

**cercon**  
smart ceramics®

# Cercon heat Instructions for Use

Cercon smart ceramics –  
the zirconium oxide  
All-Ceramic System



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## -1 Working with the Cercon heat

### 1.1 Scope of Delivery

- 1 device, complete
- 1 mains cable



### 1.2 Technical Data

Power Supply:

200 – 240 V~, 50/60 Hz

Maximum Wattage:

1.6 kW

Nominal Current:

6.9 A

Dimensions:

500 mm (W) x 520 mm (H) x 620 mm (D)

Weight:

Approx. 80 kg

Max. Temperature:

1,350 °C

The device is for interior use only. The room temperature must be between 5 °C and 40 °C. Mains supply voltage should not fluctuate more than  $\pm 10\%$  from the nominal value.

### 1.3 For Your Personal Safety

Please read these Instructions for Use carefully before installing and starting the device. You must follow the information contained in these instructions.

Circon heat is state of the art and safe to operate. Improper use of the device may be hazardous for users or third parties and lead to damage of the furnace and other material assets.

- Cercon heat should only be operated with original parts. Only in this way can the quoted performance data and required operational safety be guaranteed.
- Do not open the device. Hazardous voltages are used in the unit's interior. Consequently, only service technicians authorised by DeguDent may carry out repair and maintenance work.
- Protect the device from dampness to prevent short-circuiting and damage. Do not expose the device to water vapour.
- Remove the device's plug during long periods of disuse.

**When the furnace door is open, please do not touch any interior parts of the furnace or supported racks. Risk of burns!**

### 1.4 General User Information

#### 1.4.1 Intended Use

Circon heat is an electrically heated high-temperature furnace for final sintering of presintered zirconia dental crowns and bridge frameworks. The design and temperature program are tailored exactly to the Cercon base zirconia blanks in order to precisely control sintering shrinkage and obtain perfectly fitting results that can be reproduced. The control unit guarantees easy and safe operation.

## 1.4.2 Description of Device Components

### Firing Support

The firing support consists of a high-quality ceramic material that does not show any sort of interaction with zirconia and guarantees that the supported racks shrink evenly. Protect these central components from more severe vibrations or sudden changes in temperature.

### Temperature and Status Display

Shows the actual temperature of the furnace chamber and the current running time of the default temperature program, along with error messages if required.

### Control Elements

ON/OFF Key:

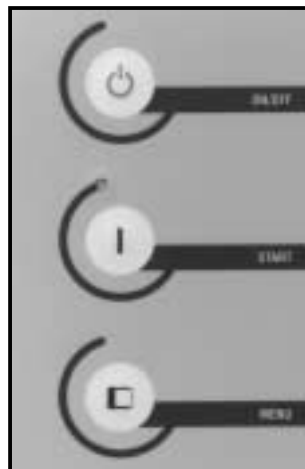
Mains Switch

START Key:

Starts the program

MENU Key:

Language setting



CLOSED:

Lights up on the display when the furnace doors are locked



## 2 Start-up Procedure

### 2.1 Device Installation

The furnace must be installed on a level and solid surface at least 10 cm away from the wall or other objects.

Do not install the device on flammable surfaces. Do not place any flammable objects beside or on the device.

Please ensure that the hot air produced by the furnace can be dissipated freely into the environment.

After taking out the box, carefully remove the inner packaging and foam parts that protect the firing support and inner tube. The interior and firing tray should be carefully vacuum cleaned.

Please note that in its delivered condition, the furnace door's locking bolt prevents the door from closing fully.

### 2.2 Electricity Supply

Connect the mains cable via a wall socket with a fused circuit for at least 10A with the 230V model. This circuit should only supply the furnace.

Do not use an extension cable.

After the mains cable has been connected, the furnace door's locking bolt is automatically deactivated, so that the door can now close fully. Press the ON/OFF button to power up the furnace.

Do not press the START button yet.

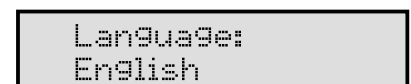
### 2.3 Language Setting

Press the MENU button for 3 seconds to enter the Language Menu. Select your language by briefly pressing the MENU button again.

Press the MENU button again for 3

seconds to select the

language. Please note that the language setting cannot be changed if the program has already been started.



## 2.4 Normal Operation

The furnace is powered up when the ON/OFF button is pressed.

The device name appears in the display first, followed by the furnace serial number and software version number.

```
DequDent
cercon heat
```

```
Serial-No.162060
Version 01.14
```

After a short time, "PROGRAM START" appears on the display. The furnace is ready for operation.

```
Start Program
53° C 00:02
```

Now place the frameworks that have been milled (and rounded on the pinned connections) onto the firing tray.

**Use only the area clearly marked for this to guarantee an even temperature distribution.**

Lay the frameworks as much as possible on the occlusal side to avoid damaging the crown margins.

