Programat® CS6

Operating Instructions

ivoclar vivadent®

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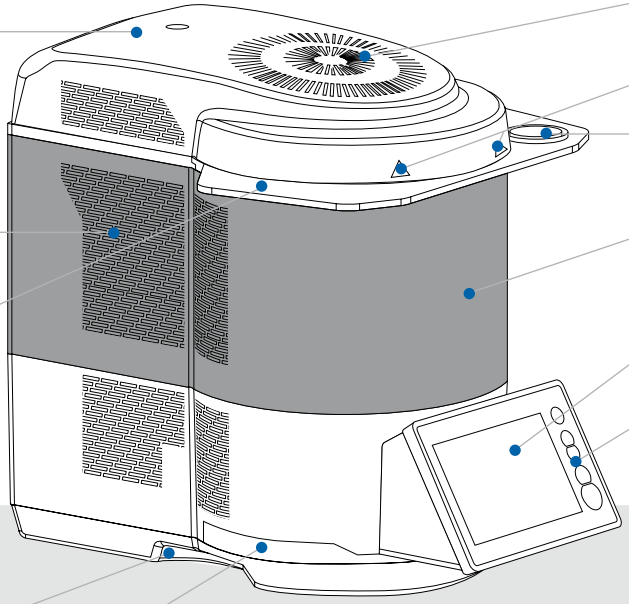

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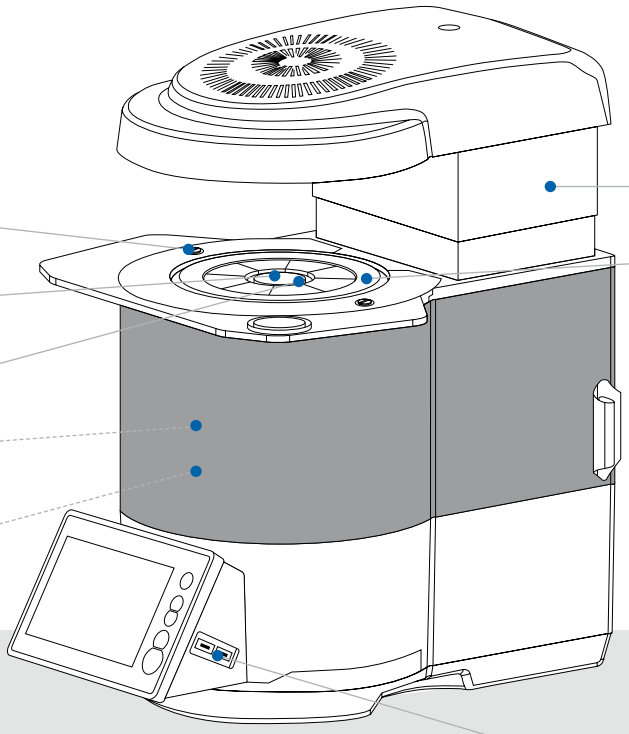

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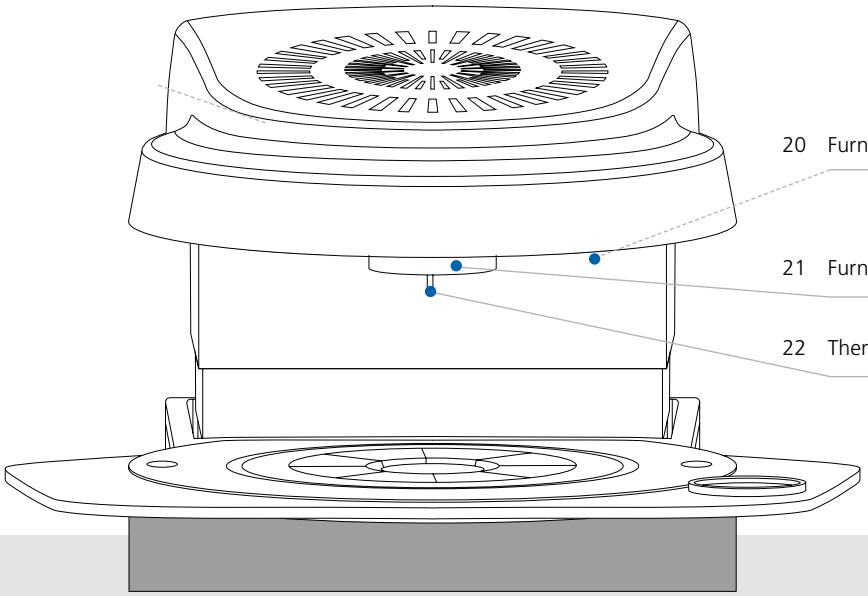

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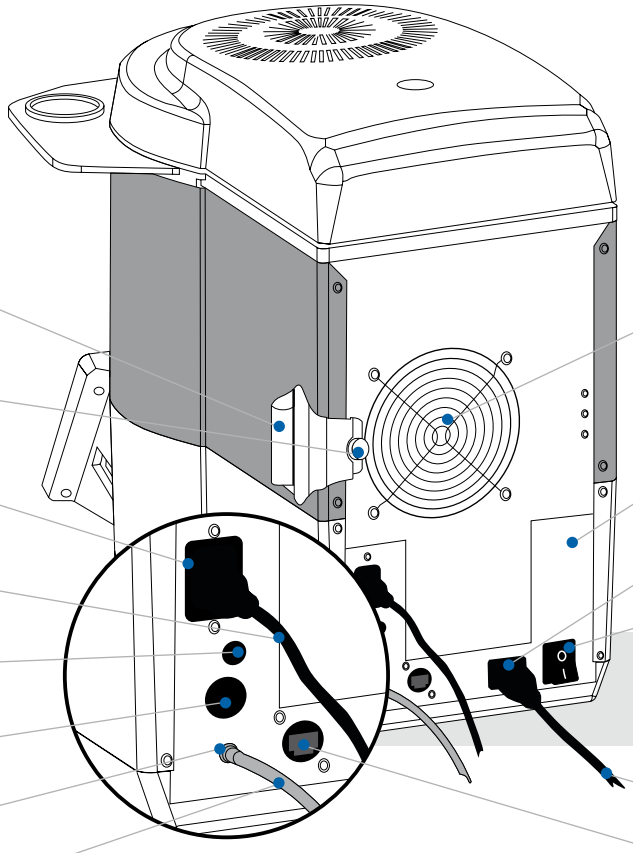

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Introduction

Dear Customer

Thank you for having purchased the Programat® CS6. It is a state-of-the art sinter, crystallization and glaze furnace for dental applications.

The Programat CS6 is suitable for the sintering and glazing of zirconium oxide materials such as IPS e.max® ZirCAD as well as the crystallization and glazing of e.g. IPS e.max CAD. The furnace has been specifically developed for these purposes. Inappropriate use may damage the equipment and be harmful to personnel.
Please observe the relevant notes and read the Operating Instructions carefully.

We hope you enjoy working with the Programat CS6.

1 Intended Use

Intended purpose

Furnace for dental restorations for the sintering and glazing of zirconium oxide materials such as IPS e.max ZirCAD as well as for the crystallization and glazing of e.g. IPS e.max CAD.

Use

The Programat CS6 is a sintering, crystallization and glazing furnace for the dental field. It was specifically developed for use in the dental office. The firing chamber may be heated up to max. 1560°C (2840°F) by means of a heating element. Furthermore, the firing chamber has been designed in such a way that a vacuum may be created with a vacuum pump. Electronic components with the corresponding software monitor and control the firing programs. Additionally, the set and actual temperatures are continuously compared.
Use the Programat CS6 exclusively for the sintering, crystallization or glazing of dental ceramic materials. Other uses than the ones stipulated, e.g. cooking of food, firing of other materials, etc., are contraindicated. The manufacturer does not assume any liability for damage resulting from misuse. The user is solely responsible for any risk resulting from failure to observe these Instructions.

Further instructions to assure proper use of the furnace:
- The instructions, regulations and notes in these Operating Instructions must be observed.
- The instructions, regulations and notes in the material's Instructions for Use must be observed.
- The furnace must be operated under the indicated environmental and operating conditions (see Chapter 6)
- The Programat CS6 must be properly maintained.

Additional information

The device has been developed solely for use in dentistry. Start-up and operation should be carried out strictly according to the Operating Instructions. Liability cannot be accepted for damages resulting from misuse or failure to observe the Instructions. The user is solely responsible for testing the apparatus for its suitability for any purpose not explicitly stated in the Instructions.

Signs and symbols

The signs and symbols in these Operating Instructions facilitate the finding of important points and have the following meanings:

Symbol	Note
	Observe Operating Instructions
	Risks and dangers
	Contraindication
	Warning, hot surface (burn hazard)
	Beware of hand injuries (risk of crushing)
	Important information

Warning signs and symbols on the furnace

The symbols on the furnace have the following meanings:

Symbol	Note
	Alternating current
	Direct current
	Dispose of the product according to the national legal provisions regarding the disposal of electronic devices.
	Recyclable
	General warning sign. Caution when using the device. Please read these Operating Instructions.
	Warning, hot surface (burn hazard)
	Beware of hand injuries (risk of crushing)
	Observe the Operating Instructions (Failure to observe the Operating Instructions may expose the patient or operators to a risk)
	Serial number
	Date of manufacture

This chapter is especially important for individuals who work with the Programat CS6 or who have to carry out maintenance or repair work. This chapter must be read and the corresponding instructions followed!

Notes on the images in the Operating Instructions

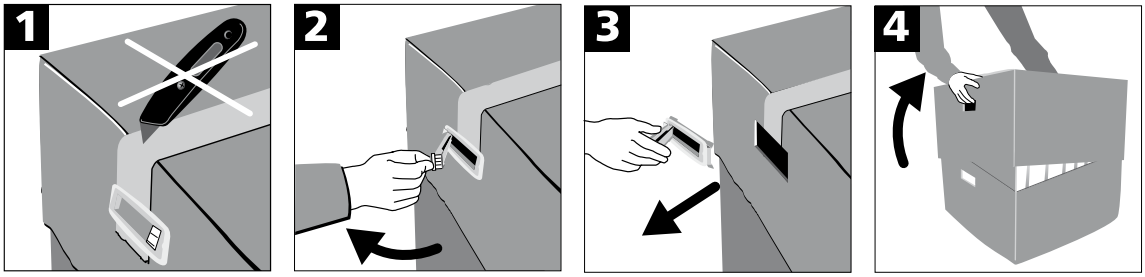
All images and illustrations in these Operating Instructions are used for exemplification and the details are not authoritative for the construction of the furnace. They are symbols, which may slightly differ from the original, e.g. due to simplification.

2 Application

2.1 Installation and initial start-up

2.1.1 Unpacking and checking the contents

Remove the furnace components from their packaging and place them on a suitable table. Please observe the instructions on the outer packaging.



There are no special transportation grips on the furnace. However, it can be carried by the grooves on the sides of the furnace bottom. The furnace should be carried by two people. If this is not possible, the device should be carried with the rear of the furnace facing the body for ergonomic reasons. The furnace must not be carried by holding on to the display or the cooling tray. Check the delivery for completeness (see delivery form in Chapter 8) and transportation damage. If parts are damaged or missing, contact your local Ivoclar Vivadent Service Centre.

We recommend keeping the original packaging for future service and transportation purposes.

2.1.2 Selecting the location

The device is only permitted for use in closed rooms within the specified ambient conditions (see Chapter 6).
Place the furnace on a flat non-combustible table using the rubber feet. Make sure that the furnace is not placed in the immediate vicinity of heaters or other sources of heat. Make sure to observe a clearance between the wall and the rear of the device as well as on the left side of at least 10 cm for air circulation purposes. Furthermore, there must be sufficient space above the furnace head so that the furnace head can open without difficulties. Also ensure that there is enough space between the furnace and the user, as the furnace releases heat during the opening of the furnace head.

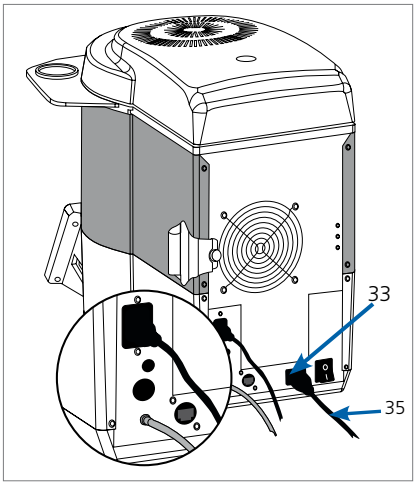
The furnace should neither be placed nor operated in areas where there is an explosion hazard.

2.1.3 Initial start-up

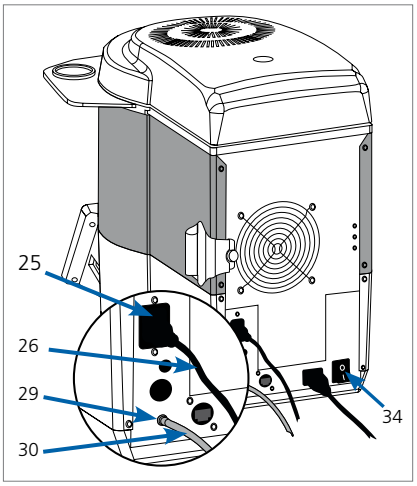
The start-up of the furnace is very easy and involves only few steps. Before you start, make sure that the voltage indicated on the rating plate (32) complies with the local power supply. If this is not the case, the furnace must not be connected.
Mount the tong holder left or right on the back of the furnace.

Connections

– **Power connection**
  Please make sure that the voltage indicated on the rating plate complies with the local power supply. Subsequently, connect the power cord (35) with the power socket of the furnace (33).
  The device must only be operated with the supplied original power cord or a replacement cord with the same specifications.



– **Vacuum pump connection**
  Connect the vacuum pump plug (26) with the vacuum pump socket (25). We recommend using a vacuum pump from Ivoclar Vivadent, since these pumps are especially coordinated with the furnace. If other pumps are used, always observe and do not exceed the maximum power consumption specified on the rating plate at the rear of the device. Connect the vacuum hose (30) with the vacuum hose connection (29).



  Do not shorten the vacuum hose!
  The minimum length of the vacuum hose is 1.6 m.

  – Connect the power cord with the wall socket.
  – Put the On/Off switch (34) at the rear of the furnace on position I.

Please note that the furnace may require a certain acclimation time (up to four hours) after having been transported. This is particularly true if the furnace was exposed to substantial temperature changes (water condensation). Switch the furnace on only after the acclimation time.

Basic settings upon initial start-up

Upon the initial start-up of the new furnace, a number of basic settings are required. These settings are saved and can be edited in the settings menu at a later time.

Step 1:
Select the language

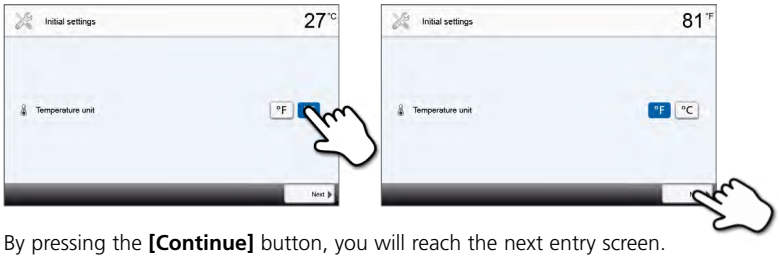
The first setting is the language selection. The touch buttons (display keys) can be operated by tapping the display.

Step 1 | **Step 2** | **Step 3**

Select the desired language using the **[Arrow up/down]** buttons. Confirm the entry with the green button. By pressing the **[Continue]** button, you will reach the next entry screen.

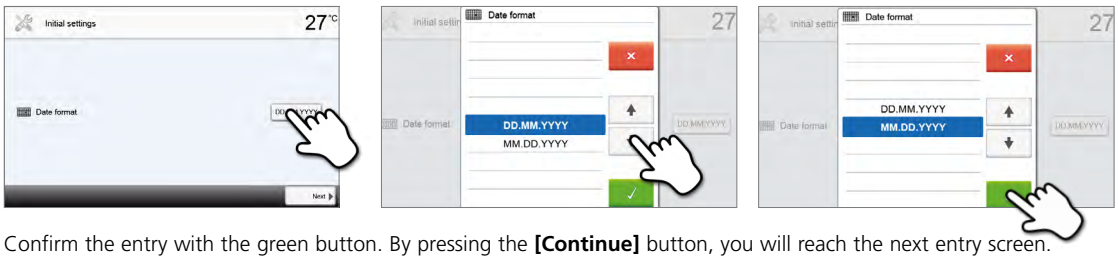
Step 2:
Select the temperature unit

Select the desired temperature unit.



By pressing the **[Continue]** button, you will reach the next entry screen.

Step 3:
Select the date format
Select the desired date format using the **[Arrow up/down]** buttons.

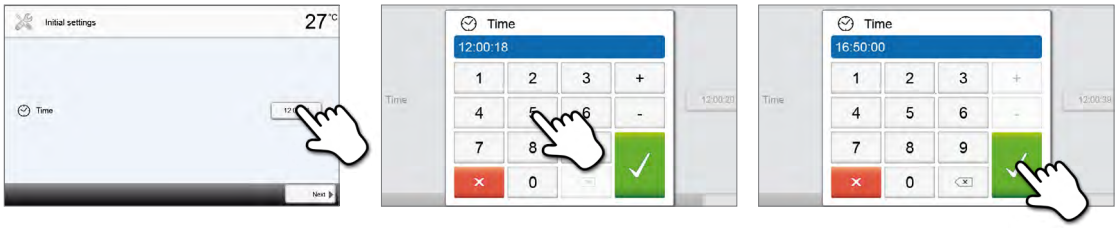


Confirm the entry with the green button. By pressing the **[Continue]** button, you will reach the next entry screen.

Step 4:
Enter the date
Set the date (day, month, year).

Confirm the entry with the green button. By pressing the **[Continue]** button, you will reach the next entry screen.

Step 5:
Enter the time
Set the time (hours, minutes, seconds).

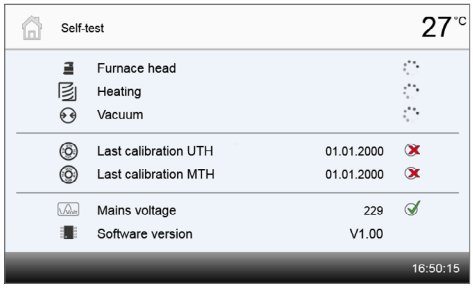


Confirm the entry with the green button. By pressing the **[Continue]** button, you will reach the next entry screen.

The initial start-up and entry of the basic settings are now complete. The furnace will now automatically conduct a self test. The performance of all furnace components is automatically checked.

Start screen and self-test

Immediately after switching on, the display shows the start screen for a few seconds. Subsequently, the furnace conducts an automatic self-test. The performance of all furnace components is automatically checked.



