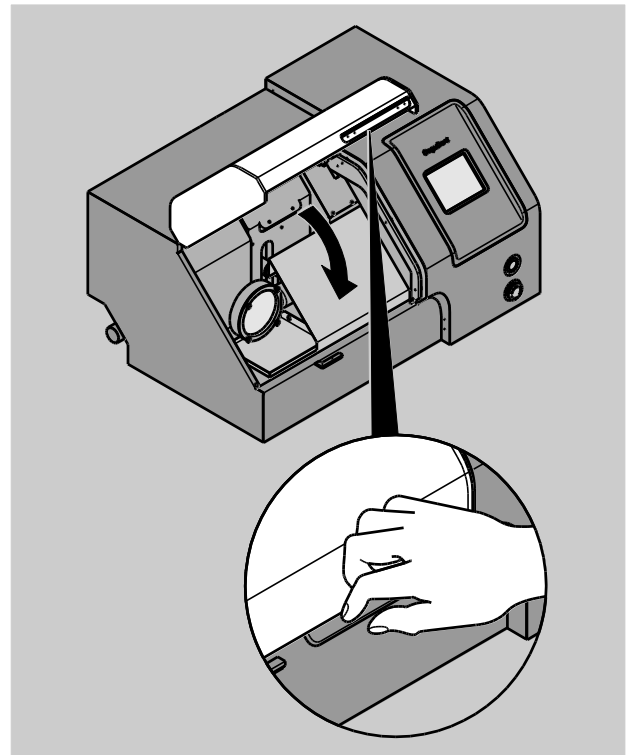


The emergency stop button pops out of the locking mechanism.

➤ In order to continue using the device, the device must be switched off and on again with the main switch.

Device hood

The device hood is used to protect you from injuries caused by moving parts of the device.



➤ Close the device hood before using the device.

ATTENTION!

Damage to the milling cutter and the raw material by opening the device hood during a milling process.

➤ Make sure that the device hood is closed during operation.

Description

Function

The device exclusively mills materials approved by DeguDent.

A class M suction unit (Cercon® clean) must be used to extract the dusts which occur. Use the connections on the left-hand side of the device for this.

The tool magazine, with nine tool shafts on the rear side of the moveable tool carriage in the device, is available for preparing the milling cutter for the milling process.

The device is a milling machine. The device is used as a CAD/CAM system component for processing human dental prostheses. The system components are controlled via an optional computer, the Cercon® art software and a monitor.

- Comply with the operating instructions of all of the system components which are used.
- If operating instructions are not available to you, contact DeguDent.

The network connection on the left-hand side of the device must be used to connect the device to the computer.

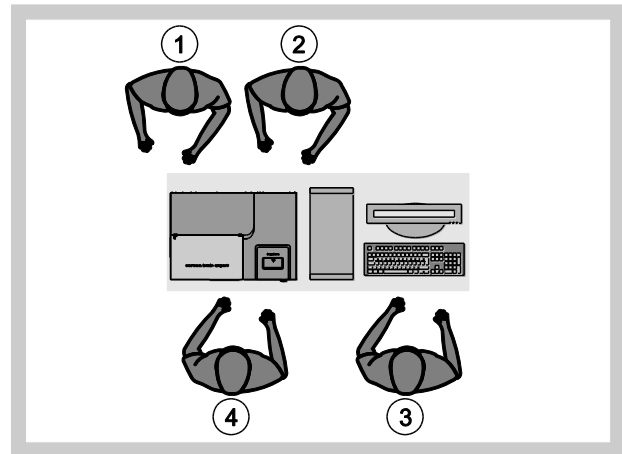
Equipment features

- CAD/CAM system integration via optional computer control system,
- Language selection,
- Milling area illumination,
- Device control via touch screen,
- Milling programme status display,
- Tool magazine with nine tool shafts plus
- Optimal object nesting.

Workplace

Assume one of the following operating positions depending on the activity.

View of the workplace from above:



- The operator connects the current supply, the dust extraction facility, the compressed air supply and the computer connection for the device (1).
- The operator switches the device's filters and controls the current supply for the optional computer and monitor (2).
- The operator controls the computer software (3).
- The operator controls raw material processing (4).

Control panel

ATTENTION!

Damage to the control panel due to sharp objects.

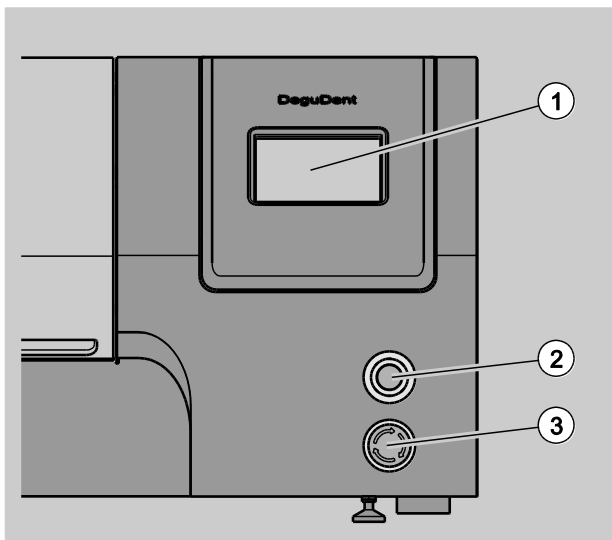
- Always touch the control panel elements with a finger or another blunt object.

ATTENTION!

Damage to the touch screen due to high temperatures or exposure to intensive sunlight.

- Do not expose the touch screen to high temperatures or intensive sunlight.

The control panel provides the following control elements:



- | | | | |
|---|-----------------------|---|-------------|
| 1 | Touch screen | 2 | Main switch |
| 3 | Emergency stop button | | |

Data on the type plate

The type plate is mounted on the left-hand side of the device.

The following data can be found on the type plate:

- Device designation
- Serial number
- Year of construction
- Mains voltage
- Frequency
- Power consumption
- Manufacturer's address
- CE identification
- Disposal identification.

Initially commissioning

The device must only be installed and operated in accordance with the specified technical data and environmental conditions.

See Technical data, page 63.

- The device must be operated with a class M suction unit (Cercon® clean).
- Comply with the operating instructions of all CAD/CAM system components which are used.
- If operating instructions are not available to you, contact DeguDent.
- Make sure that the device's location has been selected in accordance with the instructions on installing the device.

See Unpacking and installing, page 10.

- Make sure that the attaching parts are connected correctly.

See Securing attaching parts, page 14.

If the device is brought from a cold to a warm environment, moisture may form inside the device.

ATTENTION!

Damage to the device functions due to moisture in the device.

- Make sure that no moisture is contained in the device.
- Wait for approximately one hour before commissioning the device.

-
- Connect the device to a mains electricity inlet using the earthing contact plug.
 - Press the main switch.

The device is switched on; the main switch lights up white.

- Switch on the class M suction unit (Cercon® clean).
- Comply with the suction unit's operating instructions.

See Prior to operation, page 20.

Prior to operation

- Make sure that the device's location has been selected in accordance with the instructions on installing the device.

See Unpacking and installing, page 10.



DANGER

- Regularly check the compressed air system for defective hoses and connections.
- Contact DeguDent in the event of damage.

-
- Make sure that the attaching parts are connected properly.

See Securing attaching parts, page 14.

- The device must be operated with a class M suction unit (Cercon® clean).
- Comply with the operating instructions of all CAD/CAM system components which are used.
- If operating instructions are not available to you, contact DeguDent.

A compressed air pressure reducer with an integrated, reverse controllable compressed air regulator is installed to establish the operating pressure.

- Make sure that no moisture is contained in the device.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



WARNING

Risk of injury due to incorrect or incorrectly adjusted optional accessories.

- Only use the optional accessories recommended by DeguDent.
- Observe and comply with the operating instructions for the optional accessories.

- Connect the device to a suitable mains electricity inlet with the earthing contact plug.

See *Technical data*, page 63.

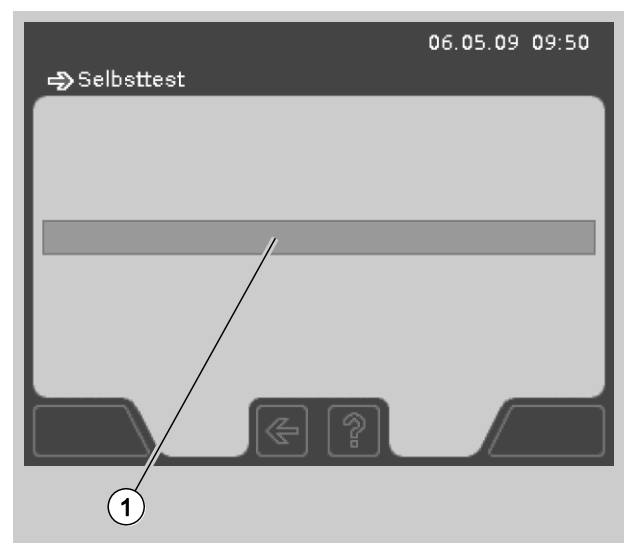
- Press the main switch.

The device is switched on; the main switch lights up white.

- Switch on the class M suction unit (Cercon® clean).
- Comply with the suction unit's operating instructions.

Each time after being switched on, the device automatically carries out a self-test.

The following is displayed:



The progress bar (1) shows the temporal progression of the self-test on the touch screen.

The device's functions are checked during the self-test. Malfunctions are displayed on the touch screen.

- If malfunctions are displayed, check the malfunction messages on the basis of the malfunction table.

See *Rectifying malfunctions or faults*, page 52.

- If you are unable to rectify malfunctions on the basis of the notes on rectifying malfunctions in the malfunction table, contact DeguDent.

Fundamental operation

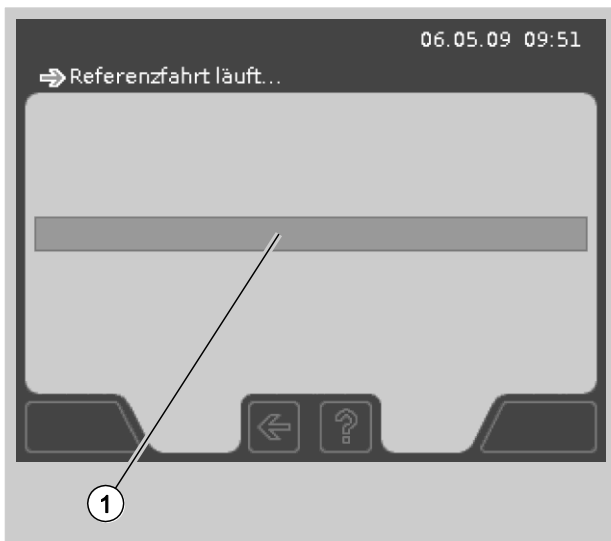
Following a successful self-test, you are requested to start referencing.

The following is displayed:



➤ To start referencing, press START.

The following is displayed:



The progress bar (1) shows the temporal progress of referencing on the touch screen.

During referencing, the functional capability of all moving parts is checked automatically. Malfunctions are displayed on the touch screen.

➤ If malfunctions are displayed, check the malfunction messages on the basis of the malfunction table.

See *Rectifying malfunctions or faults*, page 52.

➤ If you are unable to rectify malfunctions on the basis of the notes on rectifying malfunctions in the malfunction table, contact DeguDent.

The device is ready for operation following the successful completion of referencing.

The following is displayed:



➤ Select the control panel's switches and buttons to control the device.

See *Fundamental operation*, page 22.

Fundamental operation

This chapter provides an overview of the device's operation and control options.

The device is integrated, as a milling unit, into the DeguDent CAD/CAM system and is controlled via programmes.

➤ Comply with the operating instructions of all CAD/CAM system components which are used.

The Cercon® art software which is installed on the computer can additionally be used to control the device.