To start the default sintering program, first close the furnace door. "CLOSE DOOR" appears on the display for as long as the door is open.

```
Close door
53° C 00:02
```

After the door has been shut, "PROGRAM START" appears on the display. The sintering program can only be initialised with the START button.

```
Start Program
53° C 00:02
```

Once the program has started, the status message "HEATING UP" appears on the display and the light diode on the START button lights up.

```
Heating up
56° C 00:00
```

If the furnace door is opened at a temperature of less than

```
Close door
53° C 00:02
```

200 °C, e.g. to add another framework, the program is cancelled. The heating system is switched off and a blinking "CLOSE DOOR" message appears on the display.

The door must be closed again and the program restarted with the "START" button when the blinking "PROGRAM START" message appears on the display.

```
Start Program
53° C 00:02
```

If the furnace has reached a temperature of 200 °C, the



furnace door is electromechanically locked. The furnace door can now no longer be opened and the program no longer interrupted. This is indicated by the "CLOSED" light diode.

The status of the running sintering program can be followed with the messages "HEATING UP", "HOLDING" and "COOLING", along with the current actual temperature and program running time.

```
Heating up
53° C 00:02
```

```
Hold
1350° C 01:56
```

```
Cooling
1251° C 03:05
```

Once the program has finished after the cooling phase and

```
Program end
94° C :
```

the furnace temperature is less than 200 °C, "PROGRAM END" appears on the display. The furnace can now be prepared for a new program to be run.

The furnace is shut down with the ON/OFF button.

To prevent the running temperature program from being impaired in any way, the button is inactive when the program has been started or the furnace temperature is more than 200 °C. There are no vapours or gases when Cercon base zirconia blanks are being sintered.

When the furnace heats up for the first time, odours are created by the furnace insulation's drying processes. This is completely normal and no longer occurs when the oven is reused. Please ensure that the room is well ventilated, e.g. by opening a window.

The evaporation of the ceramic binder in the insulation may cause fine cracks in the insulation parts after the first time the furnace heats up. This does not affect the furnace's operation or temperature precision.

There are no vapours or gases when Cercon base zirconia blanks are being sintered.

### 3 Care and Maintenance

The furnace requires no maintenance if it is used in the operating conditions for which it is designed.

However, you should regularly inspect the device for mechanical damage. In this way, you will prevent accidents and breakdowns.

Remove contaminants immediately from the furnace door's extension mechanism. This is the only way to guarantee proper operation.

Remove powder residue and particles regularly from the firing chamber with a vacuum cleaner.

**The inside of the device contains hazardous voltages. Consequently, only service technicians authorised by DeguDent may carry out repair and maintenance work.**

## 4 Troubleshooting

### 4.1 Device Behaviour in a Power Failure

If the mains current experiences a short-term failure while the program is running, the furnace automatically continues the heating program as soon as power has been restored and remains locked until the program has finished properly.

In the event of a longer power failure (temperature loss of over 50 °C), the program must be restarted.

In the event of a longer power failure (temperature loss of over 50 °C) the program is running on like in the warm-up phase. A longer sintering period due to the power failure does not cause any damage to the framework.

### 4.2 Error Messages

Error	Reason, Action to Take
The heating chamber does not warm up	Check the mains plug and fusing of the wall socket. Inform our service staff if necessary.
The normal running time is clearly exceeded or the final temperature is not reached	Insufficient heat output due to undervoltage. Check the power supply. A heating element may be defective. Please inform out service staff.
The display is blank	Insufficient power supply. Please check that the mains plug is inserted correctly. A control current fuse may be defective. Please inform out service staff.
The program running time is blinking	See Device Behaviour in a Power Failure (Subsection 4.1).
Display is showing a temperature alarm	The permitted temperature range has been exceeded or not reached. Ensure that the device is supplied with the proper voltage and restart the program if necessary.
Display shows F10	Insufficient heat output. Please switch the furnace off and restart the program. If the error occurs again, please disconnect the mains plug and inform our service staff.
Display shows F30, F31, F40, F41	Thermocouple error. Please disconnect the mains plug and contact our service staff.
Display shows F61–F68	Internal controller error. Please disconnect the mains plug and contact our service staff.
Display shows F70	Overtemperature. Please disconnect the mains plug and contact our service staff.

## 5 EC Declaration of Conformity

Pursuant to

- EG Low Voltage Directive 73/23/EEC as amended by 93/68/EEC
- Electromagnetic Compatibility (EMC) Directive 89/336/EEC

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We hereby certify and declare that our product

### **Cercon<sup>®</sup> heat**

**Sintering furnace for zirconia frameworks**

as placed on the market by us conforms to the applicable basic safety and health requirements of the EC Directives in design and construction.

Harmonized/Other applicable EC directives: EN 746-1  
EN 61010-1

Low-Voltage Guidelines: EN 60519-1  
EN 60519-2

EMC Guidelines: EN 61000-6-1  
EN 61000-6-3  
EN 61000-3-2  
EN 61000-3-3



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