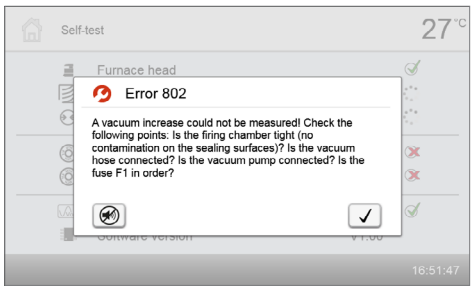
The following functions are checked:

Function		
Furnace head test		Furnace head test in progress
		The furnace head test was successful.
		The furnace head test failed. Please note the error message on the display.
Heating muffle test		Heating muffle test in progress
		The heating muffle test was successful.
		The heating muffle test failed. Please note the error message on the display.
Vacuum test		Vacuum test in progress
		The vacuum test was successful.
		The vacuum test failed. Please note the error message on the display.

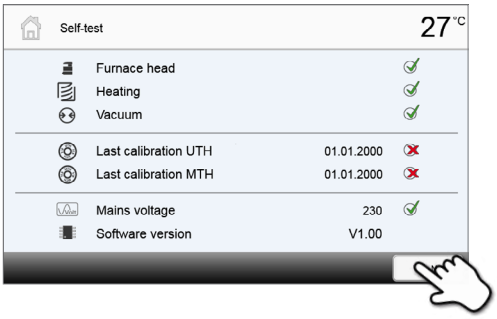
The following information is displayed:

Information		
Temperature calibration UTH and MTH		Temperature calibration of the furnace is not required.
		Some time has passed since the last calibration. Conduct a calibration.
Power supply		The power supply voltage is in the acceptable range.
		The power supply is outside the acceptable range.
Software version		The currently installed software version is displayed.

If the self-test was successful, the home screen is displayed. If the program recognizes a malfunction during the test, a corresponding error message with the corresponding rectification information appears in the display. The acoustic signal and the error message can be acknowledged with the corresponding buttons.



Press the **[Continue]** button to acknowledge the self-test.

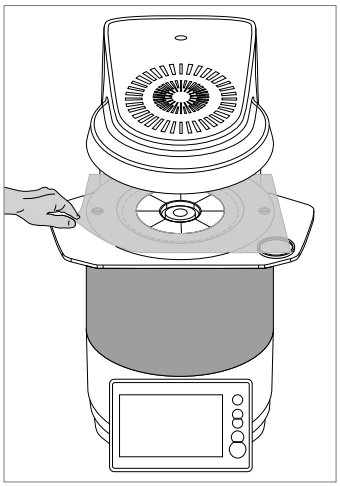


Before the first firing, the firing chamber must be dehumidified using program 7 (sintering of IPS e.max ZirCAD MT Multi).

The furnace should be regularly switched off and on again so that the automated tests can be performed during the self-test.

Final assembly

Step 1:
Press the **[Open furnace head]** button and wait until the furnace head has reached the upper final position.

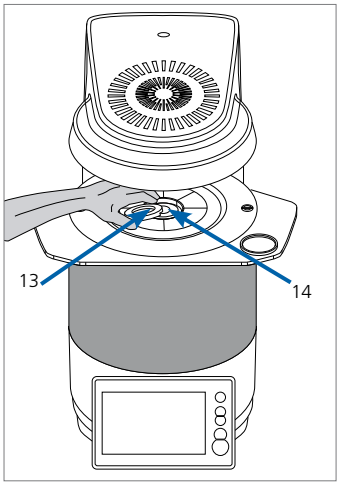


Step 2:
Remove the transport safety film.

Please make sure not to touch the thermocouple.

Please check the surfaces for adhesive residue. Any adhesive residue must be removed.

Step 3:
Place the object plate (13) on the object plate rest (14) in the firing chamber.



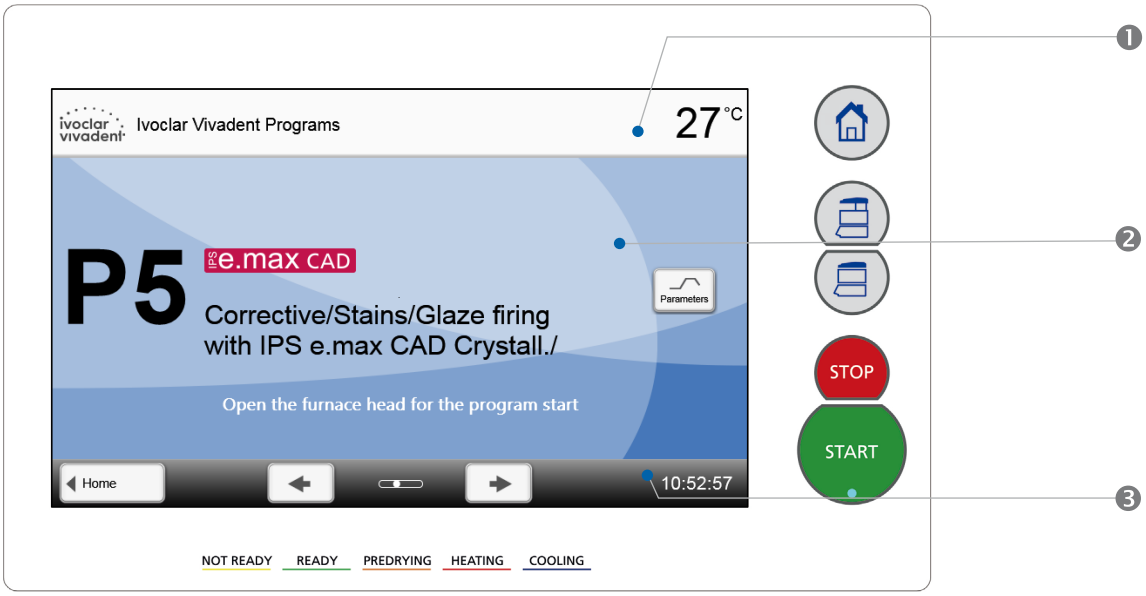
Step 4:
Close the furnace head using the **[Close furnace head]** button. The furnace is now ready for use.

2.2 Operation and configuration

2.2.1 Introduction to the operation

Control unit

The Programat CS6 is equipped with a widescreen colour display. The furnace can be intuitively operated by means of the membrane-sealed keypad and the touch screen. The touch buttons can be actuated by slightly tapping the display with the fingertip. Then the furnace runs the desired function.



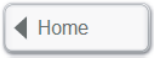
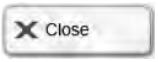
The user interface in the display is divided into three sections:

1. **Information bar** (e.g. indication of the current furnace temperature, the selected program, etc.)
2. **Main screen** (e.g. editing firing programs, changing the settings, etc.)
3. **Navigation bar** (e.g. scrolling, switching to higher levels, etc.)

Description of the key functions

Key	Function
	**Home** Switch to home screen (main menu)
	**Open furnace head**
	**Close furnace head**
	**STOP** A program in progress can be stopped by pressing the STOP key. The movement of the furnace head can be stopped at any time by pressing STOP. The acoustic signal can be confirmed by pressing the STOP key.
	**START (Start LED)** Starts the selected program. The green LED indicates that a program is active.

Explanation of the most important touch buttons

Button	Function
	**Scroll left / Scroll right** With these buttons, for example, you can scroll to the next page of the home screen. As an alternative, you can also swipe to the left or right with your finger on the display to scroll to the next page.
	**Back with note** With this button, you can change to the next higher menu level. The button indicates to which screen you change, e.g. to the home screen.
	**Close** With this button, you can close sub-menus.
	**Confirm entry** This button is used to confirm an entry. If the button appears pale green, no entry has been made yet or the value entered is not in the acceptable range.
	**Cancel entry** This button is used to cancel an entry. Changed values are not saved.
	**On/Off button** This button is used to switch functions on or off.
	**Parameter button** On pressing these buttons, a selection list or numeric pad appears for entering the parameters.

Description of the numeric pad and selection list

– **Numeric pad**

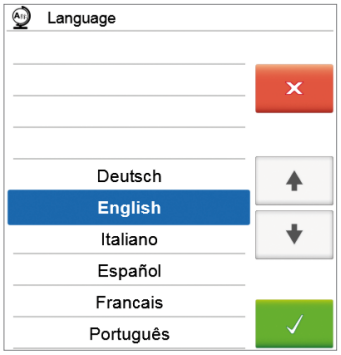
The numeric pad enables the entering and changing of parameters, e.g. in firing programs or set-up menus. Additionally, the currently set value is indicated, as well as the minimum and maximum values.

An entry must be confirmed with the green button. As soon as a valid entry has been confirmed, the numeric pad is closed. If the button appears pale green, the value entered is not within the acceptable range.

The numeric pad can be closed with the red button, without any parameters being changed.

– **Selection list**

In the selection list, the desired parameter can be selected by using the **[Arrow up/down]** buttons. An entry must be confirmed with the green button. After that, the selection list is closed.
The selection list can be closed with the red button, without any parameters being changed.



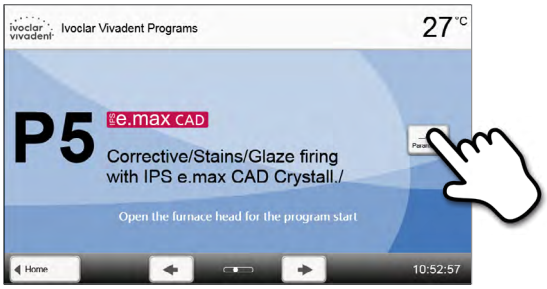
Explanation of program screen

After the furnace has been switched on and the self-test has been completed, the program screen appears. Programs can be selected, started, and edited from this screen.

The programs can be selected by pressing the **[Arrow]** buttons. The main screen indicates the program number, program name and a help text.
As an alternative, you can also swipe to the left or right with your finger on the display to scroll to the next program.

The dots between the arrows indicate the number of pages.
The current page is marked with a light dot.

The **[Parameters]** button is used to switch to the program parameter screen. Here you can edit the program parameters.



In locked Ivoclar Vivadent programs, the **[Predrying]** button appears instead of the **[Parameters]** button. See Chapter 2.2.2.4 for details.

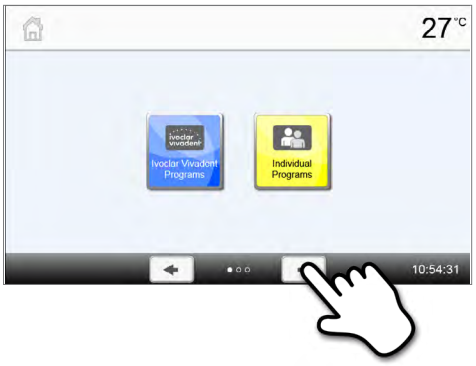
Description of the Home screen

With the Home button, you can change to the home screen. All functions of the Programat CS6 can be selected from this screen.

By pressing a selection button, you will reach the corresponding menu (e.g. programs, settings, calibration, etc.)

The next page of the home screen can be accessed with the **[Arrow]** button, where additional functions are available.

The dots between the arrows indicate the number of pages.
The current page is marked with a light dot.



Description of the speaker sounds

- **After the self-test is completed**
  To inform the user that automatic self-test has been successfully completed, the selected melody is played.
- **For error messages**
  Error messages are acoustically supported with the "error melody" (endless beep). The signal transmitter may be switched off with the STOP key, while the error message still remains visible. If the error message is acknowledged with the corresponding button, the signal transmitter is also switched off.

Optical Status Display (OSD)

The Optical Status Display (OSD) (12) shows the most important statuses of the furnace. The following activities are indicated:

Shade	Activity
Yellow	The furnace is performing the self-test or is not ready for use.
Yellow (flashing)	Information, note or error message
Green	The furnace is ready for use; the currently selected program can be started.
Orange	Program is closing the furnace head or is in predrying mode
Red	Program is heating up or is in holding time mode
Blue	Program is in its cooling phase or opening the furnace head

User code

For safety reasons, a user code is required for certain settings. The user code ex factory is as follows:

1234

The user code can be individually changed. See Chapter Settings 2.2.4.1. for details.

2.2.2 Firing programs and programming options

2.2.2.1 Program structure

The furnace offers two program types:

a. Programs for Ivoclar Vivadent materials

When the furnace is delivered ex works, the Ivoclar Vivadent programs already contain the recommended material parameter settings and are write-protected. Consequently, it is not possible to accidentally overwrite the programs.

In case of software updates, individually changed parameters in Ivoclar Vivadent programs might be reset to the factory settings or changed!

b. 40 free, individually adjustable programs

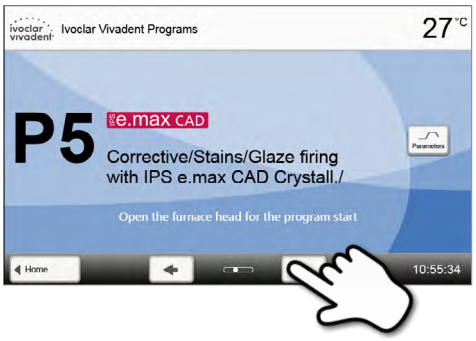
The programs are designed in such a way that up to three heating and two cooling stages can be set. The programs can be individually named.

In case of software updates, individually changed parameters in free programs are NOT reset to the factory settings or changed!

2.2.2.2 Program selection

After the furnace is switched on, the display first shows the program screen and the last selected program.

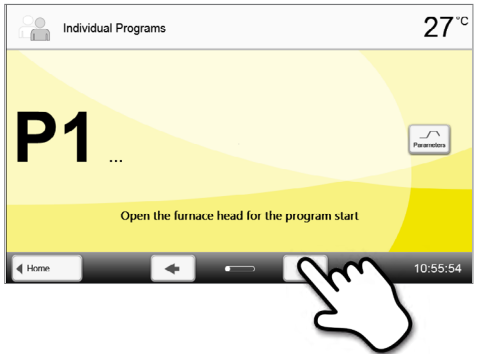
The programs can be selected by pressing the **[Arrow]** buttons.



In order to switch to an individual program, open the home screen by pressing the **[Home]** button. The program selection requires only few steps:

Step 1:
Select program type

Step 2:
Select the program



2.2.2.3 Starting and stopping programs / Operation indicator

Once the program is started by pressing START, the progress screen appears.

The following information is displayed:

- **Information bar:**
  In the information bar in the upper margin of the display, program name and the current furnace temperature are indicated.
- **Main area:**
  The approximate remaining time and a program status bar are shown in the main area.

A program can only be started if the furnace head is open.

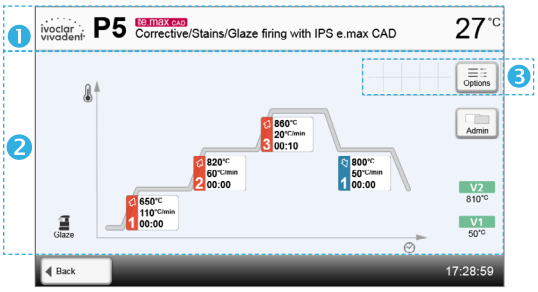
2.2.2.4 Editing programs

If the **[Parameters]** button is pressed while the program screen is displayed, the program parameter screen opens. Firing programs can be edited in this screen.

For Ivoclar Vivadent programs, the write-protection must be deactivated first, before any parameters can be changed.

Not all Ivoclar Vivadent programs can be edited.

The following information is shown in program parameter screen:



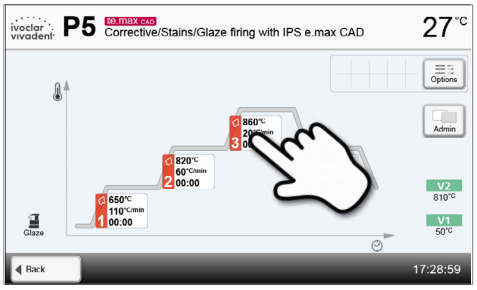
1. Information bar:
- Program designation
- Current furnace temperature

2. Firing curve:
- Predrying
- Number of heating and cooling stages
- Holding temperature, temperature increase rate and holding time per stage
- Temperatures for vacuum on and vacuum off

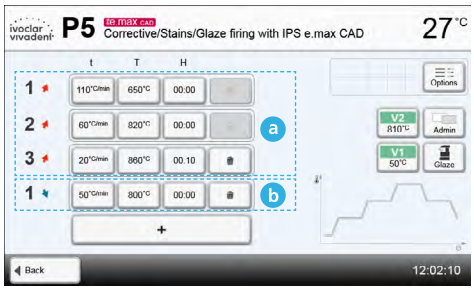
3. Program options:
In addition to the parameters shown in the firing curve, several other options are available that can be activated by pressing the **[Options]** button. The icons in the grid show the activated options.

When the furnace head is open, the temperature of the thermocouple in the furnace head is indicated, not the temperature in the firing chamber.

Editing parameters
By pressing the firing curve, you will reach the parameter view.

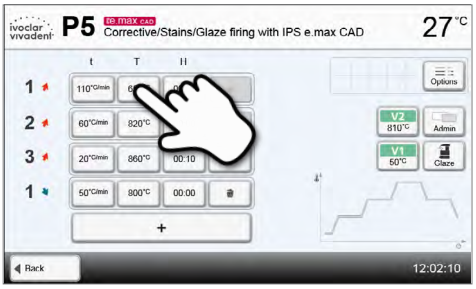


In the parameter view, the parameters can be changed. Up to three heating (a) and two cooling (b) stages are available.



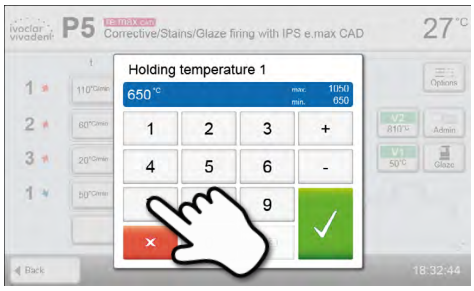
Example 1: Setting the holding temperature:

Step 1:
Press the [T] button



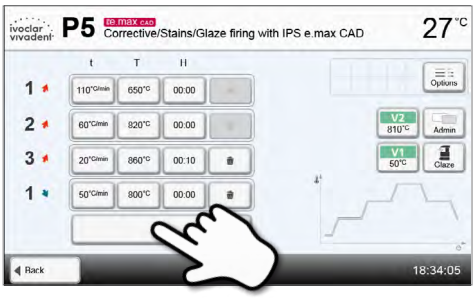
Step 2:
Enter the desired holding temperature and confirm with the green button

The holding temperature has been successfully changed. All other parameters shown in the firing curve can be changed / edited in the same way.



Example 2: Changing the number of heating/cooling stages:

Step 1:
A heating or cooling stage can be added by pressing the button [+].



Step 2:
A heating or cooling stage can be removed by pressing the Recycle bin button.

Changed parameters in Ivoclar Vivadent programs are marked with a symbol.