➤ Comply with the Cercon® art software's operating instructions.

Controls for controlling the device and menus for controlling programmes via the touch screen are available in the device's control panel.

See Controlling the device via the control panel, page 23.

ATTENTION!

Damage to the control panel due to sharp objects.

- Always touch the control panel elements with a finger or another blunt object.

ATTENTION!

Damage to the touch screen due to high temperatures or exposure to intensive sunlight.

- Do not expose the touch screen to high temperatures or intensive sunlight.

The device is delivered pre-set and can be used with programme control.

See Changing default settings, page 27.

Switching on

- Make sure that the device's location has been selected in accordance with the instructions on installing the device.
- Make sure that the attaching parts are connected properly.
- To switch the device on, press the main switch.

The device is switched on; the main switch lights up white.

Controlling the device via the Cercon® art computer software

The device is integrated as a milling unit into the DeguDent CAD/CAM system.

The device is controlled in the following areas via the Cercon® art software installed on the optional computer:

- Case selection
- Case nesting
- Case milling
- Device actuation.

Cases for a milling process can be stored and selected on the optional computer.

- Select the Cercon® tools icon on the monitor.

Cases for a milling process can be nested and milled on the raw material, and the device can be actuated.

- Select the Cercon® art icon on the monitor.
- Comply with the operating instructions of the optional computer and the Cercon® art software.

Controlling the device via the control panel

ATTENTION!

Damage to the control panel due to sharp objects.

- Always touch the control panel elements with a finger or another blunt object.

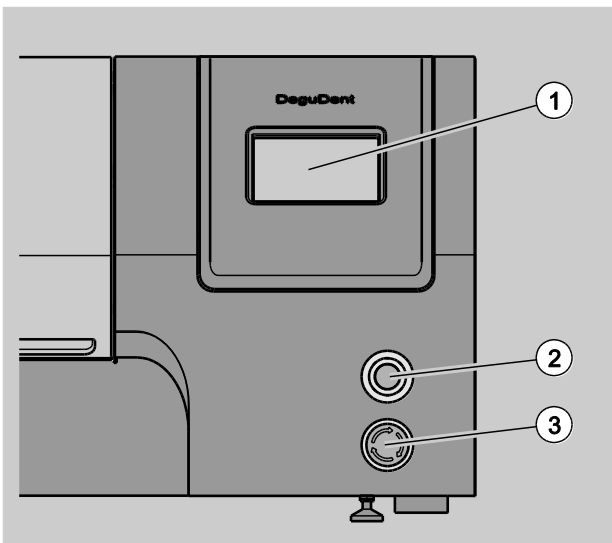
ATTENTION!

Damage to the touch screen due to high temperatures or exposure to intensive sunlight.

- Do not expose the touch screen to high temperatures or intensive sunlight.
-

Fundamental operation

The following control elements for controlling the device are available in the control panel:

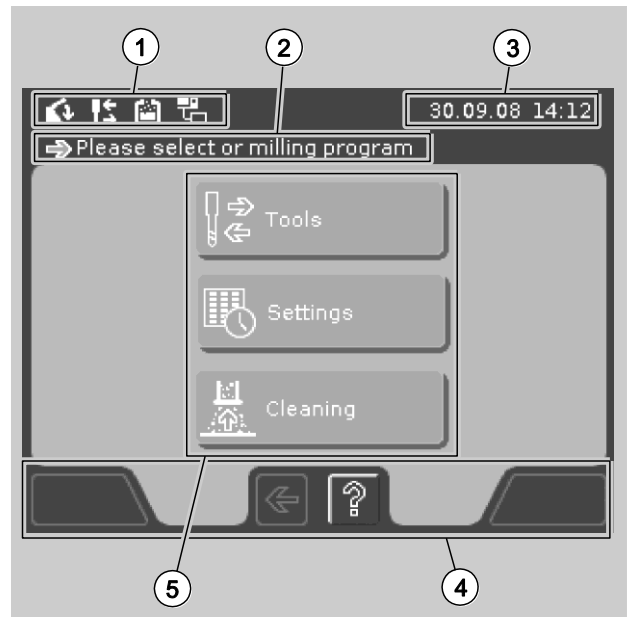


- 1 Touch screen 2 Main switch
- 3 Emergency stop button

Designation	Result
Touch screen (1)	The device is controlled via menus and button fields.
Main switch (2)	Switches the device off. <i>See Safety facilities, page 17.</i>
Emergency stop button (3)	Brakes the internal axes and spindles and de-energises them. <i>See Safety facilities, page 17.</i>

The touch screen can be used to control the device via menus and button fields.

The following figure shows an example of the main menu and the function areas on the touch screen.







- 1 Symbol display during operation 2 Action instruction for the current selection
- 3 Current date and time display 4 Menu and function control
- 5 Menu selection, current programme status

The following areas are displayed on the touch screen:

- Symbol display during operation (1)
- Action instruction for the current selection (2)
- Display of the current date and the current time (3)
- Area for fundamental menu and function control via button fields (4)
- Area for menu selection and for displaying the current programme status (5).

The symbol display in the upper area of the touch screen (1) provides information on the next action steps.

If an action is required, the symbol for the action alternately flashes white and orange:

Symbol	Explanation
	<p>The device hood is open.</p> <p>Close the device hood.</p>
	<p>At least one milling cutter has been used for 90 milling units.</p> <p>Make sure that milling cutters are used for a maximum of 100 milling units.</p> <p><i>See Replacing milling cutters, page 47.</i></p>
	<p>The suction unit's vacuum bag is full.</p> <p>Make sure that the suction unit functions perfectly.</p> <p>Comply with the operating instructions for the suction unit.</p>
	<p>There is no connection to the CAD/CAM system's control system.</p> <p>Make sure that connection to the CAD/CAM system's control system is established and the Cercon® art software is started.</p> <p>Comply with the operating instructions of all of the system components which are used.</p>

The button fields in the lower area of the touch screen (4) can be used to fundamentally control the menus and functions:

Button field	Explanation
START	Start referencing.
OK	Confirm the current selection.
CANCEL	Cancel the current process.
ARROW LEFT	Switch to the previously displayed menu.
"?" symbol	Display of information and help for the current programme status in an additional window.

Main menu	Menu or button fields	Explanation
Tools	Define the assignment of the tool magazine and milling cutter data: <i>See Replacing milling cutters, page 47.</i>	
	Button fields 1–9	Select the milling cutter via magazine assignment. Input milling cutter diameter and milling cutter type via button fields after selecting the milling cutter.
	Tools	Shows the current assignment of the tool magazine and the status of the tools.
Settings	Define the fundamental settings: <i>See Changing default settings, page 27.</i>	
	Language	Select the language for the device software.
	Time	Set the currently displayed time.
	Date	Set the currently displayed date.
Cleaning	Control the suction unit and tool carriage: <i>See Cleaning, page 40.</i>	
	Off	Switch off the suction unit.
	On	Switch on the suction unit.
	Pos. 1	Move the tool carriage to the left.
	"House" symbol	Move the tool carriage to the central position.
	Pos. 2	Move the tool carriage to the right.

Changing default settings

Default settings have been carried out in the following areas for the device:

- Basic settings for the device and device software, e.g. language: German.
- Tool magazine loading.

Selecting the language

The language can be adapted via the main SETTINGS menu.

- To adapt the language for the device software, select LANGUAGE.

The following is displayed:



The following languages can be selected:

- German
- English
- Polish
- French
- Italian
- Spanish.

- Press the button field corresponding to your language selection.

The selected language is marked with a white edge.

- To switch to the main menu, press ARROW LEFT.

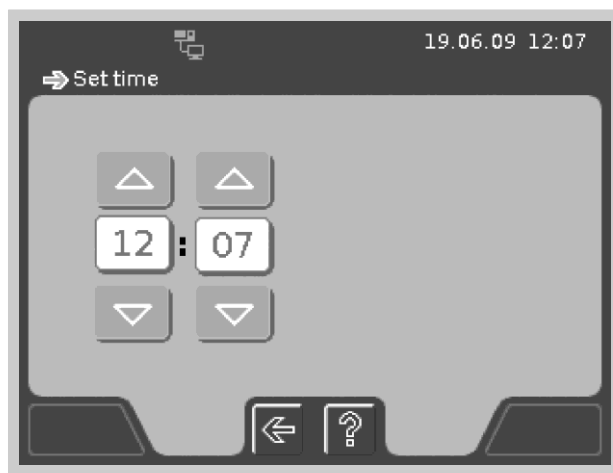
The device software is displayed in the selected language.



Setting the time and date

The time and date can be adapted via the main SETTINGS menu.

- To adapt the currently displayed time, select TIME.

The following is displayed:



Symbol	Explanation
	Increase the hours or minutes
	Reduce the hours or minutes

- Set the desired time.

The OK button field is active.

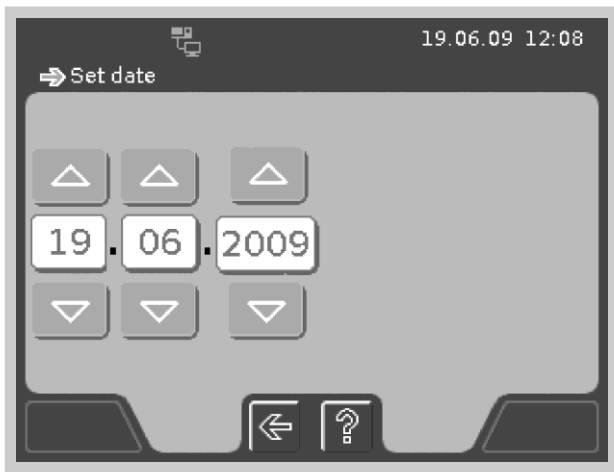
- To confirm your selection, press OK.
- To switch to the main menu, press ARROW LEFT.



The set time is displayed.

Selecting cases

- To adapt the currently displayed date, select DATE.

The following is displayed:



Symbol	Explanation
	Increase the day, month or year
	Reduce the day, month or year

- Set the desired day, month or year.

The OK button field is active.

- To confirm your selection, press OK.
- To switch to the main menu, press ARROW LEFT.

The set date is displayed.

Selecting cases

This chapter explains how to select or deselect cases.

- Comply with the operating instructions of the optional computer, the monitor and the Cercon® art software.

The automatic sequence of the milling programmes is oriented towards the cases which are selected and the raw material which is used.

See Usable raw material, page 62.

A dental prosthesis (bridge or crown) is referred to as a case. A crown consists of one unit and a bridge of up to 16 units.

The cases are designed via Cercon® art and are saved as data records.

Prior to processing with the device, the cases must be available as data records on a USB stick and must be stored on the optional computer.

- Insert the USB stick containing the case data into the USB input on the optional computer.

Via Cercon® tools the data will be shown on the monitor in a table. The table shows all of the cases available on the USB stick including the relevant data.

A case can be selected for a milling process and stored on the computer.

- Click onto the square in front of the desired case in the table using the left mouse button.

A tick in the square confirms the selection of a case.

- Select the SAVE button.

The selected case is stored on the computer and is available for selection for a milling process.

- Remove the USB stick from the USB connection.
- Switch to the CAD/CAM system's control system, by closing Cercon® tools.

The icons for the CAD/CAM system's control system are displayed on the monitor.

- To select cases for a milling process, select the Cercon® art icon.
- To select cases stored on the computer, select "Existing case" in the prompt.

The table containing all cases stored on the computer is displayed.

The following options are available for selecting a case for a milling process:

- Click onto the desired case in the table using the left mouse button.

In addition to the case table, a window containing the data for the selected case is displayed.

- To actuate the device for the milling process, select ARROW RIGHT at the lower edge of the monitor.

- To directly actuate the device for the milling process, double click onto the desired case in the table using the left mouse button.