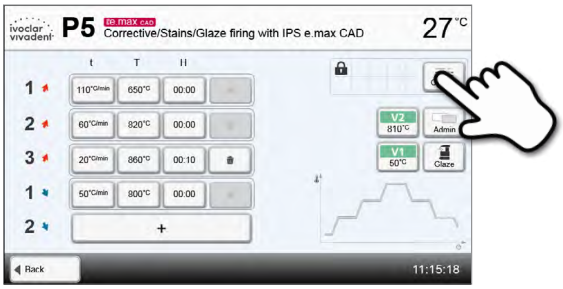
Pressing the button **[Back]** will take you back to the program parameter view. Pressing the button **[Back]** again, will take you to the program view.

Changing program options

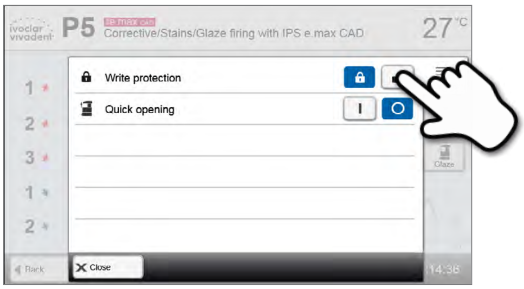
Pressing the Options button opens the menu for advanced program options:

Example 1: Deactivate the program write protection

Step 1:
Press the [Options] button.

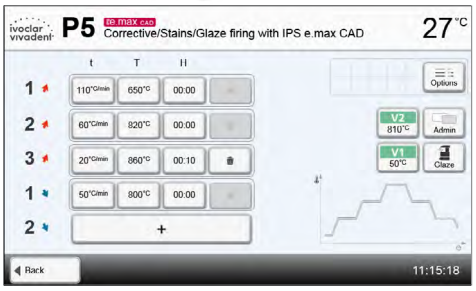


Step 2:
Press the [Deactivate write-protection] button.



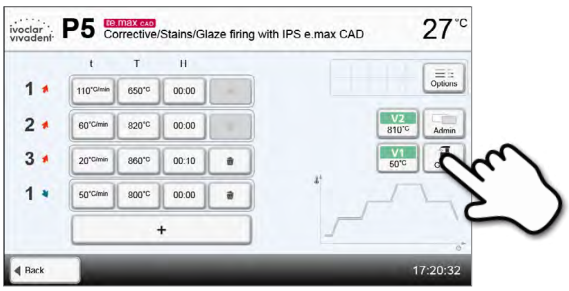
Step 3:
Press the [Close] button to leave the Options menu.

Step 4:
The write protection was successfully deactivated.
The lock symbol is no longer shown in the display next to the Options button.

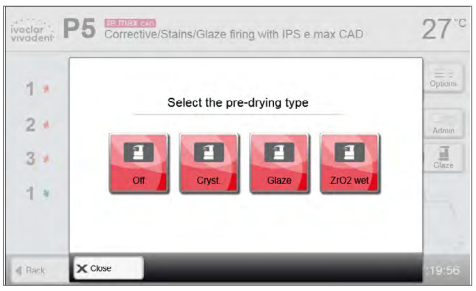


Example 2: Changing the predrying program

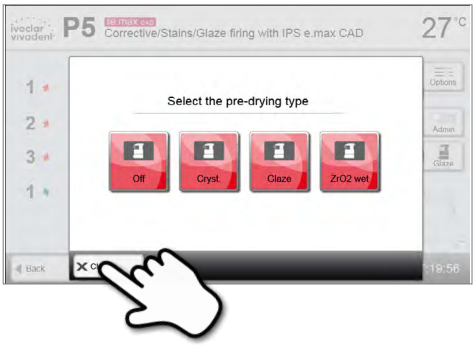
Step 1:
Press the [Predrying] button to open the options window.



Step 2:
Select the desired predrying program or deactivate predrying.



Step 3:
Press the [Close] button to leave the Options menu.



Predrying is always required for crystallization programs!

Changing or incorrectly selecting the predrying program for Ivoclar Vivadent programs may lead to poor results.

2.2.2.5 Adjustable parameters in the program screen

t/

t – Temperature increase rate
The temperature increase rate defines by how many degrees per minute the furnace is to heat up / cool down.
In multi-stage programs t1, t2, t3, t4 or t5 depending on the stage.

Value range:
t1: 50–200°C/min, 90–360°F/min
t2: 10–100°C/min, 18–180°F/min
t3: 10–30°C/min, 18–54°F/min
t4: 30–70°C/min, 54–126°F/min
t5: 10–70°C/min, 18–126°F/min

T

T – Holding temperature
The holding temperature defines the temperature at which a firing/sintering process is conducted.
In multi-stage programs T1, T2, T3, T4 or T5, depending on the stage.

Value range:
T1: 650–1050°C, 1202–1922°F
T2: 651–1450°C, 1204–2642°F
T3: 652–1560°C, 1206–2840°F
T4: 651–1200°C, 1204–2192°F
T5: 650 –1000°C, 1202–1832°F

H	**H – Holding time** The holding time indicates how long an object is fired at the holding temperature. In multi-stage programs H1, H2, H3, H4 or H5, depending on the stage. *Value range:* *H1: 00–60:00 (mm:ss)* *H2: 00–60:00 (mm:ss)* *H3: 00–30:00 (mm:ss)* *H4: 00–30:00 (mm:ss)* *H5: 00–30:00 (mm:ss)*
V1	**Vacuum on** The parameter defines the temperature at which the vacuum is activated. *Value range °C: Off or 1-1199°C; Value range °F: Off or 34-2190 °F*
V2	**Vacuum off** The parameter defines the temperature at which the vacuum is deactivated. • **Holding time without vacuum**: If V2 is set lower than the holding temperature, the vacuum is ended before the holding time. • **Holding time with vacuum**: If V2 corresponds to the holding temperature, the vacuum is maintained during the entire holding time. *Value range °C: Off or 1-1200°C; Value range °F: Off or 34-2192 °F*
	**Predrying** Four predefined predrying programs are available: • **Off** • **Crystallization** (crystallization alone or in conjunction with the glaze spray) • **Glaze** (spray or paste) • **ZrO_2 wet** (for wet-machined zirconia)

Predrying is always required for crystallization programs.

2.2.2.6 Adjustable parameters in the Options menu

In addition to the parameters shown in the firing curve, several other options are available that can be activated by pressing the **[Options]** button. Active options are shown with icons in the grid next to the Options button.

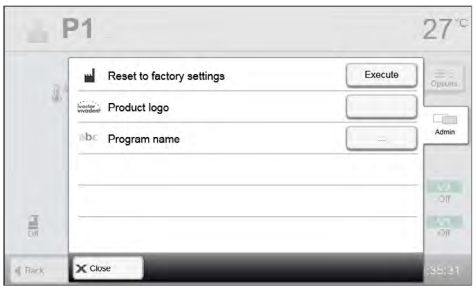
The following firing program options are available:

	**Program write-protection** If the program write-protection is activated, the program parameters and program options cannot be changed. This is to prevent accidental changes to the program. *Setting option: On/Off*
	**Quick opening** If the option "Quick opening of the furnace head" is activated, the furnace head opens at maximum speed at the end of the program. "Quick opening of the furnace head" should only be activated for small restorations with thin wall thicknesses. *Setting option: On/Off*

2.2.3 Managing programs

Press the button **[Admin]** in the program view to open the Manage programs menu.

The following functions are available:
- Reset program to factory settings
- Select product logo
- Rename program



Reset program to factory settings

This function is used to reset a changed program to factory settings.

Step 1:
Press the [Execute] button in the Admin menu.

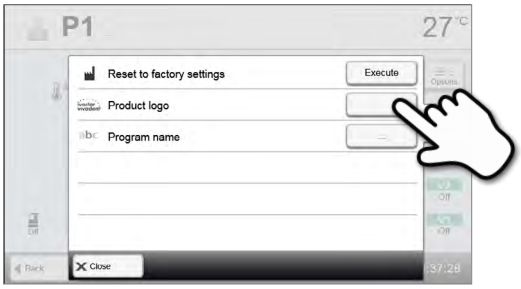
Step 2:
Enter the user code to confirm that the program is reset to factory settings.

Step 3:
The program has successfully been reset to factory settings.

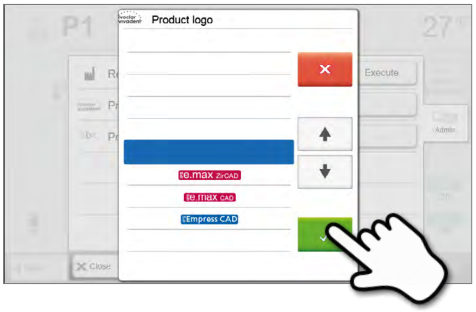
Select product logo

The product logo for the current program can be selected.

Step 1:
Press the [Product logo] button in the Admin menu.



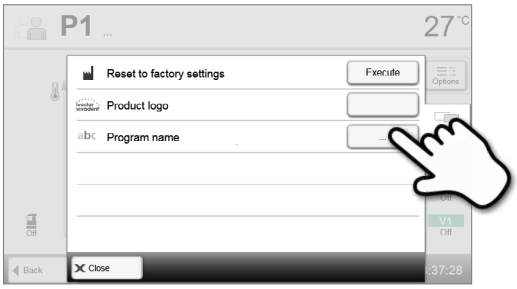
Step 2:
Select the desired product logo using the [Arrow up/down] buttons. Confirm the entry with the green button.



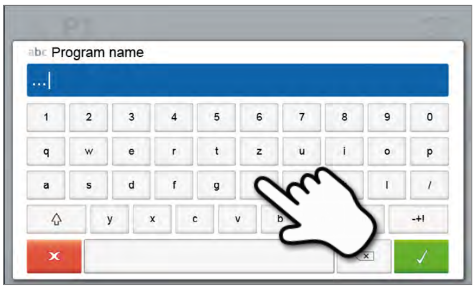
Rename program

The current program can be renamed.

Step 1:
Press the [Product name] button in the Admin menu.



Step 2:
Enter the desired program name. Confirm the entry with the green button.



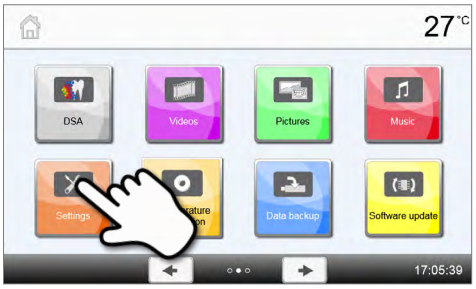
2.2.4 Advanced functions of the furnace

2.2.4.1 Settings

To reach the Settings menu, scroll to page 2 in the home screen and press the **[Settings]** button.

Example: Changing the brightness of the display

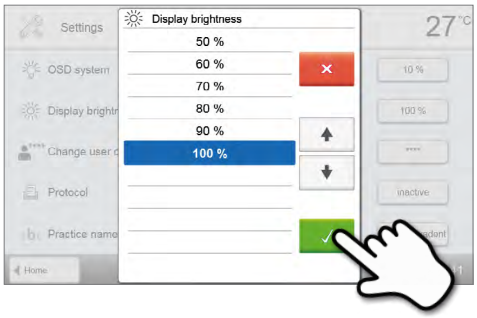
Step 1:
Open Settings
Scroll to page 2 in the home screen and press the **[Settings]** button.



Step 2:
Open display brightness
The **[Arrow]** buttons are used to scroll through the Settings menu. Press the button until the setting "Display brightness" appears in the display.

Press the touch button in the line "Display brightness".

Step 3:
Change the brightness of the display
Select the desired display brightness in percent and confirm the entry with the green button or cancel the entry by pressing the red button.



To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad.

The following settings can be changed in the Settings menu:

Temperature unit
You can choose between °C and °F.

Setting option: °C / °F

Vacuum unit
You can choose between mbar and hPa.

Setting options: mbar / hpa

Language
Select the desired operating language.

Setting option: German, English, Italian, French, Spanish, Portuguese, Swedish, Dutch, Turkish, Russian, Polish, Croatian, Trad. Chinese, Mandarin Chinese, Finnish, Norwegian, Slovenian, Czech, Slovakian, Hungarian, Indian (Hindi), Japanese, Korean, Arabic, Iranian (Farsi), Serbian

Volume
Select the desired volume of the acoustic signals

Setting option: Off / 20–100 % in 20 % steps

Melody
Select the desired melody for the acoustic signal.

Setting option: Melody 1 to 20

Individual tune
This function is used to load an individual tune in mp3 format. This tune will then be used as the speaker sound.

Individual start screen
This function is used to load an individual start screen in .jpg format from a USB flash drive. Once an individual start screen has been loaded, it will be shown for a few seconds when the furnace is switched on the next time.

Time
Setting the current time

Setting options: hh:mm:ss

Date
Setting the current date

Setting options: according to the set date format

Date format
Setting the date format

Setting option: DD.MM.YYYY; MM.DD.YYYY

Optical Status Display (OSD)
Here, the OSD can be switched on or off

Setting option: Off / 10–100 % in 10-% steps

Display brightness
Setting the display brightness

Setting option: 20–100 % in 10-% steps

User code
The user code can be individually changed.

It is recommended to make a note of the changed user code and keep it separately. If forgotten, the user code may only be reset with the help of After Sales Service.

Setting option: 1000 to 9999

Protocolling
If this function is activated, the program data are saved as a protocol entry after every firing procedure. The following protocol settings are available:

Inactive: Protocolling is not active

Printer: At the end of the program, the parameters used are logged and saved in the furnace. Additionally, the protocols are printed on a connected USB printer.

PC: At the end of the program, the parameters used are logged and saved in the furnace. If the furnace is connected to the PrograBase X10 software, the saved table entries are synchronized with the connected laptop computer / PC. Protocols can be edited, saved and printed by means of the PrograBase X10 software.

Table: At the end of the program, the parameters used are logged and saved in the furnace. The data can be viewed via the Diagnosis menu.

Setting option: Inactive / Printer / PC / Table

Practice name
The practice name can be entered here. It is automatically added to the protocols.

Setting option: Practice name entry

Calibration interval
Setting for the notification as to when the next calibration should be conducted.

Setting option: 1 / 3 / 6 / 12 months

	Resetting heating muffle firing hours to zero If this function is executed, the heating muffle firing hours are set to "zero". This function can only be executed by entering the user code. *Setting option: execute*
	Resetting the vacuum pump hours to zero If this function is executed, the vacuum pump hours are set to "zero". This function can only be executed by entering the user code. *Setting option: execute*
	Reset to factory settings If this function is executed, all programs and settings are reset to the status before the initial start-up. This function can only be executed by entering the user code. *Setting option: execute*
	Setting up a WLAN connection A WLAN connection can be set-up with this function. See the next chapter for more details.
	Touch mode Setting the sensitivity of the touch screen. Select "Special" in case of malfunctions when operating the touch screen. *Setting option: Normal / Special*
	Keypad tone Here, the keypad tone can be activated. *Setting option: On/Off*

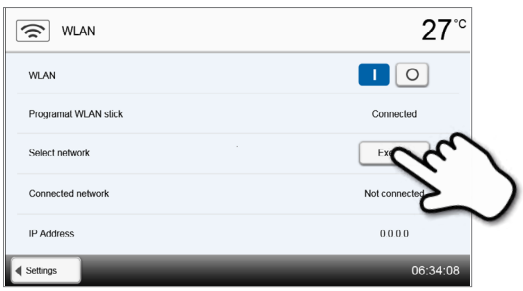
Setting up a WLAN connection

A WLAN connection can be set-up in the Settings menu. This function is only available if the Programat WLAN flash drive is inserted directly into the USB port of the furnace. The USB ports are intended to accommodate WLAN flash drives directly. Should you use a USB extension cord or a USB hub, check their function and interference immunity before the first use.

The set-up requires only a few steps:

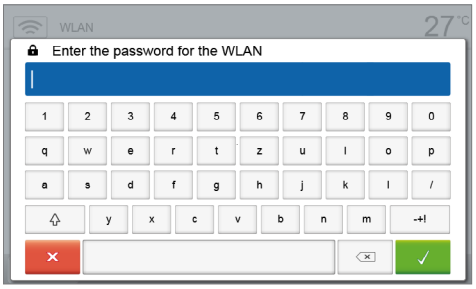
Step 1:
Turn the WLAN on.

Step 2:
Press the [Execute] button to show available WLAN networks.

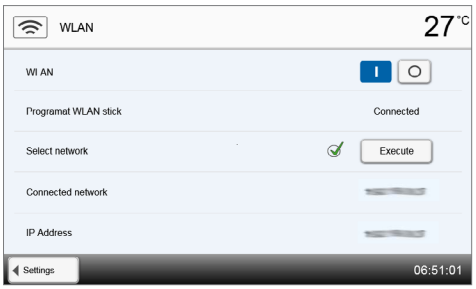


Step 3:
Select the desired network with the [Arrow up/down] buttons.

Step 4:
Enter the WLAN password and confirm with the green button or abort the entry with the red button.



Step 5:
The WLAN connection was successfully set-up.



Only 2.4 GHz networks with the following security standards are supported:
– WEP 64-bit
– WEP 128-bit
– WPA-PSK TKIP
– WPA-PSK AES
– WPA2-PSK TKIP+AES
– WPA2-PSK AES

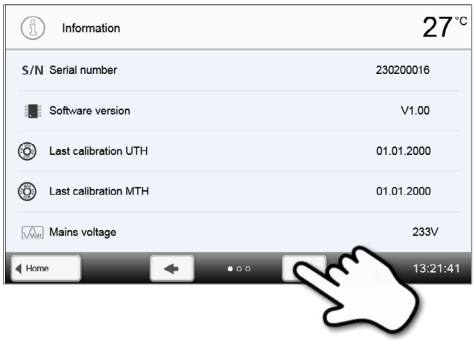
After the initial set-up of the WLAN connection, the furnace automatically connects with the network last used at every new start, provided the network is available.

2.2.4.2 Information

To reach the screen for the furnace information, scroll to page 3 in the home screen and press the **[Information]** button.

Step 1:
Opening information
Scroll to page 3 in the home screen and press the **[Information]** button.

Step 2:
Reading the information
The information is displayed on several pages. The **[Arrow]** buttons are used to scroll to the next information page.



To return to the home screen, press either the **[Home]** button in the navigation bar or the Home button on the membrane-sealed keypad.

The following information can be read off:

S/N	**Serial number** Serial number of the furnace
	Software version Currently installed software version of the furnace. Software updates are available from *www.ivoclarvivadent.com/downloadcenter*.
	Last calibration UTH Date of the last UTH calibration
	Last calibration MTH Date of the last MTH calibration
	Mains voltage Currently measured mains voltage
h	**Operating hours** Number of operating hours
h	**Firing hours** Number of firing hours
h	**Total vacuum hours** Number of operating hours of the vacuum pump
IP	**IP address** Indication of the IP address
IP	**WLAN IP address** Indication of the WLAN IP address
IP	**Internet connection** Indicates whether or not the furnace is connected to the internet
IP	**MAC address** Indication of the MAC address
IP	**WLAN MAC address** Indication of the WLAN MAC address

2.2.4.3 Temperature calibration

The thermocouple and firing chamber of the furnace may be subject to changes which affect the furnace temperature, depending on the mode of operation and the frequency of use. Conduct the temperature calibration at least once every six months.