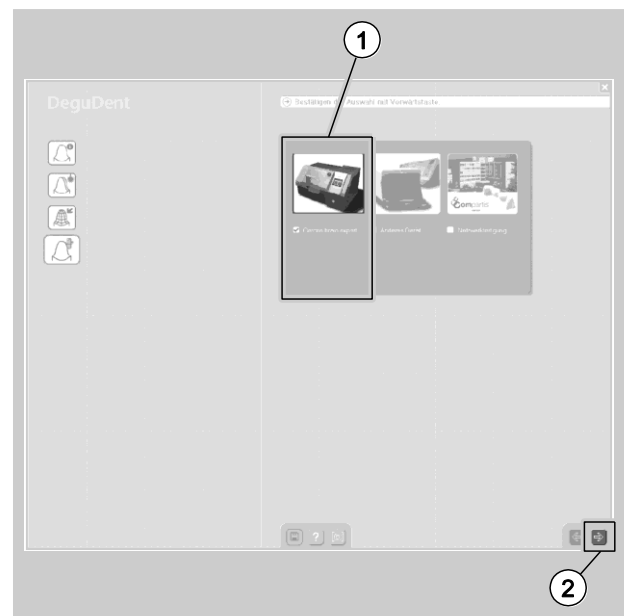
The selectable components are displayed on the monitor.

The following options are available for selecting the device:

- Click onto the square in front of Cercon® brain expert (1) using the left mouse button.

A tick in the square confirms the selection of the device.

- To confirm your selection, select ARROW RIGHT (2).



- To directly actuate the device for the milling process, double click onto the depiction of the device using the left mouse button.

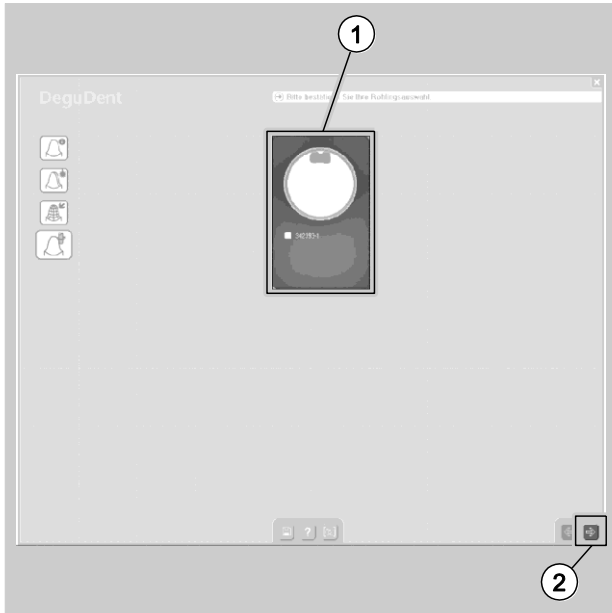
- Insert the raw material into the device.

See *Inserting raw material*, page 30.

Inserting raw material

- Insert the USB stick for the raw material which is used into the USB input on the supplied computer.

The following is displayed:



The number and the status of the raw material are displayed (1).

- In order to nest cases after checking the raw material numbers, select ARROW RIGHT (2).
 - Or double click onto the depiction of the raw material using the left mouse button.
- Check the numbers of the raw material as follows:
- Compare the raw material number displayed on the touch screen with the number of the sticker on the blank.
 - Press OK to confirm that the numbers correspond.
 - In the event of a deviation, press CANCEL.
 - Only use a USB stick and raw material with corresponding numbers
 - If you have inserted the incorrect raw material, insert the raw material with the correct number.
 - If you have inserted the incorrect USB stick, insert the USB stick with the correct number.
 - Repeat the process and select the cases again.



Once you have confirmed that the raw material numbers correspond with OK, the cases can be nested.

See Nesting cases, page 33.

Inserting raw material

Selected and nested cases can be milled from raw materials.

- Use only materials approved by DeguDent for milling.
- See Usable raw material, page 62.*
- Remove the raw material from the packaging.
 - Comply with the operating instructions for the raw material.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.

ATTENTION!

Damage to the device due to the use of impermissible raw materials.

- Use only materials approved by DeguDent for milling.
- Contact DeguDent.

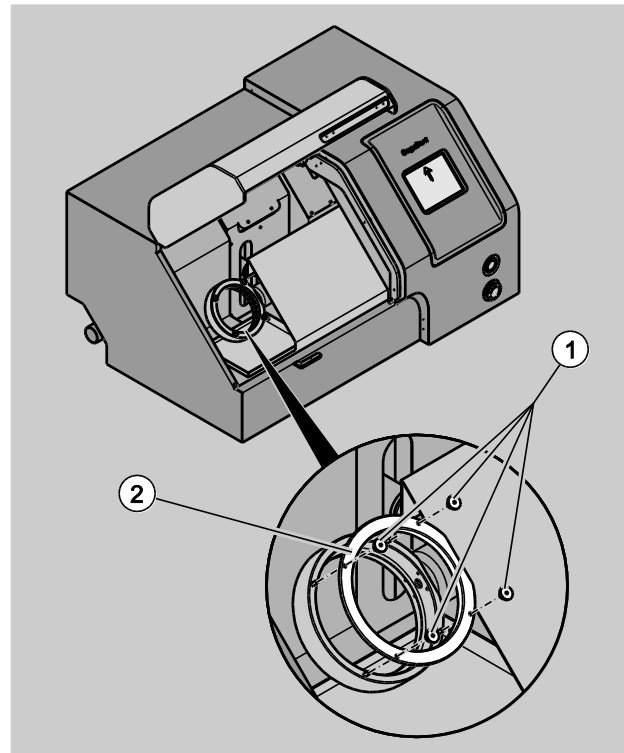
ATTENTION!

Damage to working results due to touching the milled objects.

- Only touch the processed blank where the raw material has not been processed.
- Hold the blank by the surrounding ring.

Proceed as follows to insert the raw material:

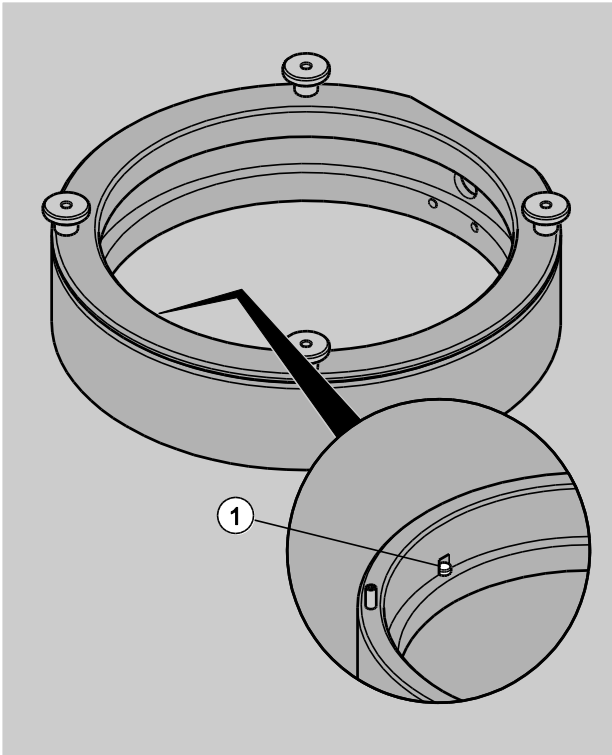
- Open the device hood.
- Unscrew the raw material holder cover's screws counter-clockwise out of the raw material holder's threads (1).
- Remove the screws from the cover (2).
- Remove the cover from the raw material holder.



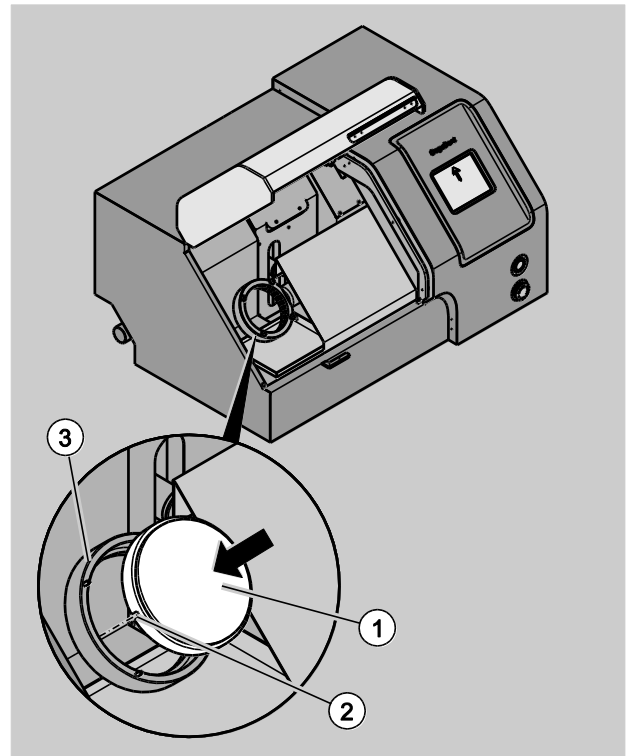
Inserting raw material

A recess is located on one side of the raw material in order to insert the raw material correctly.

A raised section is present in the raw material holder (1) to match the recess in the raw material.



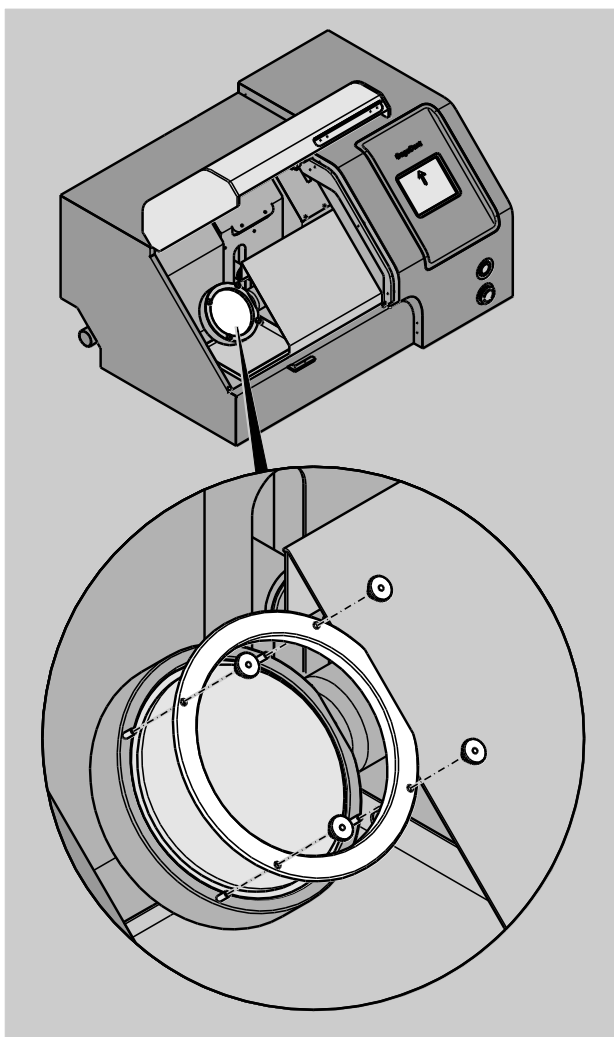
➤ Insert the raw material, with the recess pointing down, into the raised section of the raw material holder.



- 1 Raw material
- 2 Recess in the raw material
- 3 Raw material holder

In order to insert the raw material holder cover correctly, it is equipped with a ring insert and is flattened on one side.

- Place the raw material holder cover, with the ring insert pointing down, onto the raw material holder in such a way that the flattened edge points in the direction of the tool magazine.



The threads for the screws penetrate through the raw material holder cover.

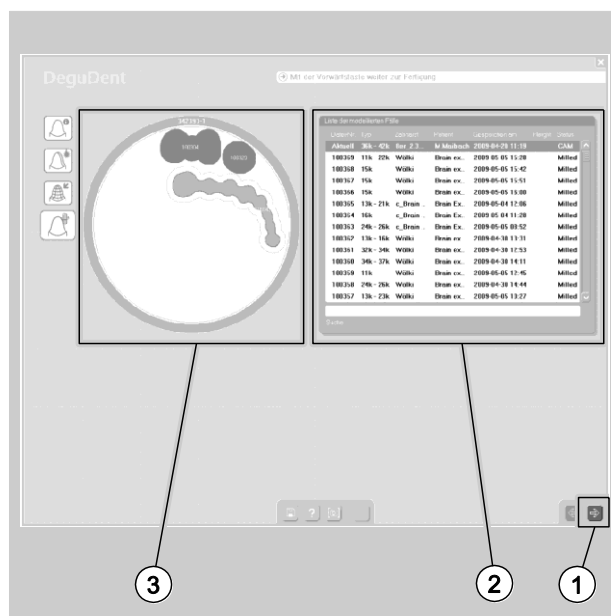
- Place the screws onto the raw material holder threads.
- Screw the screws clockwise onto the raw material holder cover.
- Close the device hood.

Nesting cases

This chapter explains how to position selected cases for the milling process on the blank:

- Automatic nesting (default setting)
 - Manual nesting.
- Comply with the operating instructions of the optional computer, the monitors and the Cercon® art software.

After selecting the cases and checking the raw material numbers, the following is displayed on the monitor:



The left-hand area of the display (3) shows the raw material with the selected and positioned cases and those cases which have already been milled.

Selected cases are depicted in light grey with a red border and cases which have already been milled are depicted in dark grey.

The table in the right-hand area of the display (2) shows those cases which have been saved on the computer via the USB stick.

- To start the milling process, select **ARROW RIGHT** (1).

The cases are automatically nested on the blank from top to bottom.

Proceed as follows to change the position of a case and to nest it manually:

- To select the desired case, click onto the case in the table using the left mouse button.

The selected case in the table receives a black background and is depicted in light grey with a red border in the depiction of the raw material.

- Select the case in the depiction of the raw material using the left mouse button.

A case can be shifted to another position.

- Keep the left mouse button depressed and drag the case to the desired point on the blank.
- Release the mouse button.
- To rotate a case to the right around its centre, rotate the mouse's scroll wheel upwards.
- Release the mouse button.
- To rotate a case to the left around its centre, rotate the mouse's scroll wheel downwards.
- Release the mouse button.

The case's changed position is displayed.

- To confirm the positions of the cases for the milling process and to start the milling process, select ARROW RIGHT.

The following is displayed:



The milling process is calculated by the Cercon® art software before starting.

See Milling cases, page 34.

Milling cases

This chapter provides an overview of the options for milling cases:

- Milling crowns
- Milling bridges.

- Comply with the operating instructions of the optional computer, the monitor and the Cercon® art software.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.

- Make sure that you have complied with all instructions for commissioning the device.
- Make sure that you have complied with all instructions for inserting the raw material.

After selecting and nesting the cases, the milling process is started.

During the milling process the milling area is illuminated.

The automatic sequence of the milling programmes is oriented towards the selection of the cases and the raw material which is used.

ATTENTION!

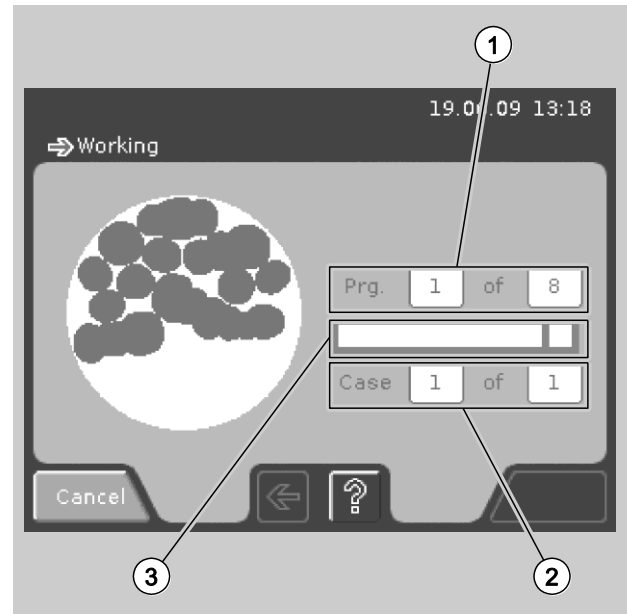
Damage to the milling cutter and the raw material by opening the device hood during a milling process.

- Make sure that the device hood is closed during operation.

The following is carried out automatically:

- During the milling programme sequence, the milling cutters which are used are changed.
- When milling crowns, several milling programmes are worked through in succession.
- When milling bridges, the necessary milling programmes are worked through in succession.
- The current processing status is displayed on the touch screen.

The following figure shows an example of the current processing status of the first of eight milling programmes:



- | | |
|---|--|
| <p>1 Number of the programme currently being processed and total number of programmes</p> <p>3 Progress bar for the current processing status</p> | <p>2 Number of the case currently being processed and total number of selected cases</p> |
|---|--|

After each milling programme, the functional capability of the relevant milling cutter is automatically checked.

If a milling cutter is defective, this is displayed via a corresponding message on the touch screen.

- If the message is confirmed with SISTER TOOL, a sister tool is automatically used.
- If no sister tool is available, this is displayed via a corresponding message on the touch screen.
- Confirm this message with ARROW LEFT.
- Replace the milling cutter.

See Replacing milling cutters, page 47.

Cancelling a programme

When the milling process has been completed successfully, this is displayed via a tick on the right next to the progress bar on the touch screen.

The main menu is then automatically displayed on the touch screen.

The working result can be removed or a further case can be selected for a milling process via the Cercon® art software.

See Selecting cases, page 28.

Cancelling a programme

Cancel a programme under the following conditions:

- If the device has been commissioned improperly,
- If the device, parts of the device or cables are damaged,
- If the device has not been installed and operated in accordance with the technical data and environmental conditions,

See Technical data, page 63.

- If malfunctions are ascertained in a milling programme,
 - If a milling cutter becomes stuck in the raw material during a milling programme,
 - If a milling cutter is damaged during a milling programme.
- To cancel programmes which are running, select CANCEL.
- The programme which is running is cancelled.
- Rectify the cause of programme cancellation.
- Restart the programme.
- If it is not possible to rectify the cause of programme cancellation, contact DeguDent.

Following use

This chapter provides information on what to do after operating the device and on completion of the programmes.

Programme end

All milling programmes are automatically ended on replacing the last milling cutter which has been used in the tool magazine and inserting the dummy milling cutter.

The end of a milling programme is displayed via the following signals:

- The device hood audibly unlocks.
- The connected suction unit is switched off.
- The illumination for the working area in the device is switched off.
- The main menu is displayed on the touch screen.
- The message "Object can be removed." is visible on the monitor of the optional computer.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

- Open the device hood completely.
- Only remove the working results once the device hood has been opened completely.

See Removing working results, page 37.

- Each time following operation, remove any zirconium dioxide dusts which are present using the suction unit.

See Cleaning, page 40.

Removing working results

- Only remove the working results when the end of the programme is displayed via the message "Object can be removed." on the optional computer's monitor.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
- Adhere to the maintenance intervals.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

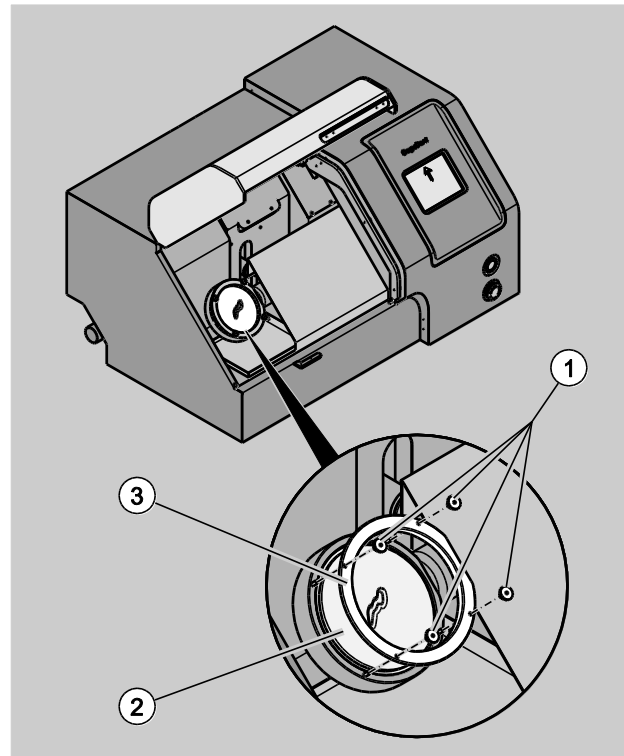
ATTENTION!

Damage to the milling cutter and the working result due to an incompletely opened device hood.

- Only remove the working results once the device hood has been opened completely.

Proceed as follows to remove the working results (2):

- Open the device hood completely.
- Unscrew the screws in the raw material holder cover counter-clockwise out of the threads in the raw material holder (1).
- Remove the screws from the cover (3).
- Pull the cover off upwards.

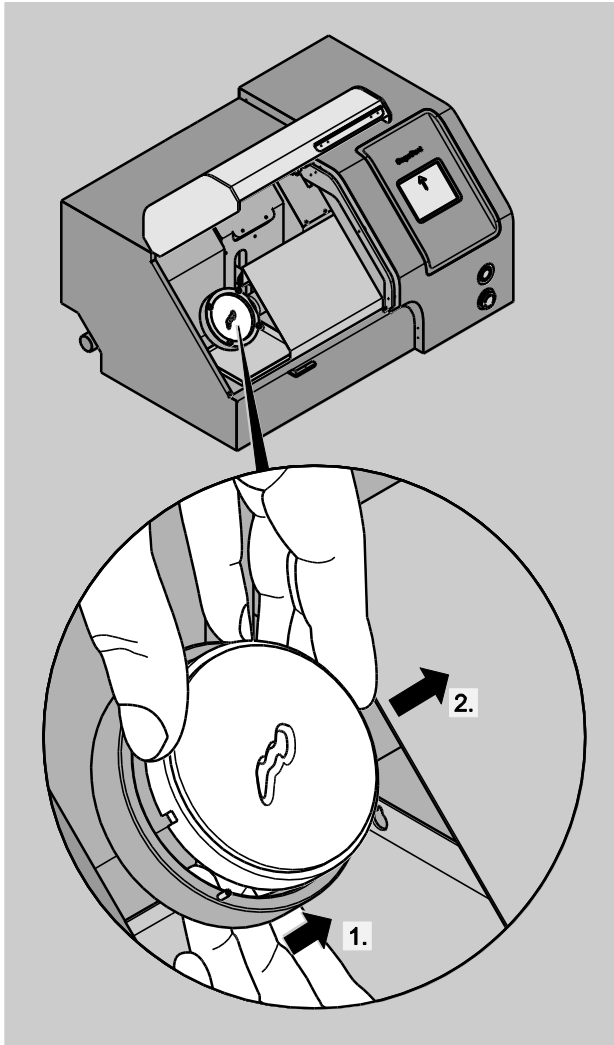


ATTENTION!

Damage to working results due to touching the milled objects.

- Only touch the processed blank where the raw material has not been processed.
- Hold the blank by the surrounding ring.

- Grip beneath the processed raw material (1.) from below with one hand.
- Press the processed raw material out of the raw material holder until it can be gripped securely from above with the other hand (2.).
- Remove the processed raw material.