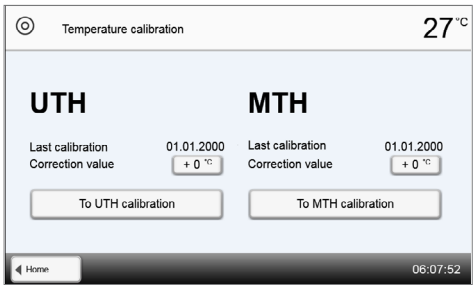
Calibration with the temperature checking rings permits the verification of the temperatures in the temperature range for crystallization and glazing (UTH) and the temperature range for sintering (MTH). It is not absolutely mandatory that both temperature ranges are calibrated. If only sinter programs are to be conducted, only the MTH temperature range must be calibrated. If only glaze and crystallization programs are to be conducted, only the UTH temperature range must be calibrated. The temperature control rings change their dimensions during calibration due to shrinkage. The shrinkage of the temperature control rings is decisive for the correction value of the furnace and can be read off the conversion table (enclosed in the temperature checking set).
For calibration, you need temperature control rings, a measuring device (sliding calipers) and a conversion table (enclosed in the Temperature Checking Set).

Perform the temperature calibration only when the furnace is cold.

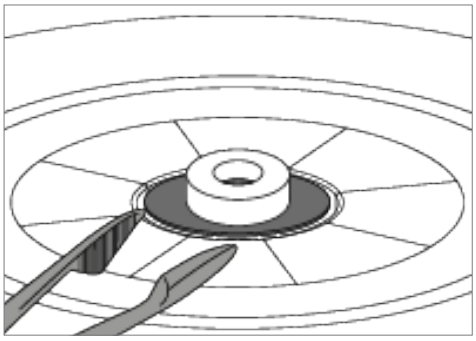
Temperature calibration requires only few steps:

Step 1:
Open temperature calibration
Scroll to page 2 in the home screen and press the **[Temperature calibration]** button.

Step 2:
Select calibration range
Select the desired temperature calibration range UTH (temperature range for crystallization and glazing) or MTH (temperature range for sintering) by pressing the respective button.

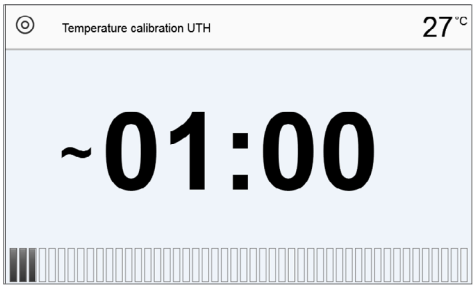


Step 3:
Place temperature control ring
Open the furnace head by pressing the button **[Open furnace head]**. Place the temperature control ring UTH or MTH, depending on the selected temperature calibration range, in the centre of the sintering table with the imprint facing up.

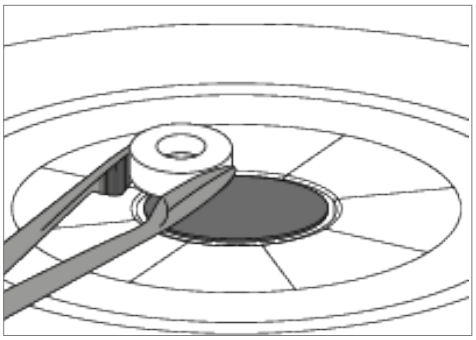


Always make sure that the correct temperature control ring UTH or MTH is used. The use of an incorrect temperature control ring results in damage to the object plate and other components in the firing chamber.

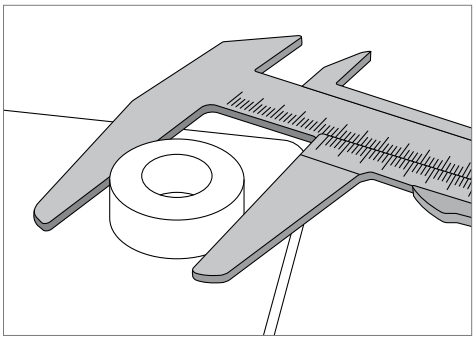
Step 4:
Start temperature calibration program
Press the **[Start]** button to start the calibration program. The remaining time is shown on the display.



Step 5:
Remove temperature control ring
After the end of the program, carefully remove the sintered temperature control ring and leave it on the cooling tray to cool to room temperature.



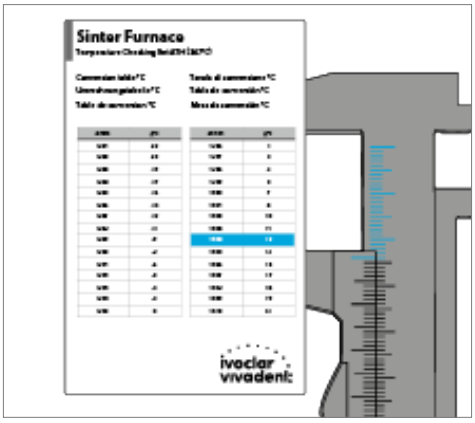
Step 6:
Measure the diameter
Place the cool temperature control ring on an even surface with the imprint facing down. Measure the exact diameter near the bottom using sliding calipers. Make sure that the temperature control ring is exactly touching the two arms of the sliding calipers. Measure the diameter of the ring in three different places by turning it by approximately 120° between measurements. Use the smallest of the measured diameters for the calibration.



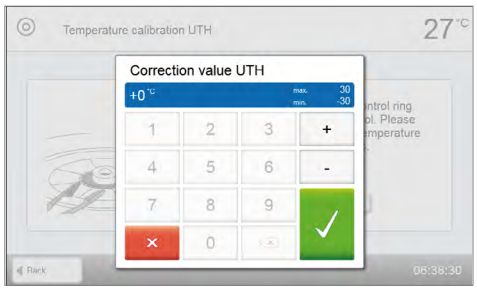
Optionally, the Programat Calibration Measuring Aid can be used. For more detailed information, see the packaging insert of the Programat Measuring Aid.

Step 7:
Find the diameter in the conversion table
Find the measured diameter in the conversion table and read off the necessary correction.

The correction value is the value that balances out the difference between the measured current temperature and the desired set temperature.



Step 8:
Enter the correction value
If the correction value is greater than 5°C, then the correction value is entered into the furnace by adding or subtracting accordingly to the current value in the furnace. If the correction value is lower than 5°C, then no correction is needed.



Example 1:
Current calibration value of the furnace is 7
Value according to the conversion table is 6
New calibration value of the furnace is 13 (7+6)

Example 2:
Current calibration value of the furnace is -8
Value according to the conversion table is 7
New calibration value of the furnace is -1 (-8+7)

Step 9:
Complete the calibration
Calibration is now complete. Close the furnace head or select a program.

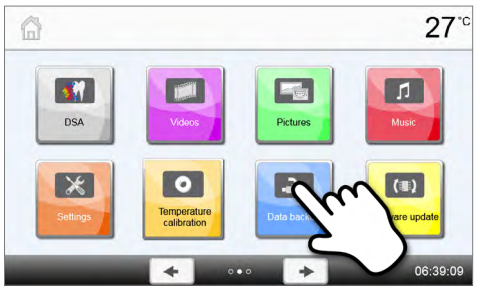
To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad.

2.2.4.4 Data backup

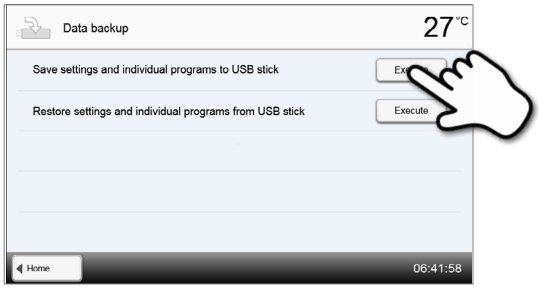
With the data backup function, individual programs and settings can be backed-up to a USB flash drive. We recommend using this feature, e.g. before a software update or before sending in the furnace for maintenance purposes.
Moreover, furnace data saved on a USB flash drive can be restored on the furnace. However, restoring only works on the same furnace with the identical serial number.

Data backup or data recovery requires only few steps:

Step 1:
Open data backup
Scroll to page 2 in the home screen and press the button **[Data backup]**.

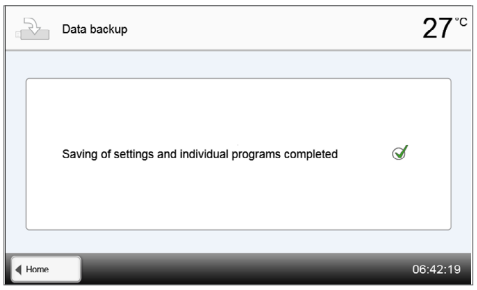


Step 2:
Conduct the data backup
Connect a USB flash drive to the furnace and press the **[Execute]** button.



Use the Programat USB flash drive provided or a FAT32-formatted USB flash drive for data backup.

Step 3:
Complete the data backup
Data backup successful
Data backup failed



To return to the home screen, press either the **[Home]** button in the navigation bar or the HOME key on the membrane-sealed keypad.

2.2.4.5 Software update

Software updates can be easily installed on the furnace by means of a USB flash drive. A USB flash drive, which contains a current software file (e.g. CS6_V1.10.iv) is required for the update. The software version on the USB flash drive must be higher than the one installed on the furnace (see Information menu).

Free software updates for Programat furnaces are available from *www.ivoclarvivadent.com/downloadcenter*.

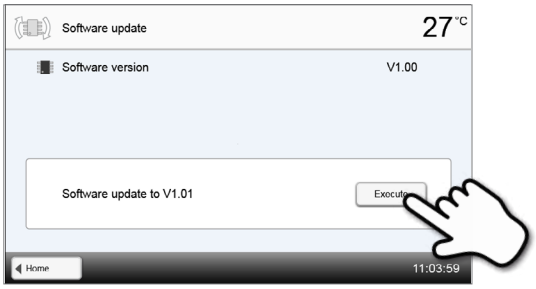
Back-up your data before performing a software update.

Important information
Please note that modified Ivoclar Vivadent programs may be overwritten during a software update. Individual programs are not affected and will not be overwritten.

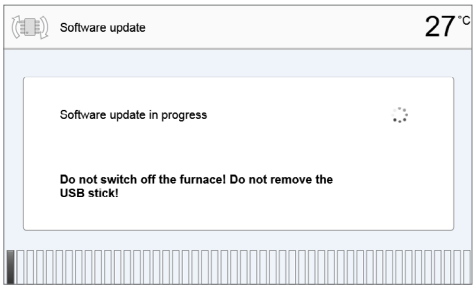
A software update requires only few steps:

Step 1:
Open software update
Scroll to page 2 in the home screen and press the button **[Software update]**.

Step 2:
Conduct software update
If the USB flash drive with the software file is already connected, the furnace automatically searches for a valid software file. If the USB flash drive has not yet been connected with the furnace, do so now. Press the **[Execute]** button.



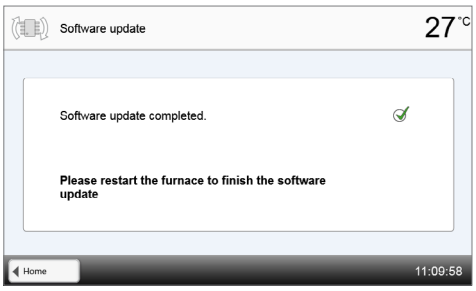
Step 3:
The status bar shows the progress of the update.
The USB flash drive must not be removed during the update process and the furnace must not be switched off.



Step 4:
End software update
The following messages are displayed:

Software update successful

Software update failed

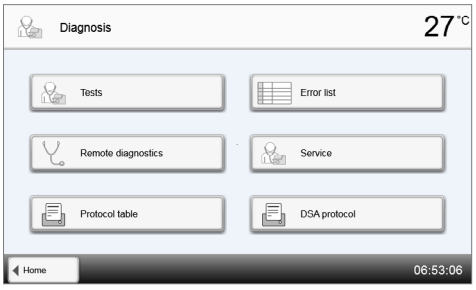


The furnace has to be switched off by means of the mains switch at the rear of the furnace and switched on again after a waiting time of five seconds to complete the software update.

2.2.4.6 Diagnosis

Scroll to page 2 in the home screen and press the **[Diagnosis]** button.

The following functions are available in the Diagnosis menu:
- Tests (e.g. vacuum test, heater test etc.)
- Error list (saved error messages)
- Remote diagnostics
- Service
- Protocol table
- DSA protocol



Tests (test programs)

– **Vacuum test**
With the vacuum pump test program, the vacuum performance and tightness of the furnace vacuum system can be automatically tested. For that purpose, the achieved (minimum) pressure in mbar is measured and indicated. If the pressure value is below 80 mbar (hPa), the vacuum performance of the system is adequate.

– **Heater test**
The heater test can check if the heater works properly. However, no statement about the quality of the heating elements can be made. The heater test should only be conducted with the empty firing chamber.

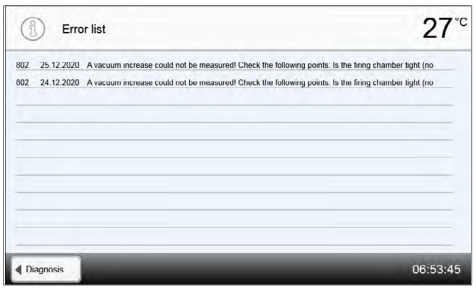
– **Keypad test**
Each time the keypad or the touch buttons are pressed, a short acoustic signal sounds to confirm its function.

– **Display test**
Two different checkerboard patterns are alternately shown on the entire display. Every individual pixel can be visually checked.

– **OSD test**
This test is used to test the correct function of the Optical Status Display. For that purpose, the OSD alternately flashes in different colours.

Error list

Every error message is saved in an error table after it occurred. The **[Arrow]** buttons are used to scroll through the list. The last 20 error messages are displayed.



Remote diagnostics

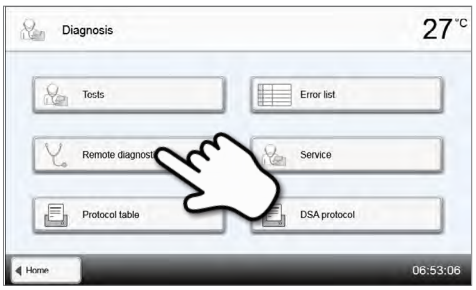
The remote diagnostics function helps you in case of a possible problem with your Programat furnace and facilitates the communication between users and the After Sales Service team.

If the diagnosis function is executed, the furnace generates a diagnosis file, which is automatically saved on a USB flash drive. The file can be forwarded by e-mail or analyzed by means of PrograBase X10 on a laptop computer / PC.

The diagnosis file provides furnace information (e.g. installed software version, set modes, etc.), operating data (e.g. operating hours, firing hours, etc.), calibration data (e.g. calibration values, date of the last calibration, etc.), test results and saved error messages.

The diagnosis file can be generated in only a few steps:

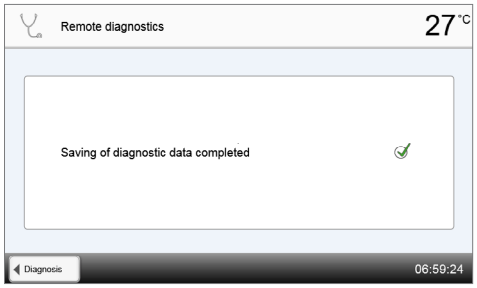
Step 1:
Open the diagnosis function
Press the **[Remote diagnosis]** button in the Diagnosis menu.



Step 2:
Generate a diagnosis file
Connect a USB stick with the furnace. Press the **[Execute]** button.

Step 3:
One of the following messages is being displayed
Diagnosis data backup complete

Diagnosis data backup failed



Step 4:
Forward or analyze the diagnosis file
Connect the USB flash drive with a PC. The file can now be analyzed by means of the PrograBase X10 software or sent to any e-mail address. The PC must connected with the Internet for that purpose.

If the furnace is connected with a PC via Ethernet, the file can also be directly opened, forwarded or analyzed by the PrograBase X10 software.

Protocol table
If the protocolling function has been activated in the Settings menu (see Chapter 2.2.4.1), the last 20 programs are saved in the protocol table. The saved protocols can be printed from this table, sent to a PC, or deleted.

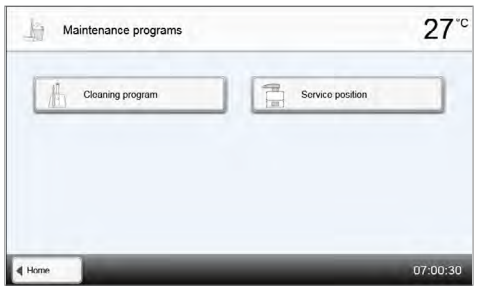
Service menu
This menu is code-protected and is only used by After Sales Service.

DSA protocols
The last 20 DSA analyses are saved. The saved protocols can be printed from this table, sent to a PC, or deleted.

2.2.4.7 Maintenance programs

Scroll to page 3 in the home screen and press the **[Maintenance programs]** button.

You have the following program options:
– Cleaning program
– Service position



Cleaning program

The firing chamber is "cleaned" with the cleaning program. After a cleaning program, it is recommended to calibrate the furnace. More detailed information on the cleaning program and on cleaning the firing chamber can be found in Chapter 3.2 "Cleaning".

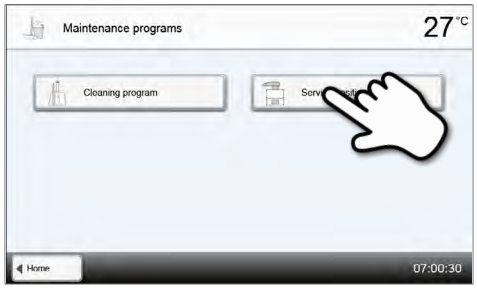
Service position

To be able to clean the firing chamber or to remove particles from the firing chamber, the service position must be executed. For that purpose, the furnace head is uncoupled from the mobile cooling tray area to enable access to the firing chamber.

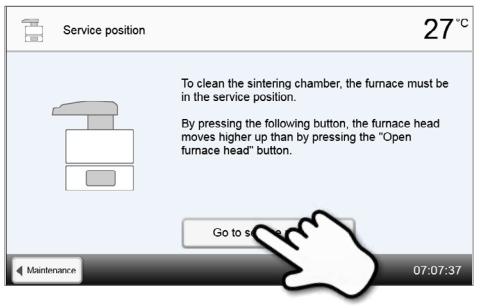
To clean the firing chamber, the furnace and the firing chamber must be cold.