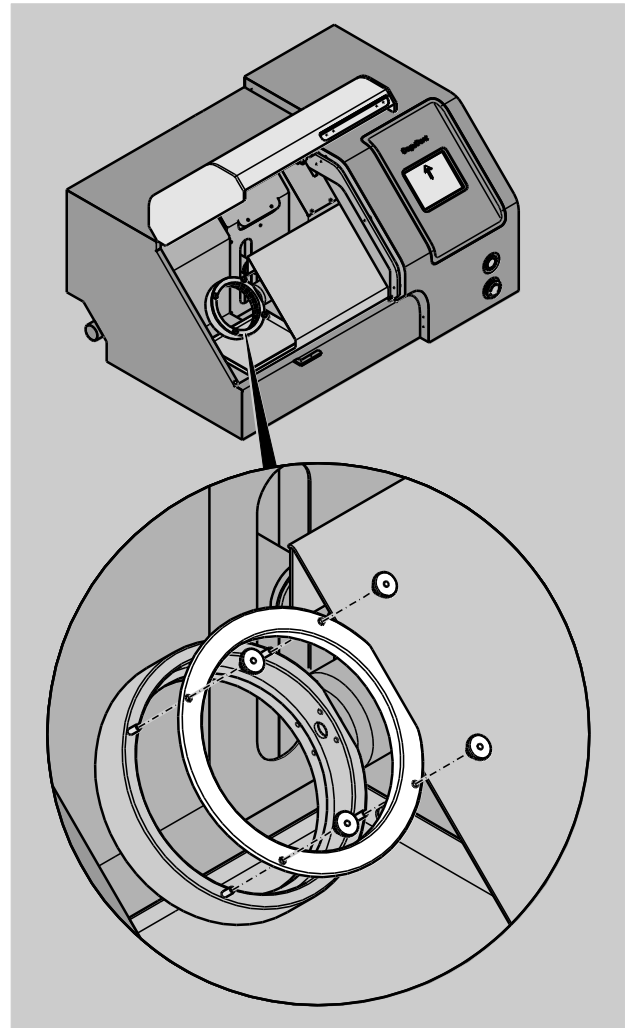


1 Raw material holder

2 Processed raw material

To insert the raw material holder cover correctly, it is equipped with a ring insert and is flattened on one side.

- Place the raw material holder cover, with the ring insert pointing down, onto the raw material holder in such a way that the flattened edge points in the direction of the tool magazine.



The threads for the screws penetrate through the raw material holder cover.

- Place the screws onto the raw material holder threads.
- Screw the screws clockwise onto the raw material holder cover.
- Each time following operation, remove any zirconium dioxide dusts which are present using the suction unit.

See Cleaning, page 40.

Switching off

Proceed as follows to switch the device off:

- Make sure that all programmes have been ended.
- Make sure that the working results have been removed.
- Make sure that all zirconium dioxide dusts have been removed.

See Cleaning, page 40.

- Press the main switch.

The device is switched off; the main switch does not light up.

Cleaning

Each time following operation



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
 - Do not drink, eat or smoke whilst working.
 - Work with a class M suction unit (Cercon® clean) during grinding and extraction.
 - Wear a dust mask.
 - Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
 - Wash your hands and face thoroughly after work and prior to breaks.
-



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

- Check the collection tray for dusts each time following operation.

Remove any dusts which are present using the suction unit:

- Make sure that all milling programmes have been ended.
- Open the device hood.

- ⓘ A commercially available brush can be used to collect dusts in one location. Use the brush exclusively for this purpose.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

- To collect the dusts, use a commercially available brush exclusively for this purpose.
- Store the brush in a sealed container exclusively for this purpose.

- Pull the suction unit hose from the device's suction unit connection.
- Switch the suction unit on.
- Comply with the suction unit's operating instructions.
- Press CLEANING in the main menu to switch on the suction unit on the device.

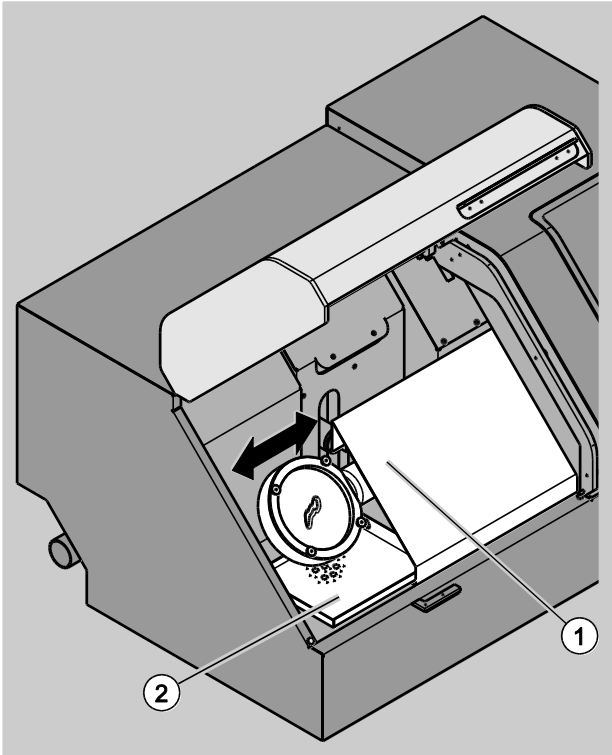
The following is displayed:



- Press ON to switch on the suction unit on the device.
- Use the suction unit hose to remove the dusts in the device.

To clean dusts from inaccessible locations in the device, the tool carriage can be moved via the CLEANING menu:

- Press ON.
- Close the device hood to move the tool carriage via the POS.1 and POS.2 button fields.
- To move the tool carriage to the left, press POS.1.
- To move the tool carriage to the centre, press the button field with the "house" symbol.
- To move the tool carriage to the right, press POS.2.



- | | |
|--|------------------------------------|
| <p>1 Tool carriage with tool magazine, raw material holder and collection tray</p> | <p>2 Collection tray for dusts</p> |
|--|------------------------------------|

- Press OFF to switch off the suction unit on the device.
- To return to the main menu, press ARROW LEFT.
- Re-connect the suction unit hose to the suction unit connection on the device.

Inadequate working results

Inadequate working results may occur due to residues such as e.g. raw material residues or dusts on the raw material holder.

These residues may negatively influence the perfect seating of the raw material in the raw material holder.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
- Adhere to the maintenance intervals.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

- Check the raw material holder for raw material residues or dusts.

Remove any raw material residues or dusts as follows:

- Make sure that all milling programmes have been ended.
- Open the device hood.
- If raw material is contained in the raw material holder, remove it.

i A commercially available brush can be used to collect dusts in one location. Use the brush exclusively for this purpose.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

- To collect the dusts, use a commercially available brush exclusively for this purpose.
- Store the brush in a sealed container exclusively for this purpose.

-
- Remove any raw material residues or dusts from the raw material holder using a commercially available brush.

Raw material residues or dusts are collected in the collection tray.

- Remove the raw material residues or dusts using the suction unit, as described in the preceding chapter.

See Each time following operation, page 40.

Externally visible soiling



DANGER

Life-threatening risk due to electric shock caused by water ingress.

- Switch the device off prior to cleaning work.
- Remove the earthing contact plug from the mains electricity inlet prior to cleaning work.
- Use a slightly moistened microfibre cloth exclusively for the purpose of cleaning.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

ATTENTION!

Damage to the control panel and the touch screen.

- Do not use corrosive cleaning agents.
- Do not use abrasive agents.

ATTENTION!

Damage to the control panel due to sharp objects.

- Always touch the control panel elements with a finger or another blunt object.

- Make sure that all programmes have been ended.
- Press the main switch.
- Remove the earthing contact plug from the mains electricity inlet.
- Clean the device hood and the control panel with a slightly moistened microfibre cloth exclusively for this purpose.
- ⓘ Use a mild, commercially available household cleaner for coarser soiling.
- Only insert the earthing contact plug into the mains electricity inlet following completion of the cleaning work.

Maintenance

- Maintain the device regularly to ensure the longest possible service life and low wear.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
- Adhere to the maintenance intervals.



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
- Do not drink, eat or smoke whilst working.
- Work with a class M suction unit (Cercon® clean) during grinding and extraction.
- Wear a dust mask.
- Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
- Wash your hands and face thoroughly after work and prior to breaks.



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

Maintenance overview

Interval	Activity
Each time prior to operation	Check the filters at the rear of the device for deposits. <i>See Checking and replacing filter, page 46.</i>
	Check the compressed air system. <i>See Securing attaching parts, page 14.</i>
Each time following operation	Check the interior of the device and the collection tray for soiling and zirconium dioxide dusts. <i>See Cleaning, page 40.</i>
Annually	Have the device checked by a DeguDent service technician.
As required	Clean the device if externally visible soiling is present. <i>See Cleaning, page 40.</i>
	Replace microfuses. <i>See Replacing fuses, page 50.</i>

Checking and replacing filters

Two white filters, which protect the device against contamination from the room's air, are located at the rear of the device.

ATTENTION!

Damage to the device due to soiled filters in the device.

- Check the filters each day prior to initial operation.
- Make sure that the filters do not reveal any deposits.

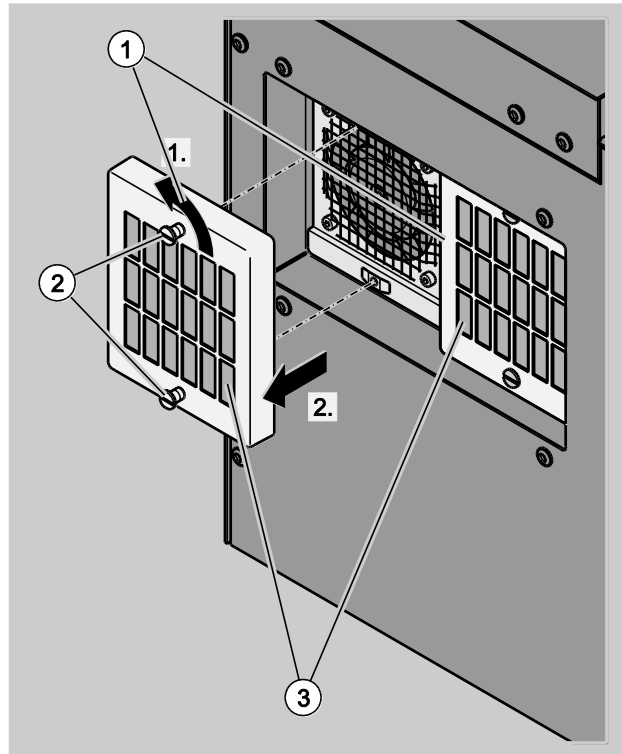
➤ If filter deposits are ascertained in the device, replace the filters.

➤ Contact DeguDent for replacement filters.

Proceed as follows to replace a filter:

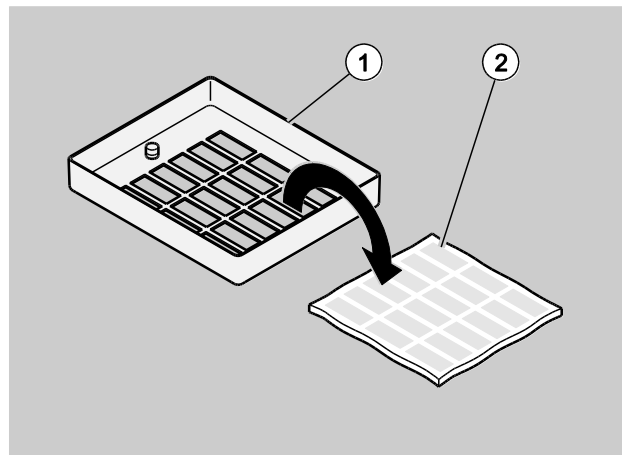
- Switch the device off.
- Disconnect the device from the mains electricity.
- Make sure that mains connection plug has been removed from the device.

- Remove the filter cap screws using a flat-tip screwdriver by turning them 90° to the left (1.).
- Pull the filter cap from the device (2.).