The service position can be executed in only a few steps:

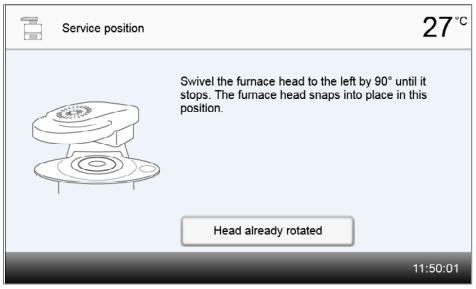
Step 1:
Open the service position
Scroll to page 3 in the home screen and press the **[Maintenance programs]** button. Press the **[Service position]** button in the Care Programs menu.



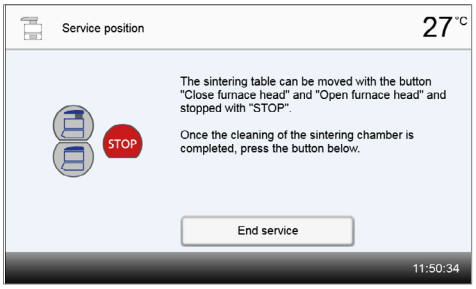
Step 2:
Moving to the service position
Press the **[Go to service position]** button. The furnace head then moves to a higher position than in normal operation.



Step 3:
Swivelling the furnace head
Swivel the furnace head by 90° to the left until it stops. The furnace head snaps into place in this position.



Step 4:
Cleaning the firing chamber
Now the object plate can be moved with the buttons **[Open furnace head]** and **[Close furnace head].**
The firing chamber is now accessible and can be cleaned.



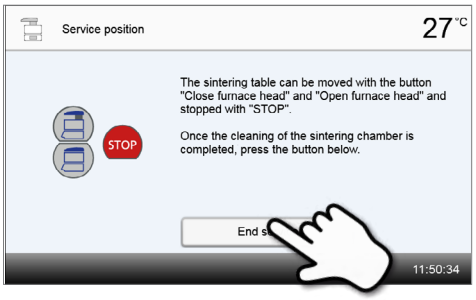
The heating elements may still be warm and there is a burn hazard.

Use a vacuum cleaner with HEPA filter to clean the firing chamber. Do not use compressed air.

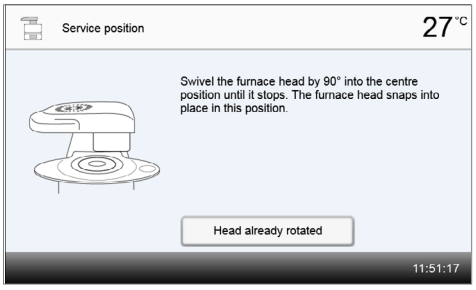
Restorations, which, for any reason whatsoever, fell off the object plate or the IPS Speed Tray and are still in the firing chamber must no longer be used.

Do not touch the heating elements with foreign objects during cleaning. Contact with foreign objects (vacuum cleaner etc.) may damage the heating elements.

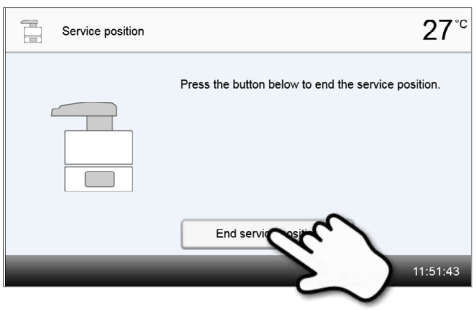
Step 5:
Cleaning completed
Once the cleaning is completed, press the button **[End service]** to end the service position. The object plate moves to the very top.



Step 6:
Swivelling the furnace head
Swivel the furnace head by 90° to the right into the centre position until it stops. The furnace head snaps into place in this position.



Step 7:
Ending the service position
Press the button **[End service position]** to end the service position. The furnace head closes and the furnace is ready for the start of a program.



2.2.5 Multimedia functions

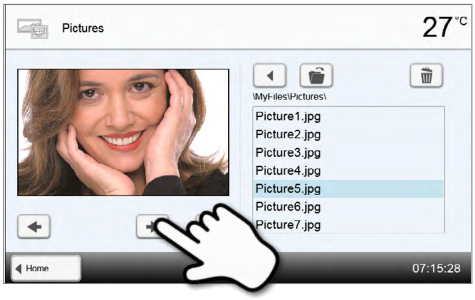
The Programat CS6 is equipped with multimedia functions such as photo display, MP3 and video player.
The furnace is also equipped with an internal memory. Images can be saved in this memory with the help of the "PrograBase X10" computer software. In order to use all multimedia functions without PrograBase X10, an external memory (USB flash drive) containing the corresponding data must be connected.

2.2.5.1 Image display

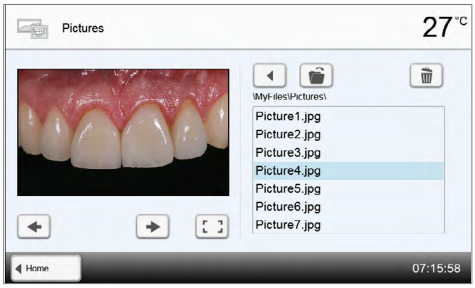
Scroll to page 2 in the home screen and press the **[Images]** button. Images in JPG format can be displayed.

1. Select folder
The arrow keys are used to scroll through the folder. The folder can be opened by clicking the **[Open]** button.

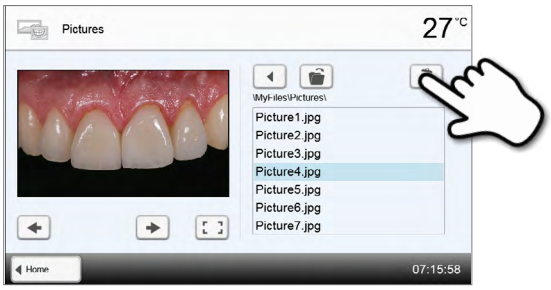
2. Scroll though available image files
The arrow keys are used to scroll through the available image files.



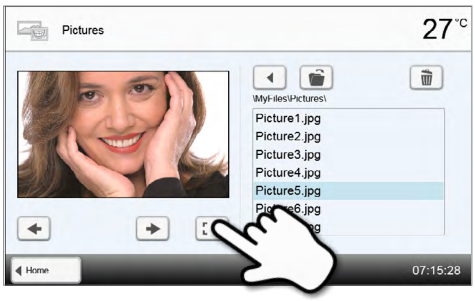
3. Select image
The desired image can be selected on the right side of the display.
The left side of the display contains a preview.



4. Delete image
The image file can be deleted by tapping the **[Recycle bin]** button.



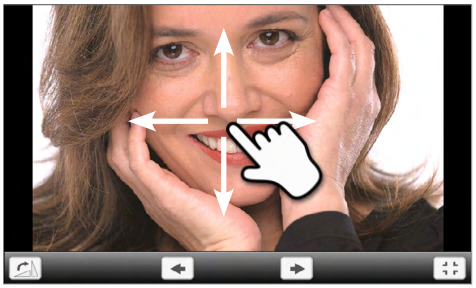
5. Switch to full screen view
The corresponding button is used to switch to the full screen view.



6. Full screen view
In the full screen view, you can scroll through the available image files. The image can be rotated by pressing the corresponding buttons and the full screen view can be ended.

7. Zooming image sections
In the full screen view, the image can be enlarged or downsized. To activate the zoom function, press the touch screen for at least 1 second and move the finger towards the upper right (enlarge) or the lower left (downsize).

8. Moving the image
An enlarged image can be moved in all directions. For that purpose, press the touch screen with the finger and move the image in the desired direction.



To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad.

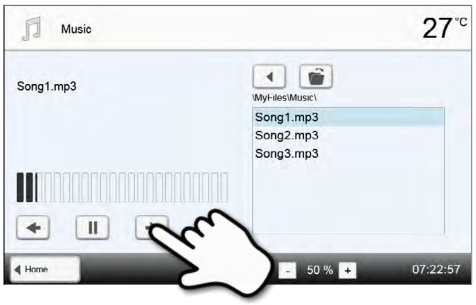
2.2.5.2 MP3 player

Scroll to page 2 in the home screen and press the **[Music]** button. Music files in MP3 format can be played.

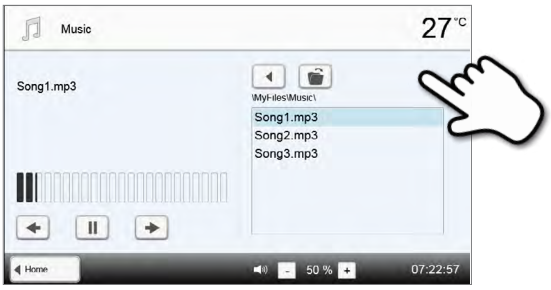
1. Select folder
The arrow keys are used to scroll through the folder. The folder can be opened by clicking the **[Open]** button.

2. Select music file
The desired music file can be selected on the right side of the display.

3. Playback elements
The corresponding buttons are used to change to the next or previous title, as well as to start or stop (or pause) the playback. At the end of a title, the next title is automatically played.



4. Delete the music file
The music file can be deleted by tapping the **[Recycle bin]** button.



5. Adjust the playback volume
The corresponding button is used to adjust the volume of the playback.

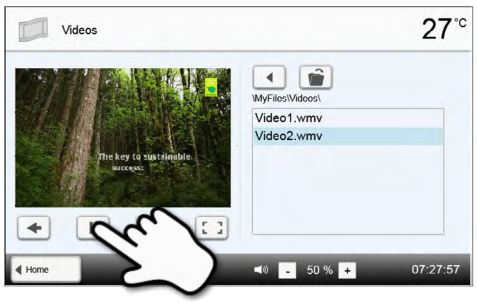
To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad. **This does not end the music playback. The playback can only be stopped by pressing the corresponding button in the media player (see Step 2).**

2.2.5.3 Video player

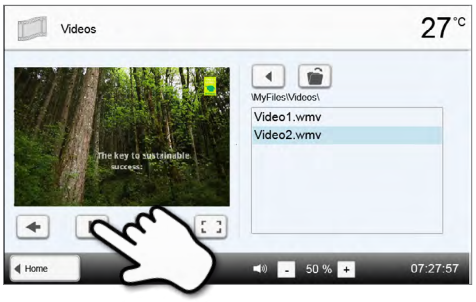
Scroll to page 2 in the home screen and press the **[Video]** button. Video files in WMV format can be played.

1. Select folder
The arrow keys are used to scroll through the folder. The folder can be opened by clicking the **[Open]** button.

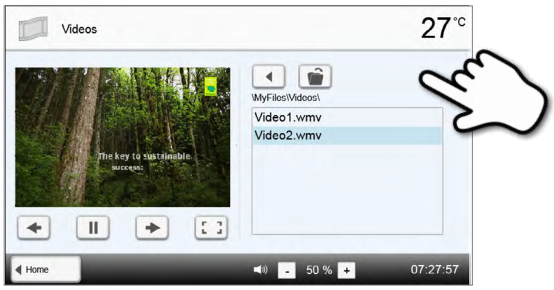
2. Select the video
The desired video file can be selected on the right side of the display. The left side of the display contains a preview.



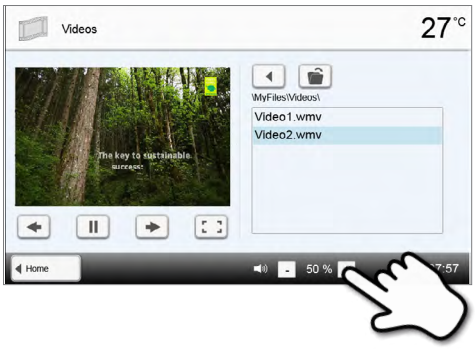
3. Playback elements
The corresponding buttons are used to change to the next or previous video, as well as to start or stop (or pause) the video. At the end of a video, the next one is automatically played.



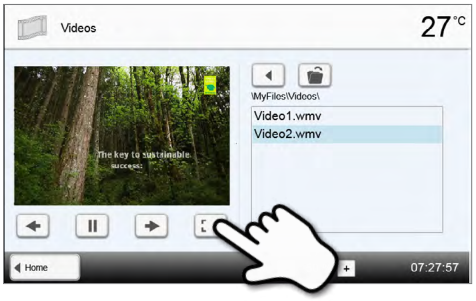
4. Delete the video
The video can be deleted by tapping the **[Recycle bin]** button.



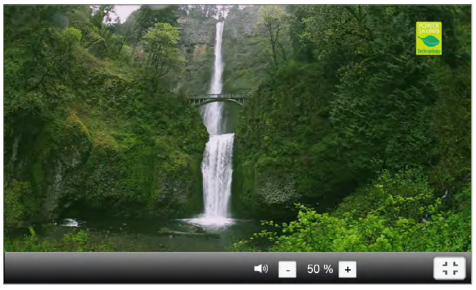
4. Adjust the playback volume
The corresponding button is used to adjust the volume of the playback.



5. Switch to full screen view
The corresponding button is used to switch to the full screen view.



6. Full screen view
The corresponding buttons are used to end the full screen view and to adjust the volume.



To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad.

2.2.6 Digital Shade Assistant (DSA) function

The Programat CS6 is equipped with a function to determine the tooth shade based on three selected reference teeth.

The process of shade determination is divided into two parts:
– Determining the reference teeth and imaging involving the patient (clinical part)
– Evaluating the image data by means of the DSA function directly with the Programat CS6

These Operating Instructions describe the procedure for the analysis of the image data. Instructions on determining the reference teeth and image taking are included in the DSA Holder Kit and the DSA Starter Kit.

Using the Digital Shade Assistant function of the Programat CS6

Press the **[DSA]** key to start the Digital Shade Assistant function.

1. Selecting the image source

Store the image data of the patient in JPG format on a USB data storage device and connect it with the furnace. As an alternative, images can be transmitted to the furnace by means of the PrograBase X10 computer software or the Programat app.

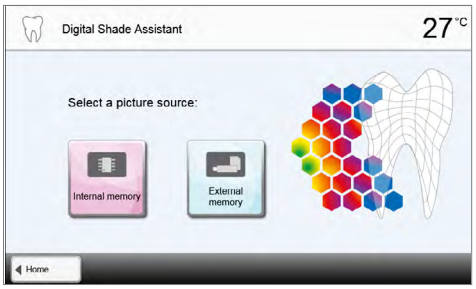
After the start of the DSA function, the following image sources are available:

Internal memory:

Images can be saved in the internal memory of the furnace with the help of the PrograBase X10 computer software or the Programat app. For that purpose, connect the furnace with the network via WLAN or LAN.

External memory:

A USB data storage device (e.g. USB flash drive, external hard drive etc.) can be connected to the furnace.



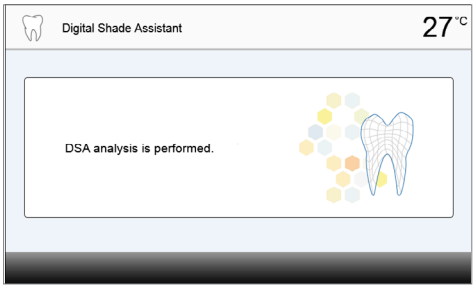
2. Selecting the image and starting the analysis

The desired JPG file can be selected on the right side of the display. The left side of the display contains a preview.

You can switch to the next or previous jpg file by pressing the **[Arrow up/down]** buttons.
The marked folder can be opened by clicking the **[Open]** button.
The folder can be left by clicking the **[Back]** button.
The image displayed can be deleted by clicking the **[Delete]** button.

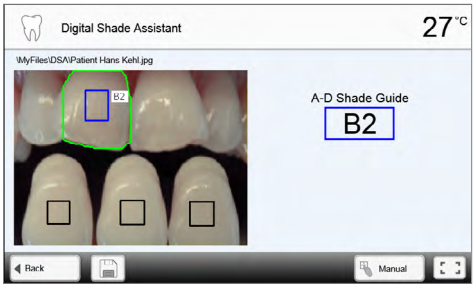
The analysis of the displayed image can be started by pressing the green button.

3. Automatic analysis is conducted
This screen is shown during the automatic analysis.



4. Result of the automatic analysis
The tooth to be analyzed (green frame) and the three shade guide teeth as well as their orientation (incisal edge to cervical edge or incisal edge to incisal edge) are automatically recognized. The software compares the tooth to be analyzed with the reference teeth.

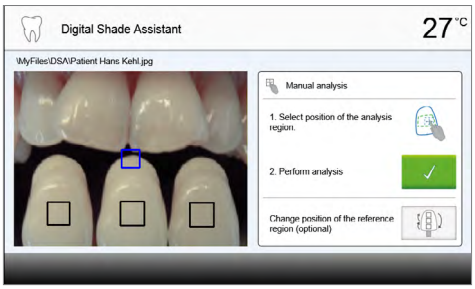
The result of the shade analysis is shown directly on the tooth to be analyzed as well as on the right side of the screen (shade B2 in this example).



5. Conducting a manual analysis
The position of the manual analysis section can be selected by pressing the **[Manual]** button. The blue rectangle can be moved on the touch screen with a finger.

The manual analysis can be started by pressing the green button.

As an option, the position of the reference areas can be changed by pressing the **[Position]** button.

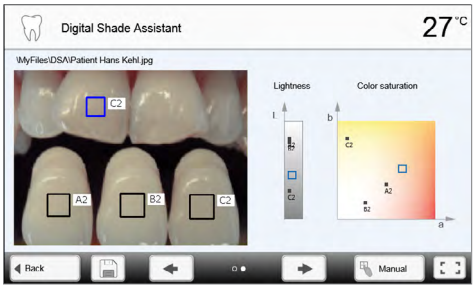


6. Result of the manual analysis
The manual analysis section is compared with the three shade guide teeth. The designation of the shade guide tooth that is most similar to the section to be manually analyzed, is shown as the result.

The right side of the screen shows the values of the analysis in a graphic diagram:
L –> Brightness
B, A –> Saturation
The blue square indicates the value for the tooth to be analyzed. Additionally, the values for the three reference teeth are indicated.

The manual analysis can be conducted any number of times.

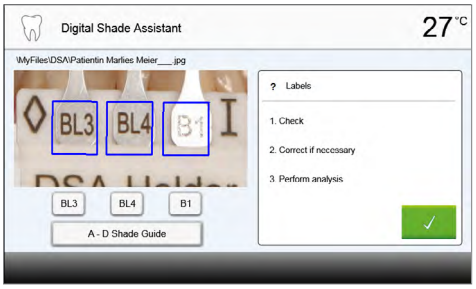
You can toggle between the automatic result and the manual result with the arrow keys.

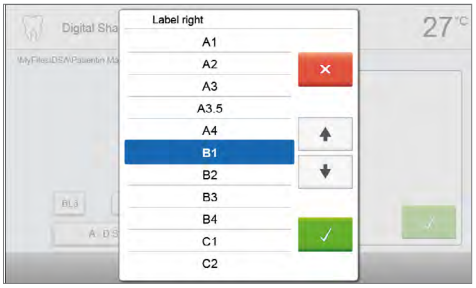


Please refer to the specialized literature for further information about the lab colour space.