- 1 Filter caps
- 2 Screws
- 3 Internal filters

- Pull the filter (2) out of the filter cap (1).



- Insert the new filter into the filter cap.
- Insert the filter cap with filter into the device.
- Use a flat-tip screwdriver to turn the screws 90° to the right.

The filter cap with filter is installed.

- Proceed as described above to replace the second filter.

Replacing milling cutters

The tool magazine, which can be loaded with nine milling cutters, is located on the rear side of the tool carriage.

The milling cutter diameter and material code are specified on the milling cutter packaging.

The material code provides information on the raw materials for which the milling cutter is suitable:

- Material code 0: Zirconium dioxide
- Material code 2: Plastic.

Milling cutters must be replaced under the following conditions:

- The milling cutters are damaged.
- The milling cutters are worn.



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-

The functional capability of the relevant milling cutter is automatically checked following each milling programme.

If a milling cutter is damaged or worn, this is displayed via a message on the touch screen.

- If the message is confirmed with **SISTER TOOL**, a sister tool is automatically used.
 - If no sister tool is available, this is displayed via a message on the touch screen.
 - Confirm this message with **ARROW LEFT** and replace the milling cutter.
-



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
 - Only touch the milling cutters in shaft area.
 - Only store the milling cutters in the supplied containers.
-

ATTENTION!

Inaccurate working results due to the use of worn milling cutters.

- Make sure that milling cutters are used for a maximum of 100 milling units.
-

Proceed as follows to replace a milling cutter:

➤ Select TOOLS in the main menu.

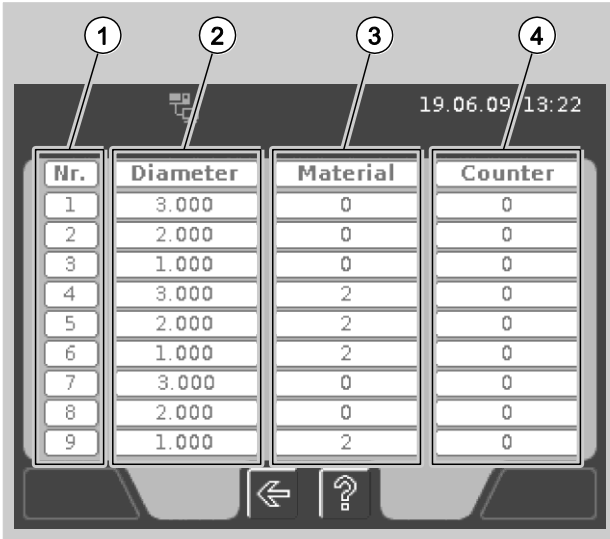
The following is displayed:



Buttons 1–9 symbolise the individual milling cutter shafts in the tool magazine.

➤ Press TOOLS to display the status of the milling cutters.

The following is displayed:



- | | | | |
|---|-------------------------------|---|--------------------------------------|
| 1 | Tool shaft | 2 | Milling cutter diameter in mm |
| 3 | Type of suitable raw material | 4 | Number of units milled with the tool |

The following areas are displayed on the touch screen:

- Number of tool magazine tool shafts 1–9 and corresponding numbers of the milling cutters (1).
- Diameter of the milling cutters in mm in the relevant tool shafts (2).
- Suitable type of raw material for which the milling cutter can be used (3):
Material code 0: Zirconium dioxide
Material code 2: Plastic.
- Number of units which the milling cutter has already milled (4).

❗ To achieve optimal milling results, a milling cutter must be replaced after milling a maximum of 100 units.

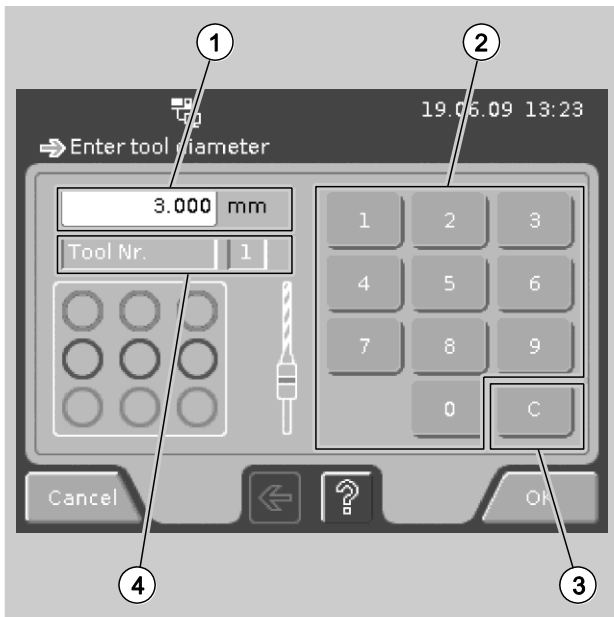
➤ To select a tool shaft for milling cutter replacement, press ARROW LEFT.

The previous menu is opened.



➤ Use buttons 1–9 to select the tool shaft whose milling cutter is to be replaced.

The following figure shows the selection of tool shaft 1 as an example:



- | | | | |
|---|--|---|---|
| 1 | Milling cutter diameter in mm | 2 | Number buttons for inputting the diameter |
| 3 | Delete button for correcting the input | 4 | Milling cutter/tool shaft number |

➤ Use the number buttons to input the diameter of the milling cutter in mm.

ⓘ The diameter of the milling cutter is specified on the milling cutter packaging.

- Press the delete button to correct an input.
- Press OK to confirm the input.

The window for inputting the material code is displayed on the touch screen.

➤ Input the milling cutter's material code via the number buttons.

ⓘ The milling cutter's material code is specified on the milling cutter packaging.

- Press number "0" to input the material code for a milling cutter which is suitable for zirconium dioxide.
- Press number "2" to input the material code for a milling cutter which is suitable for plastic.
- Press the delete button to correct an input.
- Press OK to confirm the input.

The tool shaft's selected milling cutter is inserted into the spindle and moved to the loading position.

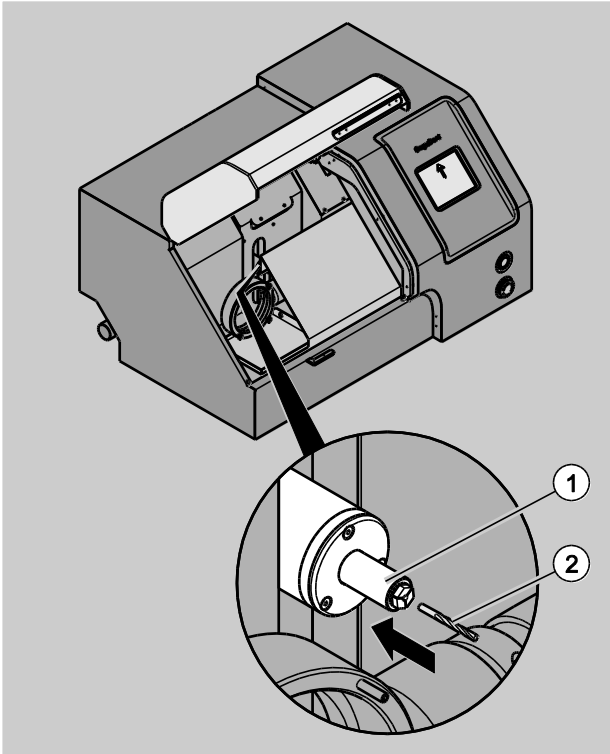


CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
- Only touch the milling cutters in shaft area.
- Only store the milling cutters in the supplied containers.

- Open the device hood.
- Pull the milling cutter out of the spindle.
- Insert the new milling cutter (2) to stop into the spindle (1).



- Close the device hood.
- Press OK to confirm that the milling cutter has been inserted.

The milling cutter is held in the spindle via the tool clamping jaws.

The milling cutter is stored in the tool shaft.

Replacing fuses

As main device fuses, the device uses two microfuses 5 × 20 mm, 6.3 AT, 250 V, high breaking capacity.



WARNING

Risk of fire on use of impermissible fuses.

- Use only the fuses specified in the technical data.

ATTENTION!

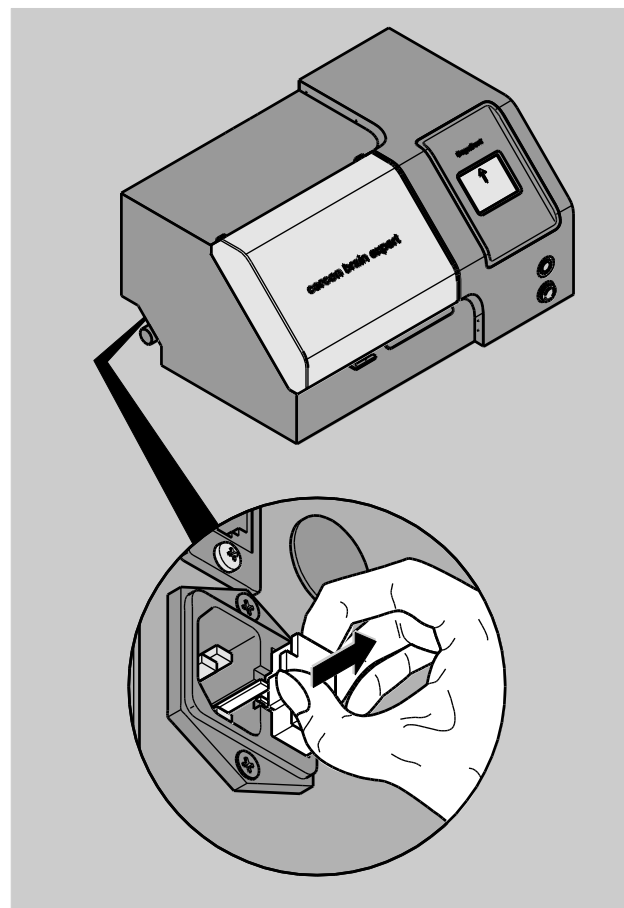
Damage to the device due to the use of impermissible fuses.

- Use only the fuses specified in the technical data.

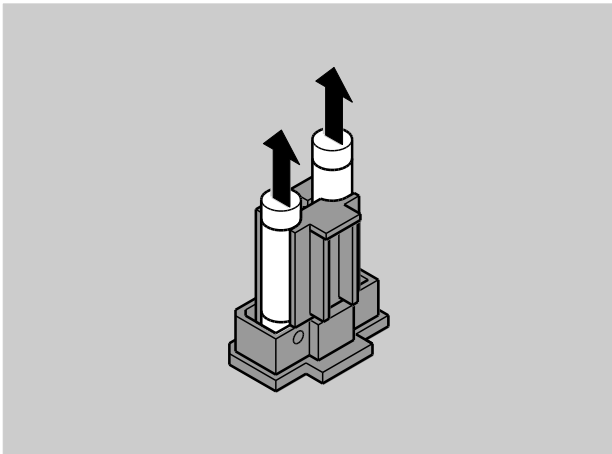
- Always replace both microfuses.

Proceed as follows to replace the fuses for the device:

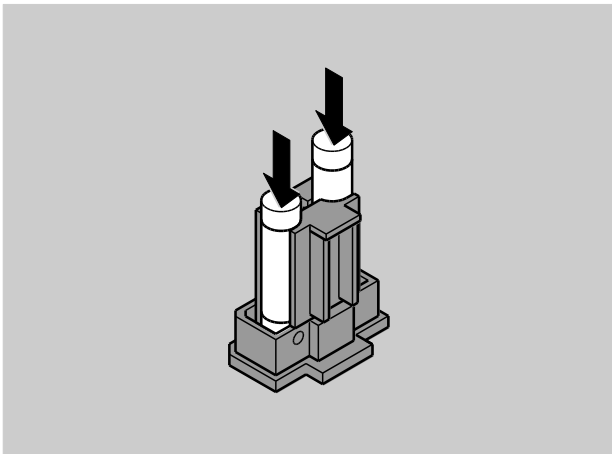
- Disconnect the device from the mains electricity.
- Make sure that mains electricity connector is removed from the device.
- Press into the fuse holder recess using a flat-tip screwdriver.
- Pull the fuse holder straight out of the device.



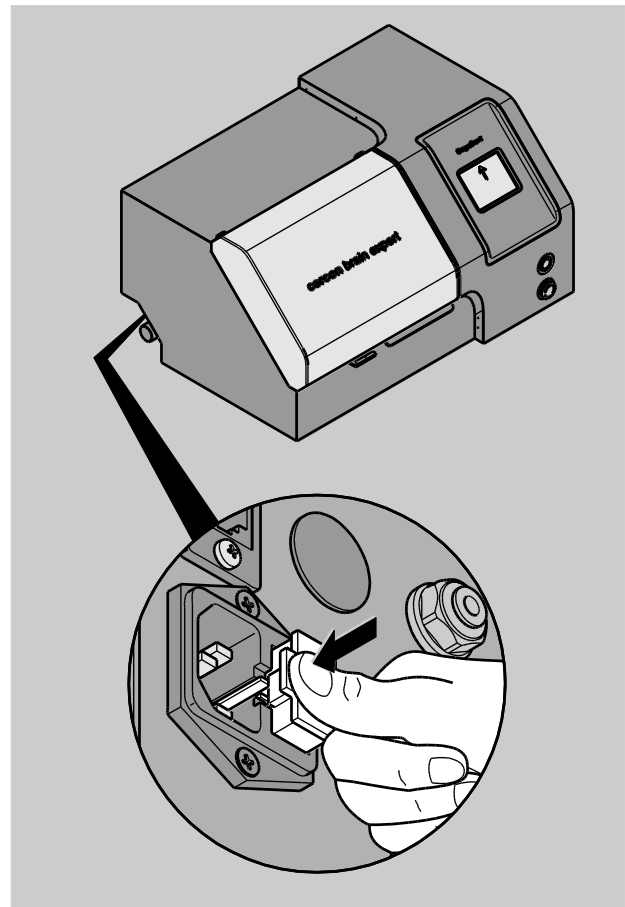
➤ Pull the fuses out of the fuse holder.



➤ Insert the new fuses into the fuse holder.



➤ Insert the fuse holder straight into the device until it engages.



Rectifying malfunctions or faults

The following types of malfunctions or fault messages may occur during operation:

- CAD/CAM system component malfunctions
- Device or device part malfunctions
- Programme errors.

➤ Comply with the corresponding operating instructions to rectify CAD/CAM system component malfunctions or faults.

Device or device part malfunctions involve e.g.

- Compressed air supply malfunctions
- Device operation malfunctions.

Programme errors refer to the sequence of the programmes. On occurrence of a programme error, an error message is displayed on the touch screen.



CAUTION

Injuries due to malfunctions or faults on the device.

- Rectify malfunctions or faults.
- If it is not possible to rectify malfunctions or faults, contact DeguDent.
- Never operate the device if a malfunction or a fault has occurred.

-
- Confirm fault messages.
 - Rectify malfunctions or faults as described in the malfunction table in this chapter.
 - Re-start the programme.
 - If it is not possible to rectify malfunctions or faults, contact DeguDent.

Fault/code	Possible cause	Remedy
"X axis fault {fault number} {fault text}"	Fault in the servo amplifier system for the X axis.	Switch the device off and on again using the main switch.
"Y axis fault {fault number} {fault text}"	Fault in the servo amplifier system for the Y axis.	Switch the device off and on again using the main switch.
"Z axis fault {fault number} {fault text}"	Fault in the servo amplifier system for the Z axis.	Switch the device off and on again using the main switch.
"A axis fault {fault number} {fault text}"	Fault in the servo amplifier system for the A axis.	Switch the device off and on again using the main switch.
"CNC system fault {fault number} {fault text} info:{fault info}"	Disturbance in the milling programme sequence.	Switch the device off and on again using the main switch.
"Connection to Cercon® art disturbed"	The network cable is not inserted on the device or the computer.	Make sure that the network cable is correctly connected on the device and the computer.
	The network cable is defective.	Contact the DeguDent service technician.
	The optional computer is switched off.	Make sure that the computer is switched on.
	The Cercon® art software has not been started on the optional computer.	Make sure that the Cercon® art software has been started on the computer.
"Axes not ready (emergency stop?)"	The emergency stop button has been pressed.	Release the emergency stop button. <i>See Emergency stop button, page 17.</i> Switch the device off and on again using the main switch.
"Error on reading the file directory: {directory}"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.
"Error on re-naming the start programme"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.

Fault/code	Possible cause	Remedy
"Error on deleting the old programme"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.
"Error on deleting the old images"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.
"Clamp pressure too low, adjust compressed air"	The air pressure for opening the clamp is too low.	<p>Make sure that the compressed air hose is firmly seated in the compressed air connection.</p> <p>Check the pressure intensifier.</p> <p>Ensure a permissible pressure of 6.5–10 bar.</p> <p><i>See Securing attaching parts, page 14.</i></p>
"Milling cutter not found"	No milling cutter was found in the tool magazine; the clamp was unable to grip the milling cutter.	<p>Load the tool shaft with the corresponding milling cutter.</p> <p>Check clamp on functionality.</p>
"Clamp could not be closed"	The compressed air valve for the clamp is defective.	Contact the DeguDent service technician.
"Error on deleting the directory: {directory}"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.
"Error on creating the directory: {directory}"	Malfunction in internal milling programme processing on the device.	Switch the device off and on again using the main switch.
"Error on restoring the permanent data: {data module}. Default values are restored"	Malfunction in internal data processing on the device.	Switch the device off and on again using the main switch.
"Error on backing up the permanent data: {data module}. Contact service"	Malfunction in internal data processing on the device.	Switch the device off and on again using the main switch.
"Spindle communication error"	Malfunction in the internal spindle control system in the device.	Switch the device off and on again using the main switch.

Fault/code	Possible cause	Remedy
"Spindle overload"	Spindle blockage due to material residues in the spindle.	Contact the DeguDent service technician.
	Use of a blunt milling cutter.	Make sure that milling cutters are used for a maximum of 100 milling units.
"Hood has been opened"	The device hood has been opened during a movement in the interior of the device. The current process has been canceled.	Switch the device off and on again using the main switch.
"Emergency stop actuated"	The emergency stop button has been pressed.	Release the emergency stop button. <i>See Emergency stop button, page 17.</i> Switch the device off and on again using the main switch.
"Spindle controller overtemperature"	Malfunction in the internal spindle control system in the device.	Switch the device off and on again using the main switch.
"Error - milling cutter pulled out"	The milling cutter has come loose from the clamp during milling.	Insert the milling cutter, adjust or check clamp. Start the milling process.
	The compressed air valve for the clamp is defective.	Contact the DeguDent service technician.
"Error, tool has not been stored"	The clamp or the tool magazine are defective.	Switch the device off and on again using the main switch.
"Battery empty"	The installed button battery is spent.	Contact the DeguDent service technician.
The device cannot be switched on.	The fuse is damaged.	Replace the fuses. <i>See Replacing fuses, page 50.</i>
Compressed air supply problems.	The compressed air supply is interrupted.	Make sure that the compressed air hose is seated firmly in the compressed air connection. Check the pressure intensifier. <i>See Securing attaching parts, page 14.</i>

Fault/code	Possible cause	Remedy
The main switch illumination does not light up.	The bulb in the main switch is defective.	<p>The main switch is no longer fully functional.</p> <p>Switch the device off and disconnect it from the mains electricity.</p> <p>Contact DeguDent to check and repair the main switch.</p> <p>Only re-commission the device when it is fully functional.</p>
The working area illumination in the interior of the device does not light up.	The bulb is defective.	<p>The device remains operable.</p> <p>Contact DeguDent to replace the bulb.</p>
Problems during the milling process.	The raw material does not lie correctly in the raw material holder.	<p>Check the position of the raw material in the raw material holder.</p> <p>Correct the position of the raw material.</p> <p><i>See Inserting raw material, page 30.</i></p>
The milling process cannot be started.	The suction unit does not function.	<p>Check the suction unit and rectify the malfunctions.</p> <p>Comply with the operating instructions for the suction unit.</p>

Fault/code	Possible cause	Remedy
The suction unit does not function.	The suction unit is not switched on.	Switch the suction unit on. Comply with the operating instructions for the suction unit.
	The suction unit is not connected correctly to the device.	Check the suction unit's connection to the device. Correctly connect the suction unit to the device. <i>See Securing attaching parts, page 14.</i> Comply with the operating instructions for the suction unit.
	The suction unit is defective.	Make sure that the device is not commissioned. Contact DeguDent.
	The suction unit filters have reached their maximum charge.	Make sure that the device is not commissioned. Check and replace the suction unit's filters. Comply with the operating instructions for the suction unit.
Device malfunctions.	Impurities from the room air have entered the device.	Check the filters on the rear side of the device for deposits. Replace the filters. <i>See Checking and replacing filter, page 46.</i>
Inadequate working results during milling.	Inaccuracies whilst milling the objects.	Make sure that milling cutters are used for a maximum of 100 milling units. <i>See Replacing milling cutters, page 47.</i>
	Inaccuracies in the moveable axis settings.	Make sure that calibration is carried out by the DeguDent service technician.

Decommissioning



DANGER

Danger of an electric shock due to components in the device which are not maintained in good time.

- Maintain the device regularly.
 - Adhere to the maintenance intervals.
-



WARNING

Respiratory tract, skin and eye irritation due to zirconium dioxide dusts.

Observe the following rules when working with zirconium dioxide:

- Do not exceed the maximum workplace concentration (MAK) of 1 mg/m³.
 - Do not drink, eat or smoke whilst working.
 - Work with a class M suction unit (Cercon® clean) during grinding and extraction.
 - Wear a dust mask.
 - Wear protective goggles with side guards; if zirconium dioxide dusts occur, wear flexible goggles.
 - Wash your hands and face thoroughly after work and prior to breaks.
-



CAUTION

Cutting injuries due to touching the milling cutter.

- Never touch the milling cutter's blade.
 - Only touch the milling cutters in shaft area.
 - Only store the milling cutters in the supplied containers.
-

Proceed as follows to decommission the device:

- Make sure that all programmes have been ended.
- Make sure that the dummy milling cutter is inserted.
- Make sure that the working results have been removed.
- Make sure that all dusts have been removed from the device.
- Make sure that the device hood is closed.
- Press the main switch.

The device is switched off.

- Remove the earthing contact plug from the mains electricity inlet.
- With the bar pressed, remove the network connector from the network inlet on the device.
- Make sure that the suction unit is switched off.
- Comply with the operating instructions for the connected suction unit.
- Remove the suction unit control cable connector from the suction unit connection on the device.
- Pull the compressed air hose from the compressed air connection.
- Pull the suction unit hose from the suction unit air outlet connection on the device.
- Pull the mains electricity connector from the mains electricity inlet on the device.

Transportation and storage

Only the original packaging guarantees adequate protection during transportation.



WARNING

Danger of suffocation due to packaging parts (e.g. films and polystyrene).

- Store the packaging and its parts out of the reach of children.

- Before transporting or storing the device, make sure that the device has been decommissioned.

See Decommissioning, page 58.



CAUTION

Risk of injury due to the heavy device's falling down.

- Only transport the device with four persons using the intended carrying handles.
- Make sure that the four carrying handles are properly mounted on the device.
- Each person grips one of the four carrying handles on the sides of the device with both hands.
- Each person grips one carrying handle simultaneously with the left hand on the left-hand side and with the right hand on the right-hand side of the handle.

ATTENTION!

Scratched surfaces due to metallic, sharp-edged objects, e.g. belt buckles or tools during transportation.