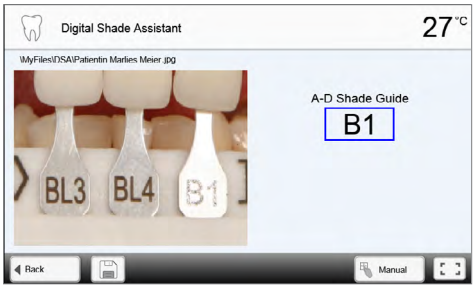
7. Verifying the designations (correcting)
If the designations of the shade guide teeth cannot be clearly recognized, this screen is shown. The recognized designations are shown in the three buttons below the image. If necessary, this designation can be corrected by pressing the corresponding button.

Finally, the analysis can be conducted by pressing the green button.

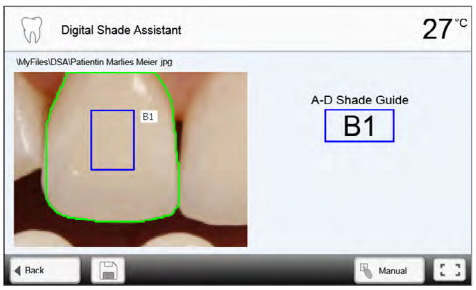




8. Moving an image section and zooming
The image section can be moved on the touch screen with a finger.

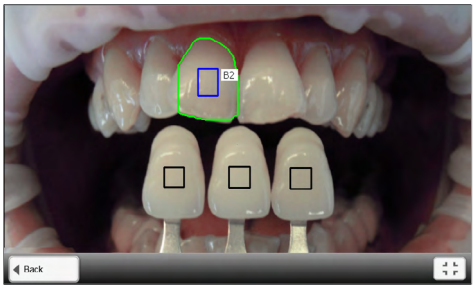


By double-clicking the touch screen, the image section can be enlarged and reduced again.



9. Full screen view
The **[Full screen]** button is used to switch to the full screen view.

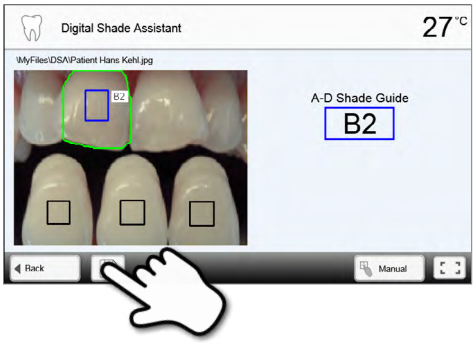
The corresponding button is used to end the full screen view.



The DSA results greatly depend on the determination of the three reference teeth and optimum picture taking. The designation of the reference tooth that is most similar to the tooth to be analyzed is shown as the result.
If the shade of the reference teeth is not determined correctly or if unfavourable pictures are taken, the DSA result will also be incorrect.
Further development of the software not excluded.

10. Log function

The current shade analysis can be saved as a log file by tapping the **[Disk]** button. The log file can be printed via the PrograBase X10 software or stored as a PDF file.



The DSA results greatly depend on the determination of the three reference teeth and optimum picture taking. The designation of the reference tooth that is most similar to the tooth to be analyzed is shown as the result.
If the shade of the reference teeth is not determind correctly or if unfavourable pictures are taken, the DSA result will also be incorrect.
Further development of the software not excluded.

2.3. Practical use

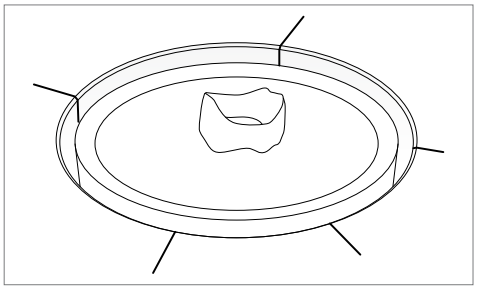
The operating procedure will be explained with the help of two examples: one Ivoclar Vivadent program and one individual program. The correct loading of the firing chamber is described beforehand.

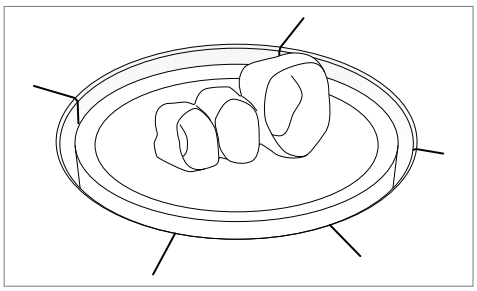
If a restoration has fallen into the firing chamber, make sure to remove it by means of the service position before starting the next program. Otherwise, the insulation can get damaged.

2.3.1 Correctly loading the furnace

Loading for sintering programs

Up to three units may be positioned on the object plate in the firing chamber. Make sure that the objects do not touch each other in order to prevent them from sintering together. The objects must be positioned within the circumferential groove of the object plate. For more detailed information, please refer to the Instructions for Use of the respective material.
To achieve optimum sintering results, the objects should be placed on their occlusal or labial surface (not on the cervical margin). Massive pontics in particular must rest on the object plate during the sintering process.



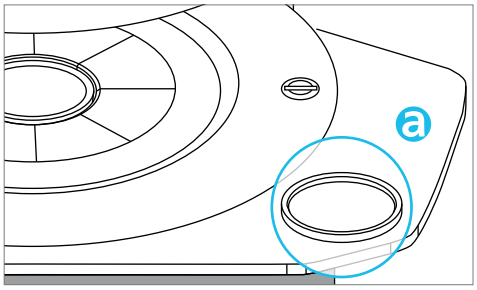


Exclusively use the supplied special tweezers to place the objects on the object plate in the firing chamber. Do not use any additional firing trays.

There are special sinter programs with integrated predrying process for wet machined IPS e.max ZirCAD restorations. Additional predrying is not necessary.

For wet machined zirconia restorations, predrying "ZrO_2 wet" must not be deactivated and another predrying process must not be selected.

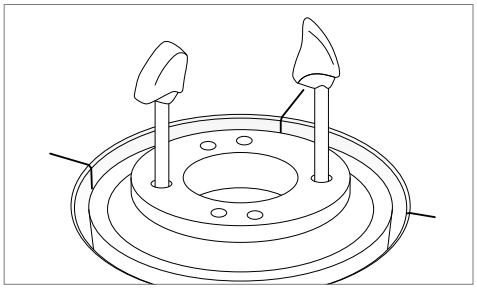
Remove the objects from the furnace at the end of the sintering program and allow the objects to cool on the object plate in the cooling tray (a). Exclusively use the supplied special tweezers for this purpose.



Do not remove the hot objects with firing tongs with metal surfaces!
Do not place the hot objects directly on the cooling tray!
Cooling may be too fast in certain areas, which may result in cracks or tears in the objects.

Loading for glaze and crystallization programs

For glaze and crystallization programs, place a maximum of four crowns or one bridge on the IPS Speed Tray, depending on the program. Only the IPS e.max CAD Crystallization Pin and IPS Object Fix Putty/Flow may be used to secure the objects.
For more detailed information, please refer to the Instructions for Use of the respective material.
Place the crystallization tray in the centre of the object plate in the firing chamber using the special tweezers. If only one crown is placed on the tray, the tray can be placed somewhat off the centre so that the crown is located nearly in the centre to optimize the crystallization and glazing result.



The crystallization tray must be placed in the centre of the object plate and within the circumferential groove in the object plate.

The holes in the IPS Speed Tray are differently spaced so that a bridge can be ideally placed.

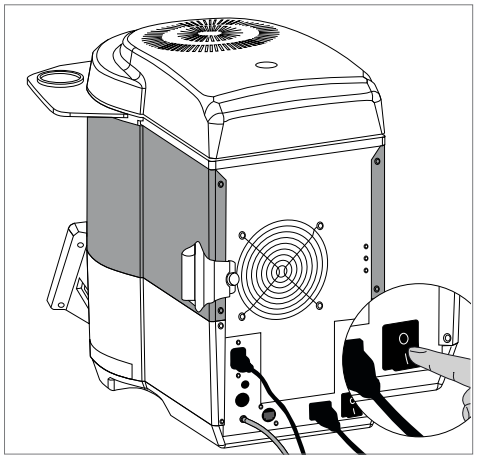
Predrying must not be deactivated for crystallization and glazing programs.

Remove the IPS Speed Tray from the furnace at the end of the glaze or crystallization program and place it on the cooling tray for cooling.

2.3.2 Firing with an Ivoclar Vivadent program

Step 1:
Switch the furnace on

Switch on the furnace with the mains switch at the rear of the furnace. The furnace conducts an automatic self-test.



Step 2:
Select the program

The program screen appears after the self-test has been completed. Select the desired program using the **[Arrow]** buttons.

Predrying
For locked Ivoclar Vivadent programs, the predrying program can be changed by pressing the **[Predrying]** button.
For zirconia:
– "Off" for dry machining or "ZrO_2 wet" for wet machining
For the crystallization program:
– "Cryst." for crystallization alone or in conjunction with the glaze spray
– "Glaze" for spray or paste

Predrying must always be activated for crystallization programs.

Verify the program selection and the material for the restoration. The furnace may be damaged if the wrong program is selected for the material used.

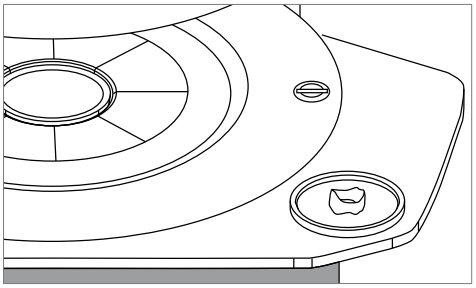
Step 3:
Load the furnace
Open the furnace head with the **[Open furnace head]** button and place the object in the furnace.

If and/or which firing tray is to be used is described in Chapter 2.3.1.

Step 4:
Start the program
Press the START button. The program is started and the Optical Status Display lights up in red. The approximate remaining time of the program is shown in the display.

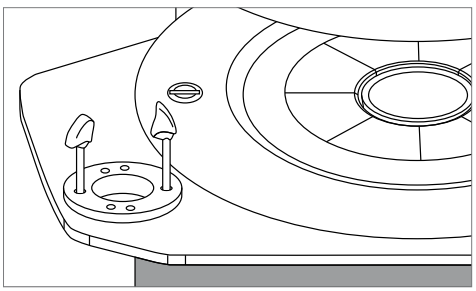
A program can only be started if the furnace head is open.

Step 5:
Program end
The furnace head opens automatically at the end of the program. Remove the zirconia restoration only after it is no longer red hot using the supplied special tweezers and place it on the object plate in the cooling area. To make sure that the restoration has cooled sufficiently, wait for 5 minutes after the end of the program before you remove the restoration from the firing chamber.



OR

Remove the crystallization tray using the special tweezers and place it on the cooling tray.



Allow the restoration to cool before further processing it.

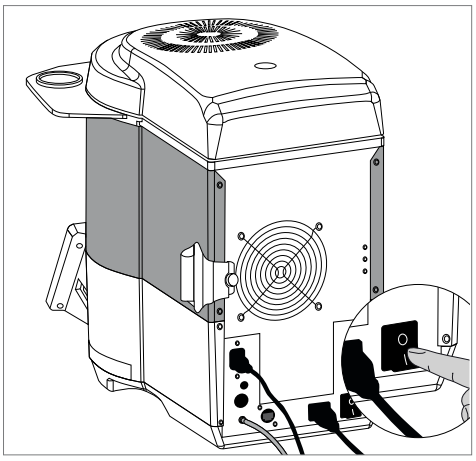
With the furnace head open, the temperature in the firing chamber is higher than indicated on the touch screen. Depending on the program, it may take up to 20 minutes or more until the firing chamber has cooled sufficiently so that the next program can be started.

A new restoration may only be placed in the firing chamber once the temperature has dropped below 700°C for sinter programs or 400°C for crystallization and glaze programs.

To accelerate the cooling of the firing chamber after a program, close the furnace head halfway. In this way, the warm air may escape the firing chamber much quicker.

2.3.3 Firing using an individual program

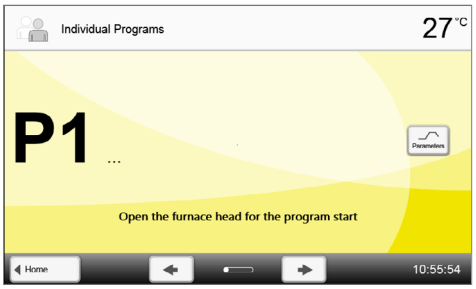
Step 1:
Switch the furnace on
Switch on the furnace with the mains switch at the rear of the furnace. The furnace conducts an automatic self-test.



Step 2:
Select the program
The program screen appears after the self-test has been completed. The **[Home]** key is used to open the home screen.

Step 3:
Select the program type
Select the program type for individual programs.

Step 4:
Select the program
Select the desired individual program using the **[Arrow]** button.



Step 5:
Enter the parameters
Enter the individual parameters and create the desired program (see Chapter 2.2.2.4 for details).

Predrying
For locked Ivoclar Vivadent programs, the predrying program can be changed by pressing the **[Predrying]** button.
For zirconia:
– "Off" for dry machining or "ZrO_2 wet" for wet machining
For the crystallization program:
– "Cryst." for crystallization alone or in conjunction with the glaze spray
– "Glaze" for spray or paste

Predrying must always be activated for crystallization programs.

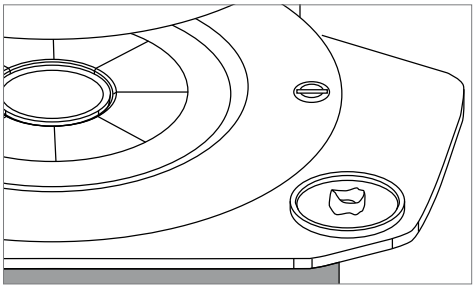
Step 6:
Load the furnace
Open the furnace head with the **[Open furnace head]** button and place the object in the furnace.

Whether or which firing tray is to be used is described in Chapter 2.3.1.

Step 7:
Start the program
Press the START button. The program is started and the Optical Status Display lights up in red. The approximate remaining time of the program is shown on the display.

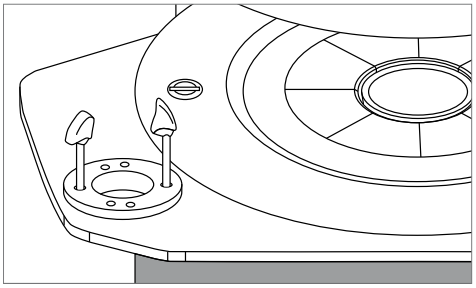
The indicated remaining time may deviate if particularly high values were entered for the cooling phase.

Step 8:
Program end
The furnace head opens automatically at the end of the program. Remove the zirconia restoration only after it is no longer red hot using the supplied special tweezers and place it on the object plate in the cooling area. To make sure that the restoration has cooled sufficiently, wait for 5 minutes after the end of the program before you remove the restoration from the firing chamber.



OR

Remove the crystallization tray using the special tweezers and place it on the cooling tray.



Allow the restorations to cool before you begin further processing.

With the furnace head open, the temperature in the firing chamber is higher than indicated on the touch screen. Depending on the program, it may take up to 20 minutes or more until the firing chamber has cooled sufficiently so that the next program can be started.

A new restoration may only be placed in the firing chamber once the temperature has dropped below 700°C (1292°F) for sintering programs or 400°C (752°F) for crystallization and glaze programs.

To accelerate the cooling of the firing chamber after a program, close the furnace head halfway. In this way, the warm air may escape the firing chamber much quicker.

3 Maintenance, Cleaning, Diagnosis

This chapter describes the user maintenance and cleaning procedures for the Programat CS6. Only the tasks listed may be carried out by qualified dental technicians or dental laboratory professionals. All other tasks must be performed by qualified service personnel at a certified Ivoclar Vivadent Service Centre.

3.1 Monitoring and maintenance

The time for these maintenance procedures depends on the frequency of use and the working habits of the users. For that reason, the recommended times are only approximations.

Hazardous area	Part	When
Check all plug-in connections for correct fit.	Various external connections	weekly
Visually make sure that the thermocouple is straight. Do not touch the thermocouple in the process.	Thermocouple	weekly
Check if the sealing rim of the furnace head and furnace base is clean and undamaged.	Furnace head sealing and furnace base	weekly
Check the membrane-sealed keypad for visible damage. If the key-pad is damaged, it has to be replaced by a certified Ivoclar Service Centre.	Membrane-sealed keypad	monthly
Check if the furnace head opens smoothly and without excessive noise.	Furnace head opening mechanism	monthly
Check the insulation for cracks and damages. If the insulation is worn down, it has to be replaced by a certified Ivoclar Vivadent Service Centre. Fine hairline cracks on the surface of the insulation are harmless and do not negatively affect the function of the furnace.	Insulation	monthly
Check if there is condensate in the vacuum hose or firing chamber.	Vacuum hose, firing chamber	monthly
Conduct temperature check: Use the temperature checking set to check and adjust the temperature in the furnace.	Firing chamber	every six months

This furnace has been developed for typical use in dental offices. If the product is used in continuous operation, premature ageing of the expendable parts is to be expected.
Expendable parts include the heating elements and the object plate.

Expendable parts are not covered by the warranty. Please also observe the shorter service and maintenance intervals.

3.2 Cleaning

The furnace may only be cleaned when it is cool, since there is a burn hazard. If the furnace head is closed, the temperature in the firing chamber is indicated on the touch screen. Do not use any cleaning solutions.

For cleaning activities in the firing chamber or visual inspection of the heating elements, the service position must be assumed (Care Programs menu / Service Position, see Chapter 2.2.4.7).

Disconnect power before cleaning.

The following parts have to be cleaned from time to time:

Item:	Frequency:	Cleaning material:
Cooling tray	Daily	Cleaning brush*
Object plate in the firing chamber	Daily	Cleaning brush*
Furnace head sealing and sealing surface	Daily	Cleaning brush and a soft cloth
Furnace housing and furnace head	If required	Soft, dry cloth
Membrane-sealed keypad and display	If required	Programat cleaning cloth
Air vents	If required	Cleaning brush

*Never clean with compressed air!

Visual inspection of the firing chamber and the heating elements

The firing chamber and heating elements should be checked if restorations appear to be discoloured. For this purpose, the service position must be assumed (see Chapter 2.2.4.7). No foreign objects or dirt particles must be present in the firing chamber during the sintering, glazing or crystallization process. Contamination can occur, among other reasons, due to chipping of the oxide layer and/or protective layer of the heating element surface.
This type of contamination may have an effect on the optical properties (discolouration) of the restoration.
If glass particles or fine glass dust is detected during the visual inspection, the firing chamber must be cleaned. If restorations show any discolouration, the cleaning program must be conducted again and again until the oxide layer and/or protective layer of the heating elements is once again intact. As soon as this is the case, the object plate in the firing chamber must be replaced to prevent further discolouration.