- Transport the device without coming into contact with sharp-edged objects.
- Only transport the device in the original packaging.

- Package all parts contained in the scope of delivery using the original packaging.
- Store all parts contained in the scope of delivery in accordance with the environmental conditions.

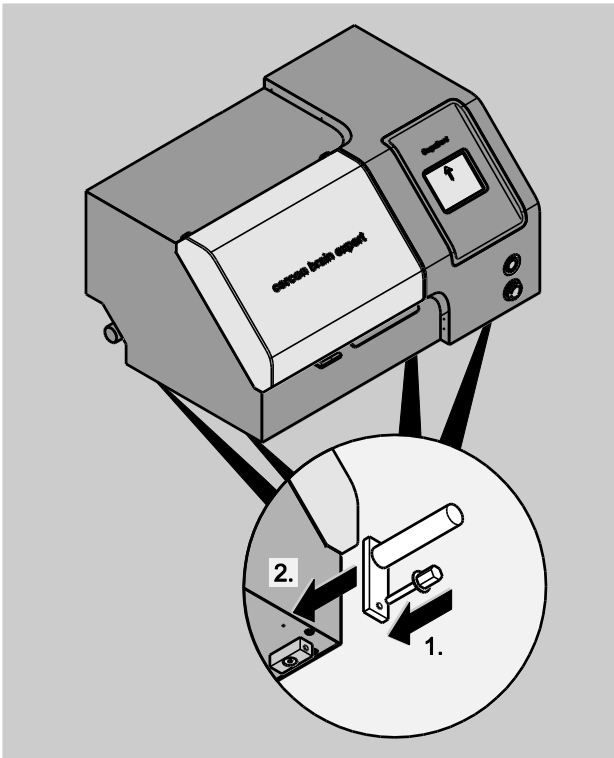
See Technical data, page 63.

Transportation and storage

- Remove the carrying handles from the packaging for transportation purposes.

Mount the four carrying handles as follows:

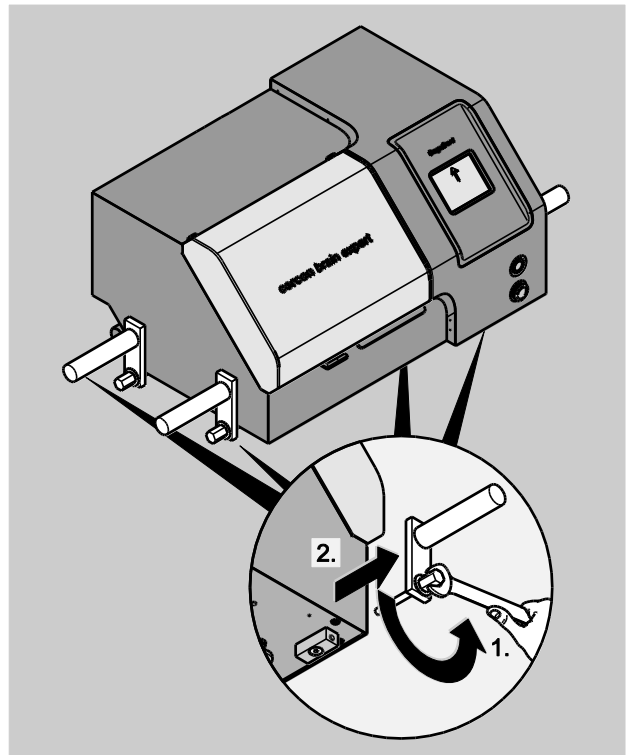
- Insert the bolt with the washer into the intended opening in the handle (1.).
- Position the handle with the inserted bolt straight on the handle bracket thread on the device (2.).



- Tighten the bolt hand tight.
- Tighten the bolt clockwise using a size 13 spanner.
- Repeat the process as described above to mount all of the carrying handles.
- Make sure that the four carrying handles are mounted firmly on the device.
- Transport the device with four persons.
- Remove the carrying handles after transporting the device.

Remove the four carrying handles as follows:

- Unscrew the bolt counter-clockwise out of the handle bracket thread on the device using a size 13 spanner (1.).
- Pull the handle off (2.).
- Repeat the process as described above to remove all of the carrying handles.



- Store the carrying handles in the original packaging.

Disposal

All of the parts contained in the scope of delivery must be disposed of in accordance with the disposal guidelines in the country of use.

ATTENTION!

Environmental damage due to improper disposal.

- Never dispose of the device, parts of the device, packaging or the accessories in the normal domestic waste at the end of the usage period.
- Ask your urban or local administration regarding the options for recycling or disposing of the device and packaging properly and in an environmentally friendly manner.

Disposing of the packaging



WARNING

Danger of suffocation due to packaging parts (e.g. films and polystyrene).

- Dispose of the packaging and its parts out of the reach of children.

- Retain the packaging during the warranty period.

Only the original packaging guarantees adequate protection during transportation.

The packaging materials have been selected according to environmentally compatible aspects and manufactured from recyclable materials. Following use, the packaging materials can be returned to the raw material cycle, thereby saving valuable raw materials.

- The exterior packaging consists of cardboard.
 - The filler material and the inserts consist of cardboard or polystyrene.
 - The protective films and bags consist of polyethylene (PE).
- Dispose of the packaging according to its identification, segregated by material and in an environmentally friendly manner.

Disposing of the device

The device contains the following materials and components:

- Aluminium
- Steel
- Copper
- Poly methyl methacrylate (PMMA)
- LCD display
- Polyethylene (PE)

The device contains a button battery.



- Dispose of the device via a specialist disposal company according to the legal regulations.
- Dispose of electronic components in accordance with the German Electrical and Electronic Equipment Act (ElektroG) according to the legal regulations.
- Contact DeguDent for more detailed information.

Usable raw material

Use only materials approved by DeguDent.

ATTENTION!

Damage to the device due to the use of impermissible raw materials.

- Use only materials approved by DeguDent for milling.
-

- Comply with the usage specifications for the raw material.

ATTENTION!

Damage to working results due to touching the milled objects.

- Only touch the processed blank where the raw material has not been processed.
 - Hold the blank by the surrounding ring.
-

The following table shows all blanks which can be used.

Technical data

ⓘ Also note the information on the type plate.

See Data on the type plate, page 19.

Cercon® brain expert technical data		
Dimensions	Depth:	555 mm
	Width:	805 mm
	Height with device hood closed:	435 mm
	Height with device hood open:	700 mm
Environmental conditions	Usage:	In interior rooms only
	Height above MSL:	Up to 2000 m
	Temperature range:	5–40°C
	Humidity:	Maximum relative humidity 80% for temperatures up to 31°C. Linear decrease up to 50% relative humidity at 40°C.
	Maximum workplace concentration (MAK) for zirconium dioxide:	Max. 1 mg/m ³
	Suction unit:	Class M (Cercon clean)
Supply voltage and frequency	Europe:	230–240 V~ (50/60 Hz)
	Countries outside of Europe, e.g. North America, Canada, Japan:	100–115 V~ (50/60 Hz)
Current circuit fuse protection		At least 10 A, automatic circuit breaker must have the characteristic C or K.
Microfuses	Two main device fuses:	5 × 20 mm, 6.3 AT, 250 V, high breaking capacity
Compressed air supply	Permissible pressure:	6.5–10 bar
	Comp. air quality acc. to ISO 8573-1:	Grade 3
Power consumption		Max. 800 W
Spindle rotational speed		60,000 rpm
Weight		82 kg

List of standards

The following standards, laws and directives were taken into consideration during construction of the device:

List of standards	
DIN EN 61010-1: 2002-08, corrigenda 1 and 2: 2004-01	Safety requirements for electrical equipment for measurement, control and laboratory use
DIN EN 61326-1: 2006-10, corrigendum 1: 2009-04	Electrical equipment for measurement, control and laboratory use – EMC requirements – part 1
DIN EN 12100-1: 2004-04	Safety of machinery – basic concepts, general principles for design – part 1
DIN EN 12100-2: 2004-04	Safety of machinery – basic concepts, general principles for design – part 2
Machinery Directive 2006/42/EU	Safety of machinery
EMC Directive 2004/108/EU	Electromagnetic compatibility
Low-voltage Directive 2006/95/EU	Electrical safety
WEEE Directive 2002/96/EU	Waste electrical and electronic equipment
RoHS Directive 2002/95/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment

The device is CE certified. The declaration of conformity is enclosed.

Declaration of conformity

For

DeguDent GmbH
Rodenbacher Chaussee 4
D-63457 Hanau

we declare with sole responsibility that

Document number: Q-04-KE-14-3016 Revision index: 0

Product number: 5355660001 Product designation: Cercon® brain expert
Product number: 5355660070 Product designation: Cercon® brain expert
demonstration device

correspond to the stipulations of the following directive(s)

Directive 2002/95/EU on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Directive 2002/96/EU on waste electrical and electronic equipment (WEEE)

Directive 2006/42/EU (machinery directive)

Directive 2006/95/EU (low-voltage directive)

Directive 2004/108/EU (EMC directive)

The following standards were applied:

DIN EN 61010-1: 2002-08, corrigenda 1 and 2: 2004-01

DIN EN 12100-1: 2004-04

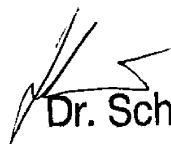
DIN EN 12100-2: 2004-04

DIN EN 61326-1: 2006-10, corrigendum 1: 2009-04

This declaration is valid for a maximum of 5 years.

Hanau,


13-05-09
Date


Dr. Schusser

Head of Research and Development

Hanau,

13.05.2009
Date


Dr. Bernhard Kraus

Head of Quality Management

Contacting the manufacturer

If you have any questions which are not answered in these operating instructions, contact:

DeguDent GmbH

Rodenbacher Chaussee 4

D-63457 Hanau

Index

C

Cases	
Milling	34
Nesting	33
Selecting	28
Cleaning	
Externally visible soiling	43
Inadequate working results	42
Compressed air supply	63
Control panel	19, 23

D

Declaration of conformity	65
Default settings	
Basic settings	27
Device parameters	27
Device	
Cleaning	40
Decommissioning	58
Disposal	61
Environmental conditions	63
Equipment features	18
Function	18
Initially commissioning	19
Installing	10
Maintenance	44
Storage	59
Switching off	40
Switching on	23
Transportation	59
Workplace	18
Duties of the owner	5

E

Equipment features	18
--------------------	----

F

Filters	
Checking	46
Replacing	46
Following use	
Programme end	36
Removing working results	37

Switching off the device	40
Function	18
Fundamental operation	22

L

List of standards	64
-------------------	-----------

M

Maintenance	
Maintenance overview	45
Replacing fuses	50
Malfunctions	
Malfunction and fault table	52
Rectifying faults	52
Manufacturer	66
Menu explanation	26

O

Overview of the device	13
------------------------	----

P

Packaging	
Checking	10
Disposal	61
Opening	10
Personnel	
Qualification	5
Selection	5
Prior to operation	20
Controlling the device via Cercon art	23
Controlling the device via the control panel	23
Electrical connection	14
Switching on	23
Programme	
Cancelling	36
End	36
Proper use	5
Protective measures	6

R

Raw material	
Inserting	30
Usable blanks	62

Rectifying faults	52	Text	2
Removing working results	37	Switching on	23
Replacing fuses	50		
Replacing milling cutters	47	T	
Residual dangers during operation	6		
S			
Safety facilities	17	Technical data	63
Device hood	17	Tool magazine	
Emergency stop button	17	Displaying tool status	47
Main switch	17	Replacing milling cutters	47
Safety instructions	7	Touch screen	23
Scope of delivery	12	Type plate	19
Securing attaching parts	14	U	
Structural features			
Figures	3	Use	
Notes on dangers	9	Improper	6
Notes regarding material and environmental damage	9	Proper	5
		W	
		Workplace	18