If the heating elements come in contact with the insulation or are bent inwards in such a way that they touch the insulation, After Sales Service must be contacted.

Cleaning of the firing chamber

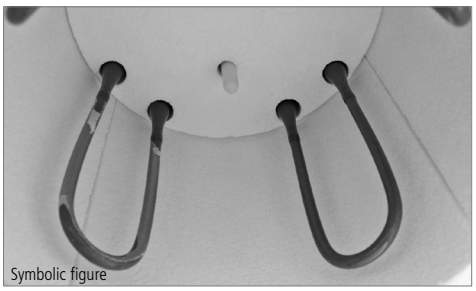
Use a vacuum cleaner with HEPA filter to clean the firing chamber. Never clean with compressed air. After cleaning, a cleaning program (see Chapter 2.2.4.7) must be conducted. The firing chamber must be empty for this purpose.

The heating elements must not be touched during cleaning, as they could be damaged.

Cleaning of the heating elements

The cleaning program (see Chapter 2.2.4.7) restores the chipped off oxide / protective layer on the heating elements. If no even protective layer on the heating elements is noticeable after the cleaning firing, it may be necessary to run the cleaning program several times in a row. The firing chamber must be empty for that purpose. Clean the firing chamber before running the cleaning program.

Large parts of the protective layer on the left heating element have chipped off. The heating element on the right side is in a sound, stable condition and shows an intact oxide / protective layer. The cleaning program must be repeated until the surface is free from contamination and appears glassy.



Symbolic figure

3.3 Stand-by

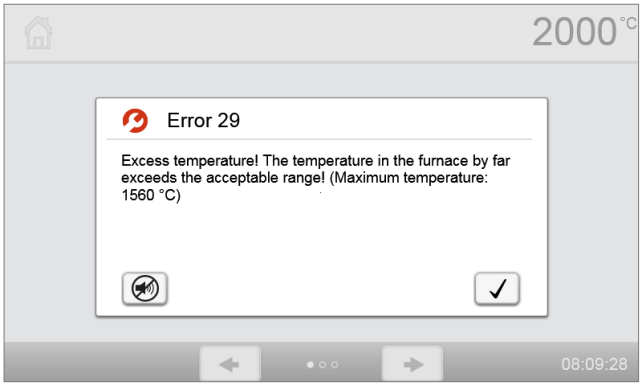
We recommend to keep the furnace head closed at all times. If the furnace head is open, there is a risk that the insulation absorbs humidity and water droplets form by condensation during firing. This negatively affects the vacuum performance and, consequently, the firing results. The furnace may only be transported with the furnace head closed.

4 What If...

This chapter will help you to recognize malfunctions and take appropriate measures.

4.1 Error messages

During operation, the furnace continuously monitors all the functions. If an error is detected, the respective error message is displayed.



The acoustic signal and the error message can be acknowledged with the corresponding buttons. The following error messages may be displayed. If there are any questions, please contact the After Sales Service team.

Error / Hint No.	Work can continue	Error	Error message text
17	Yes	Power failure > 10 s during a firing program in progress	A program in progress was interrupted for more than 10 s. The program cannot be continued.
20 **,***	No	Error in the heating system	Check the heater plug. Check the heater fuse. If the fuse is O.K., contact your local Ivoclar Vivadent Service Centre.
27 **,***	No	Furnace head cannot be initialized	The furnace head cannot be brought to the end position. It might be blocked by external mechanical influences! If this is not the case, contact your local Ivoclar Vivadent Service Centre.
28 **	Yes	The furnace head does not reach the target position	Furnace head does not open/close correctly. The furnace head is obstructed or has been moved by hand. Operate the furnace head only with the keys intended for that purpose.
32 **	No	The vacuum is not released	The vaccum cannot be released. The vacuum valve might be stuck or dirty. Contact a Service Technician.
33	Yes	Necessary vacuum (xxxmbar) is not reached within 1 min.	The vacuum cannot be built-up. Check the seal of the firing chamber, vacuum hose, vacuum pump, pump fuse.
106	Yes	Timer active - device is in standby	The program cannot be started, because the unit was put into stand-by mode by the timer (heating turned off). Deactivate the timer or extend the time frame to be able to execute programs.
150	Yes	Memory Error	Internal memory error. Please restart the furnace.
702	Yes	Brief power failure during a program in progress	A program in progress was interrupted by a short power outage. The program is being continued.
801	Yes	Vacuum drop	An unacceptable vacuum drop has occurred.
802	Yes	The vacuum does not increase (self-test)	A vacuum increase could not be measured! Check the following points: Is the firing chamber tight (no contamination on the sealing surfaces)? Is the vacuum hose connected? Is the vacuum pump connected? Is the fuse F1 in order?
1522	Yes	SW-update: Error during update	An error has occurred during the software update. Do NOT switch off the furnace and try again. If the error reoccurs, try conducting the update via PrograBaseX10.
1541	Yes	Error during copying a file	An error occurred while copying the file. Possible causes: File too large, invalid file type

1911	Yes	Data backup - recover	The new software includes program parameters which were not yet available at the time of the data backup. Please check the individual programs. The individual programs are no longer valid.
1920	Yes	Data backup - recover	The data backup could not be performed. Please install a newer software version.
2010	Yes	DSA	The tooth region was not determined.
2020	Yes	DSA	The 3 shade guide teeth were not found.
2030	Yes	DSA	The contour of the tooth was not determined.
2041	Yes	DSA	The analysis region and the references differ significantly.
2042	Yes	DSA	The analysis area is invalid. Select an analysis area on a tooth surface.
2100	Yes	DSA	Unexpected error (# ****)
2201	Yes		WLAN error. Please restart the furnace.
3900 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3901 **	No	Motorcontroller	The motor for the lifting unit cannot be initialized. Restart the furnace. If this error occurs again, please contact your Service Centre!
3902 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3903 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3904 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Center!
3905 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3906 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3907 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3908 **	No	Motorcontroller	Error during communication with the motor of the lifting unit. If this error occurs again, please contact your Service Centre!
3909 **	No	Motorcontroller	An error has occurred while operating the motor. Restart the furnace. If this error occurs again, please contact your Service Centre!
3910 **	No		An error has occurred while operating the motor. Restart the furnace. If this error occurs again, please contact your Service Centre!
3911	No		An error has occurred with the lifting unit. Please contact your Service Centre. Error code: ****
4010	No	PowerBoard	The PowerBoard could not be initialized. The heater does not work. Restart the furnace. If this error occurs again, please contact your Service Centre.
4011	No	PowerBoard	The heating relay could not be closed. The heater does not work.
4020	No	WatchDog	Internal software error. Restart the furnace. If this error occurs repeatedly, please contact your Service Centre.
4030	Yes	LifterPosition	Open the furnace head for the program start.
4031	Yes	T2 < T1	Enter a lower value for T1 or a higher value for T2.
4032	Yes	T3 < T2	Enter a lower value for T2 or a higher value for T3.
4033	Yes	T4 > max (T1, T2, T3)	Enter a lower value for T4 than the maximum holding temperature.
4034	Yes	T5 > T4	Enter a lower value for T5 than for T4.
4035	Yes	V1 >= max (T1, T2, T3)	Enter a lower value for V1 than the maximum holding temperature.
4036	Yes	V2 >= max (T1, T2, T3)	Enter a value for V2 that is lower than or equal to the maximum holding temperature.
4037	Yes	V1 > V2	Enter a lower value for V1 than for V2.
4038	Yes	V1 = 0, V2 ! = 0	Enter a value for V1 that is higher than 0 or deactivate V2.

4039	Yes		The firing chamber temperature is higher than the maximum permissible start temperature. Please wait until the temperature has dropped below the maximum permissible start temperature. For more detailed information, please refer to the Operating Instructions.
4040	Yes		Open the furnace head for the program start.
4041	Yes		The firing chamber temperature is higher than the maximum permissible start temperature for calibration programs. Please wait until the temperature has dropped below the maximum permissible start temperature. For more detailed information, please refer to the Operating Instructions.
4050 **,***	No		The furnace head cannot be moved to its end position. The furnace head might be blocked by external mechanical influences! If this is not the case, please contact your Service Centre!
4051 **	No		The maximum heating time with the furnace head open was exceeded. The process is aborted for safety reasons. If this error occurs repeatedly, please contact your Service Centre.
4070	"No "		The maximum permissible housing temperature was exceeded. Check to make sure that all air vents are unobstructed and that the fans are not blocked. If this error occurs repeatedly, please contact your Service Centre.
4071	Yes		The temperature inside the furnace is too low for operation. Wait until the furnace has reached room temperature.
4072	No		The temperature sensor monitoring the housing temperature cannot be read. A program start is, therefore, not possible. Contact your Service Centre.
4100	No	PowerUnit: Unknown error	Communication error, please contact your Service Centre. Error code: ****
4101	No	PowerUnit: I2C write error	Communication error, please contact your Service Centre.
4102	No	PowerUnit: I2C read error	Communication error, please contact your Service Centre.
4103	No	PowerUnit: m_pI2CCommDriver = NULL	Communication error, please contact your Service Centre.
4104	No	m_pI2CCommDriver-> isDeviceDriverOpen() = false	Communication error, please contact your Service Centre.
4110	No	PowerUnit: pCommunicationData = NULL	Communication error, please contact your Service Centre.
4111	No	PowerUnit: Requestqueue is full	Communication error, please contact your Service Centre.
4112	No	PowerUnit: No communication with the PowerUnit possible	Communication error, please contact your Service Centre.
4114	No		An error has occurred with the heating system. Restart the furnace. If this error occurs repeatedly, please contact your Service Centre.
4120	No	PowerUnit: Overvoltage shutdown	An error has occurred with the heating system. Restart the furnace. If this error occurs repeatedly, please contact your Service Centre.
4121	No	PowerUnit: Overload shutdown	An error has occurred with the heating system. Restart the furnace. If this error occurs repeatedly, please contact your Service Centre.
4122	No	PowerUnit: Internal temperature is over 85°C, Power is shutdown	Excess temperature in the power pack. Switch off the furnace and let it cool down. Make sure that the air supply is unobstructed. If this error occurs again, please contact your Service Centre!
4123	No	PowerUnit: Fan fail, Power is shutdown	Cooling your furnaces does no longer work properly. Please switch off the furnace and contact your Service Centre.
4124	No	PowerUnit: Unit fail, Power is shutdown	An error has occurred with the heating system. Restart the furnace. If this error occurs repeatedly, please contact your Service Centre.
4125	No	PowerUnit: Internal temperature is over 75°C	Excess temperature in the power pack. Switch off the furnace and let it cool down. Make sure that the air supply is unobstructed. If this error occurs again, please contact your Service Centre.
4126	No	PowerUnit: AC input < 180 Vac, Output power down	The supply voltage is outside the acceptable range. Check the supply voltage.

4127	No	PowerUnit: AC input < 85 Vac, Power is off	The supply voltage is outside the acceptable range. Check the supply voltage.
4130	Yes		The firing chamber temperature is higher than the maximum permissible start temperature. The service position can only be reached once the temperature in the firing chamber is lower than the maximum permissible start temperature. For more detailed information, please refer to the Operating Instructions.
4131	Yes		The furnace head was not correctly swivelled sideways. Confirm the message to move the motor into the service position.
4132	Yes		The furnace head was not correctly swivelled to the centre.
4135	Yes		The firing chamber temperature is higher than the maximum permissible start temperature. Please wait until the temperature has dropped below the maximum permissible start temperature. For more detailed information, please refer to the Operating Instructions.
4136	Yes		The firing chamber temperature is higher than the maximum permissible start temperature. Please wait until the temperature has dropped below the maximum permissible start temperature. For more detailed information, please refer to the Operating Instructions.
4137	Yes		The tightness of the vacuum system is not given. Check the sealing surfaces for possible contamination.
4138	Yes		The set vacuum end value could not be achieved. Check the vacuum pump.
4146	No		The self test could not be performed due to a power failure during a program in progress. Please restart the furnace.
4148	No		"An error has occurred while operating the motor. Restart the furnace. If this error occurs again, please contact your Service Centre! "
4149	No		Self-test not successful. Restart furnace and maybe contact After Sales Service

* Furnace head opens if this error occurs!
** A running program will be aborted
*** Error cannot be acknowledged – programs cannot be started

Please contact the Ivoclar Vivadent After Sales Service, if one of the following error numbers is being displayed:

25, 29, 43, 44, 45, 46, 47, 48, 56, 103, 107, 108, 143, 144, 145, 146, 147, 148, 530, 531, 532, 700, 701, 707, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1024, 1025, 1026, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1207, 1310, 1401, 1402, 1500, 1750, 1751, 1752, 1753, 2001, 2002, 2753, 2770, 3000, 3001, 3002, 3010, 3011, 3020, 4001, 4049, 4060, 4061, 4062, 4063, 4064, 4065, 4066, 4067, 4080, 4140, 4141, 4142, 4143, 4144, 4145

4.2 Technical malfunctions

These malfunctions may occur without an error message being displayed:

Error	Double-Check	Action
Vacuum is not or only slowly released	Is the vacuum released within approx. 30 seconds?	Wait until the vacuum has been released and remove object. Switch the device off/on* Conduct vacuum test
Indication on display incomplete		Activate the display test program and check the display*
Display not illuminated	Is the furnace properly connected according to the Operating Instructions and switched on?	Correctly connect the furnace and switch it on.
Signal transmitter does not sound	Is the signal transmitter switched off (volume = 0)?	Adjust volume
Furnace head does not open	Was the furnace head opened manually?	Open the furnace head only by using the corresponding keys. Switch the device off/on again
	Has the vacuum already been released? Is the program still running?	Wait until the program is completed. Switch the device off/on*
Vacuum pump does not start working	Is the vacuum pump fuse defective?	Check fuse and, if necessary, replace with a fuse of the same type
	Was the maximum power consumption exceeded?	Use only a vacuum pump that does not exceed the indicated power consumption. Use only the vacuum pump recommended by Ivoclar Vivadent.
	Is the vacuum pump correctly connected?	Check plug-in connection to the vacuum pump.
Final vacuum is not reached.	Is the pump performance OK?	Check vacuum hose and hose connection
	Is the pump performance OK?	Start the vacuum test program
	Humidity/condensation in the vacuum hose?	Run Program P7 (IPS e.max ZirCAD MT Multi sintering)
Incorrect or illogical temperature indication	Is the thermocouple bent or fractured?	*
Cracks in the insulation	Are the cracks small and insignificant (hairline cracks)?	Small cracks in the insulation do not negatively affect the performance of the furnace.
	Are the cracks large or have parts broken off?	*
Cracks in the heating element or heating element fractured	Are there cracks in the heating element or is the heating element fractured?	Switch off the furnace. *
Firing result does not meet the expectations	Are the firing parameters correct?	Set the firing parameters in accordance with the instructions by the material manufacturer
	Has a suitable firing tray been used?	Use the firing tray recommended for the respective material.
	Was the furnace calibrated?	Conduct a furnace calibration.
	Is the thermocouple bent or damaged?	*
	Is the restoration discoloured?	Clean the firing chamber (see Chapter 3.2)
The furnace does not send any messages to the Programat app (e.g. at the end of the program)	Is the furnace connected to the Internet?	Connect the furnace to an network with an Internet access via Ethernet or WLAN. Test the push messaging (Settings menu).
The furnace does not react to touch entries.	Are there any interfering sources, e.g. lamps, in the vicinity of the device?	Remove interfering source or operate the furnace in another room.

*If there are any questions, please contact the After Sales Service.

4.3 Repairs

Repairs may only be carried out by a certified Service Centre. Please refer to the addresses on the last page of these Operating Instructions.

If repairs during the warranty period are not carried out by a certified Ivoclar Service Centre, the warranty will expire immediately. Please also refer to the corresponding warranty regulations.

Unauthorized opening and removal of housing elements can expose voltage-carrying components. Plugs could also be live. There is a risk of electric shock.

4.3.1 Changing the fuse

Fuses may only be changed if the furnace is switched off and the power disconnected:
- Put the mains switch on Position 0 and disconnect the power cord.
- Disconnect the power cord from the furnace.
- Open the fuse holder using a slotted screwdriver.
- Replace the fuse in accordance with the indications on the rating plate. **Use only original or equivalent fuses!**
- Secure the fuse holder with the screw.
- Reconnect the power cord.

4.3.2 Emergency opening of the furnace head

If the furnace head does not open when pressing the **[Open furnace head]** button and you want to e.g. remove a completed restoration, you can open the furnace head mechanically.

Switch off the furnace and disconnect the power cord from the furnace.

There is a small hole on top of the furnace head. Insert a small slotted screwdriver into the hole. The furnace head can be opened by turning the screwdriver.
Remove the restoration and close the furnace head. Please contact the After Sales Service.

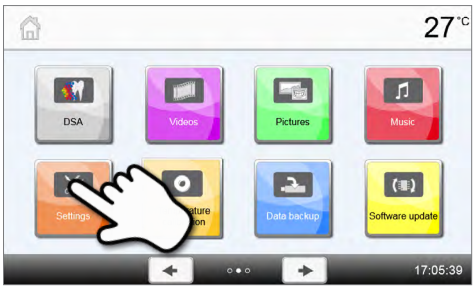
Remove the object plate from the furnace in the same way before transport.

4.4 Reset to factory settings

If the furnace has to be reset to its original settings, the factory settings can be loaded. In this process, all programs, melodies and volume adjustments are irrevocably reset to the factory settings.

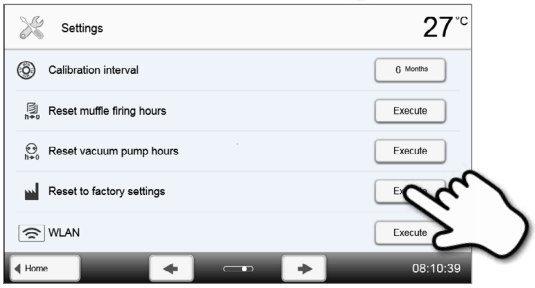
For this purpose, proceed as follows:

Step 1:
Open Settings
Scroll to page 2 in the home screen and press the **[Settings]** button.

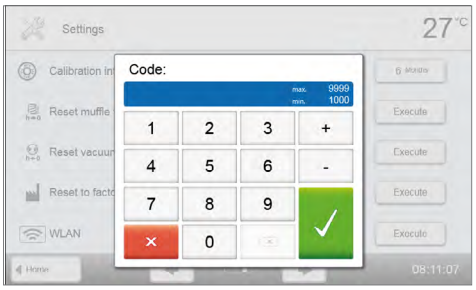


Step 2:
Open "Reset to factory settings"
The **[Arrow]** button is used to scroll through the Settings menus. Press the button until the setting "Reset to factory settings" appears in the display.

Step 3:
Reset to factory settings
Press the **[Execute]** button in Load factory settings.



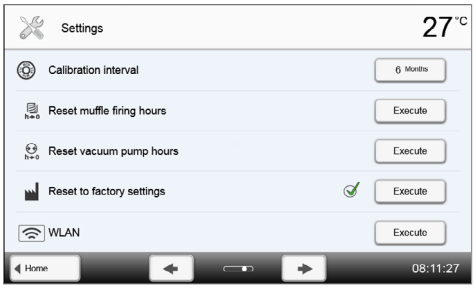
Step 4:
Enter the user code
Enter the user code (1234) and confirm the entry with the green button or cancel the entry with the red button.



Step 5:
Complete resetting to factory settings
The following messages are displayed:

Reset to factory settings successful

Reset to factory settings failed



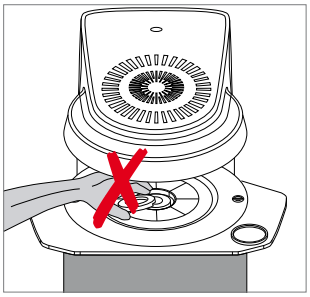
To return to the home screen, press either the **[Home]** button in the navigation bar or the Home key on the membrane-sealed keypad.

5 Safety Notes

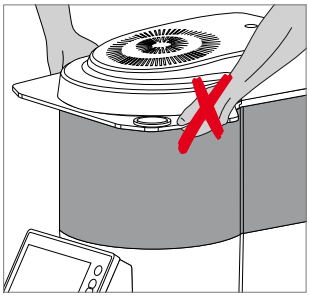
Risks and dangers

Make sure that no liquids or other foreign substances enter the furnace.

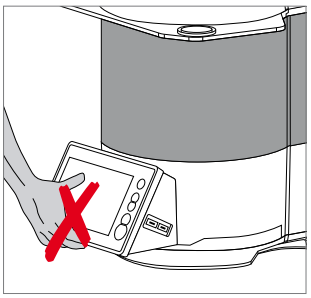
Burn hazard: Never place objects in the firing chamber by hand, since there is a burn hazard. Always use the special tweezers (accessories) supplied for this purpose. Never touch the hot surface of the furnace head, as there is a burn hazard.



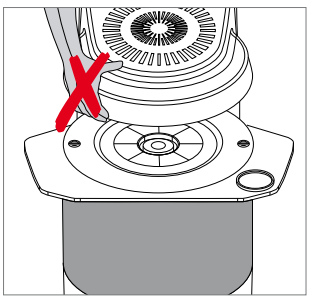
Do not carry the furnace by the cooling tray.



The furnace must not be carried by the display as this may cause damage.



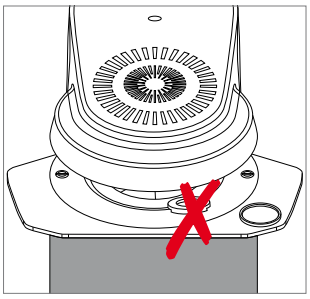
The furnace head has an electric drive and must be operated by means of the electronic controls. Never open or close the furnace manually as this may result in damage.



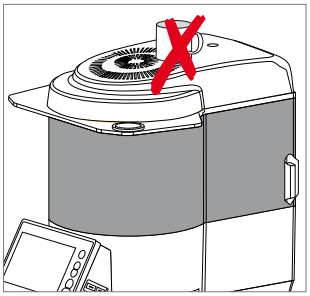
The furnace must not be operated if the insulation in the firing chamber is damaged.

Contraindications

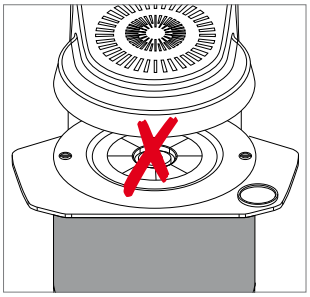
The IPS Speed Tray must not be placed outside of the object plate in the firing chamber. Place the IPS Speed Tray near the outside margin of the cooling tray. Otherwise, the closing process of the furnace head will be obstructed.



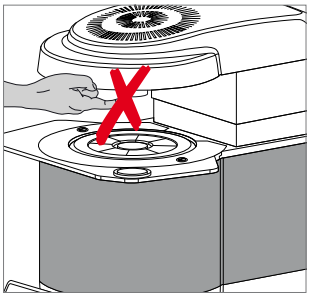
Foreign objects must not be placed on the furnace head or the air vents. Make sure that no liquids or other foreign objects enter the air vents, since this may result in an electrical shock.



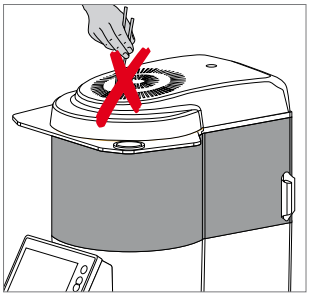
Never use the furnace without the object plate.



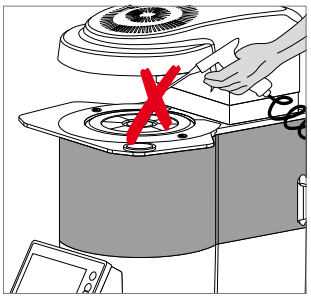
Do not touch the thermocouple. Avoid contact with the skin (grease contamination), as the parts may be prematurely damaged.



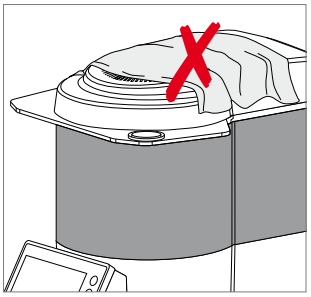
Do not insert any foreign objects into the air vents. There is a risk of electrical shock.



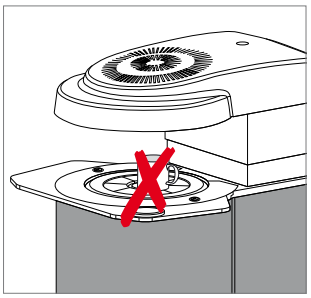
The insulation contains polycrystalline wools and may release fibre dust. Do not use compressed air, as this will distribute the dust in the environment, and observe the additional notes on page 68.



Do not cover the furnace head with a cloth. There is a fire hazard!

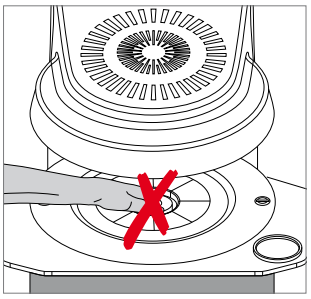


Do not place any objects in the vicinity of the firing chamber when the furnace is open. There is a fire hazard!

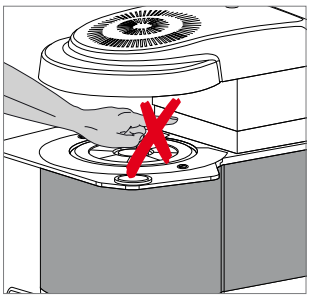


Risk of crushing / burn hazard

When the furnace head closes, do not reach under the furnace head with the hand or other parts of the body. There is a risk of crushing and a burn hazard.



Never reach inside the rear cover with the hand or particularly with the fingers. There is a risk of crushing.



Hazardous areas and safety equipment

Description of the hazardous areas of the furnace:

Hazardous area	Type of risk
Firing chamber	Burn hazard
Opening/closing mechanism	Risk of crushing
Electrical components (cables and connections)	Risk of electrical shock

Description of the safety equipment of the furnace:

Safety equipment	Protective effect
Protective conductor	Protection from electrical shock in case of a malfunction
Electrical fuses	Protection from fire and destruction of the furnace
Furnace housing and end caps	Protection from fire, electrical shock, burning and crushing

Do not block or touch movable parts. There is a risk of damaging the furnace or causing personal injury.

Safety information for the operation

The device may only be operated by authorized and trained technical personnel.

- Keep unauthorized persons, such as patients, children and animals, away from the device.
- In all cases of doubt regarding the safety of the device, switch off the device and take suitable measures to prevent further use.
- Prior to connecting power or operation, check the device, the accessories and protective equipment for any damage.
- Do not use damaged, non-functioning equipment or accessories. Inform your authorized service partner.
- In order to ensure the product reliability and warranty services, the device must be exclusively operated with the original accessories, in particular the original power adapter, from Ivoclar Vivadent.
- The user bears the risk when using non-approved accessories.
- To prevent damage to the device and a reduction of the device performance, observe the cleaning requirements and cycles.
- Only operate the device unsupervised if the operating conditions for unsupervised operation described below are fulfilled.

Unsupervised operation

The device may be operated unsupervised, provided the national and local laws and provisions allow for such action and provided that they are observed. Furthermore, the requirements of the respective insurance company must be met.

- Never use the device if the work environment is heavily soiled.
- Protect the device against unauthorized access.

Safety notes

This device has been designed according to EN 61010-1 and has been shipped from the manufacturer in excellent condition as far as safety regulations are concerned. To maintain this condition and to ensure risk-free operation, the user must observe the notes and warnings contained in these Operating Instructions.

- The user must especially become familiar with the warnings and operating conditions to prevent injury to personnel or damage to materials. The manufacturer is not responsible for damage resulting from misuse or failure to observe the Operating Instructions. Warranty claims cannot be accepted in such cases.
- Before switching on the furnace, make sure that the voltage indicated on the rating plate complies with your local power supply.
- The mains socket must be equipped with a residual current operated device (FI).
- The power plug acts as a circuit breaker and may only be connected with an easy-to-access power socket with protective contact.
- Use only the supplied power cord or a power cord with the same specifications.
- Place the furnace on a fire-proof table. Observe local regulations, (e.g. distance to combustible substances or objects, etc.).

- Always keep the air vents on the sides and at the rear of the furnace free from obstruction.
- Do not touch any parts that become hot during operation of the furnace. Burn hazard!
- When removing hot components from the firing chamber (e.g. firing table, firing tray), make sure to place them on a fire-proof surface.
- Clean the furnace only with a dry, soft cloth. Do not use any solvents! Disconnect power before cleaning and allow the furnace to cool down!
- The furnace must be cool before it is packed for transportation.
- Use original packaging for transportation purposes.
- Remove the object plate from the firing chamber when transporting or shipping the device.
- Before maintenance, repair or change of parts, the power must be disconnected and the furnace must be cool if it needs to be opened.
- If maintenance or repair has to be carried out with the power connected and the furnace open, only qualified personnel who are familiar with the risks and dangers may perform the procedures (certified Service Centre).
- After maintenance, the required safety tests (high voltage resistance, protective conductor, etc.) must be carried out.
- Make sure that only fuses of the indicated type and rated current are used.
- Use only original spare parts.
- If it is assumed that safe operation is no longer possible, the power must be disconnected to avoid accidental operation.
- If the furnace is visibly damaged, the power must be disconnected to avoid accidental operation.
- Check the correct function of the device after storage under unfavourable conditions over an extended period of time.
- If the furnace does not work properly, the power must be disconnected to avoid accidental operation.
- The temperature range for faultless operation is +5°C to + 40°C (41°F to 104°F).
- If the furnace has been stored at very low temperatures or high atmospheric humidity, it must be left to dry or to adjust to room temperature for approx. 4 hours before it is operated (do not connect the power yet).
- The furnace is tested for use at altitudes of up to 2000 m above sea level.
- The furnace may only be used indoors.
- Before leaving the factory, the furnace functions were tested for several hours. It is therefore possible that these tests have caused slight discolouration of the insulation. Nevertheless, your Programat CS6 is still a brand new furnace.

Any disruption of the protective conductor either inside or outside the furnace or any loosening of the protective conductor may lead to danger for the user in case of malfunction. Deliberate interruptions are not tolerated.

Materials developing harmful gases must not be fired!

The insulation contains polycrystalline wools and may release fibre dust. Do not raise dust with compressed air. Use a vacuum cleaner with HEPA filter to remove it. The heating elements may only be dismounted by a qualified After Sales Service Centre. Information regarding the Safety Data Sheet is also available from your After Sales Service Centre.

- In the case of serious incidents related to the product, please contact Ivoclar Vivadent AG, Bendererstrasse 2, 9494 Schaan/Liechtenstein, website: www.ivoclarvivadent.com, and your responsible competent authority.
- The current Operating Instructions are available in the download section of the Ivoclar Vivadent AG website (www.ivoclarvivadent.com).

Disposal information

The product must be disposed of according to the corresponding national legal requirements.

6 Notes on Storage and Transportation

The furnace may only be transported as described in these Operating Instructions.

In order to avoid corrosion on the device and subsequent damage to the device, transport and store the furnace only within the permissible temperature range and ambient conditions.

Acceptable operating conditions

Acceptable ambient temperature range:	+5 °C to +40 °C (41°F to 104°F)
Acceptable humidity range:	80% maximum relative humidity for temperatures up to 31°C (87.8°F), gradually decreasing to 50 % relative humidity at 40 °C (104°F); condensation excluded.
Acceptable altitude	The furnace is tested for use at altitudes of up to 2000 m above sea level.

Acceptable transportation and storage conditions

Acceptable temperature range	–20 °C to +65 °C (-4 to 149°F)
Acceptable humidity range	Max. 80 % relative humidity
Acceptable ambient pressure	500 mbar to 1060 mbar

Use only the original packaging together with the corresponding foam material for shipping purposes.

Remove the object plate from the firing chamber for transportation, pack it securely and ship it in the accessories carton with the furnace.

The furnace may only be transported with the furnace head closed.

7 Technical Data

Power supply	110 – 240 V~ / 50/60 Hz
Overvoltage category	II
Protection class	I (The device requires a ground connection via the mains connection)
Pollution degree	2
Acceptable voltage fluctuations	± 10 %
Max. power consumption	1650 W
Max. current consumption (informative)	16 A at 110–130 V~ 9 A at 200–240 V~
Acceptable data for pumps of other manufacturers: Max. output, final vacuum	250 W /max. leakage current 0.75 mA < 50 mbar
Values and dimensions of electrical fuses	Heating circuit: T15AH 250 V 6.3 x 32 mm
	Vacuum pump: T5AH 250 V 5 x 20 mm
Dimensions of the closed furnace	Depth: 494 mm Width: 280 mm / 415 mm (without/with cooling tray) Height: 450 mm / 573 mm (closed/open)
Usable size of the firing chamber:	Diameter: 55 mm Height: 40 mm
Max. firing temperature	1560°C (2840°F)
Weight	28.5 kg

7.1 Applied standards

The furnace was tested in accordance with the following standards:

Device safety	– EN 61010-1:2010/A1:2019 – UL 61010-1:2012/R:2018-11 – CAN/CSA-C22.2 No. 61010-1:2012/A1:2018-11 – IEC 61010-1:2010+AMD1:2016 – EN 61010-2-010:2020 – UL 61010-2-010:2019 – CAN/CSA-C22.2 No. 61010-2-010:2019 – IEC 61010-2-010:2019
Electromagnetic compatibility	– EN 61326-1:2013, group 1, class B – IEC 61326-1:2012, group 1, class B – EN 61000-3-2:2019 – IEC 61000-3-2:2018 – EN 61000-3-3:2013+A1:2019 – IEC 61000-3-3:2013+AMD1:2017 – USA (FCC): 47 CFR, Part 15, Subpart B – Unintentional radiator class B – Canada (IC): ICES-003 – Unintentional radiator class B

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules and with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation.

8 Delivery Form

- Programat CS6
- Power cord
- Vacuum hose
- IPS Speed Tray
- Tweezers
- Temperature Checking Set Starter Kit
- Network cable
- Short Operating Instructions
- Programat WLAN Kit
- A–D shade guide
- DSA Holder Kit
- Various accessories

Recommended accessories:

- IPS Speed Tray
- Programat CS6 object plate
- Temperature Checking Set UTH
- Temperature Checking Set MTH
- Vacuum pump VP5, VP3 easy

9 CE Declaration of Conformity

ivoclar vivadent
passion vision innovation

CE

Declaration of conformity

Manufacturer Address	Ivoclar Vivadent AG Bendererstrasse 2 LI – 9494 Schaan Liechtenstein
Product	**Programat CS6**
Type of material	**Dental Laboratory Equipment**
Classification	**Technical Device**

We herewith declare under our exclusive responsibility that the above mentioned products meet the provisions of the following EC Council Directives and its implementation in national law. All supporting documentation is retained on the premises of the manufacturer and, where applicable, the notified body.

Directives	2014/35/EU Low voltage 2014/30/EU Electromagnetic compatibility 2011/65/EU RoHS
Standards	EN 61010-1:2010/A1:2019 EN 61010-2-010:2020 EN 61326-1:2013 (Group 1, Class B) EN 61000-3-2:2019 EN 61000-3-3:2013 EN 50581:2012
Notified Body Address	not applicable
Place, Valid from	Schaan, 10.12.2020
Valid until	09.12.2025

Signature		
Name	Markus Heinz	Gottfried Rohner
Positon	CPO Production & Logistics	Director Equipment Development
Date	10.12.2020	10.12.2020

Ivoclar Vivadent – worldwide

Ivoclar Vivadent AG
Bendererstrasse 2
9494 Schaan
Liechtenstein
Tel. +423 235 35 35
Fax +423 235 33 60
www.ivoclarvivadent.com

Ivoclar Vivadent Pty. Ltd.
1 – 5 Overseas Drive
P.O. Box 367
Noble Park, Vic. 3174
Australia
Tel. +61 3 9795 9599
Fax +61 3 9795 9645
www.ivoclarvivadent.com.au

Ivoclar Vivadent GmbH
Tech Gate Vienna
Donau-City-Strasse 1
1220 Wien
Austria
Tel. +43 1 263 191 10
Fax: +43 1 263 191 111
www.ivoclarvivadent.at

Ivoclar Vivadent Ltda.
Alameda Caiapós, 723
Centro Empresarial Tamboré
CEP 06460-110 Barueri – SP
Brazil
Tel. +55 11 2424 7400
www.ivoclarvivadent.com.br

Ivoclar Vivadent Inc.
1-6600 Dixie Road
Mississauga, Ontario
L5T 2Y2
Canada
Tel. +1 905 670 8499
Fax +1 905 670 3102
www.ivoclarvivadent.us

Ivoclar Vivadent Shanghai Trading Co., Ltd.
2/F Building 1, 881 Wuding Road,
Jing An District
200040 Shanghai
China
Tel. +86 21 6032 1657
Fax +86 21 6176 0968
www.ivoclarvivadent.com

Ivoclar Vivadent Marketing Ltd.
Calle 134 No. 7-B-83, Of. 520
Bogotá
Colombia
Tel. +57 1 627 3399
Fax +57 1 633 1663
www.ivoclarvivadent.co

Ivoclar Vivadent SAS
B.P. 118
74410 Saint-Jorioz
France
Tel. +33 4 50 88 64 00
Fax +33 4 50 68 91 52
www.ivoclarvivadent.fr

Ivoclar Vivadent GmbH
Dr. Adolf-Schneider-Str. 2
73479 Ellwangen, Jagst
Germany
Tel. +49 7961 889 0
Fax +49 7961 6326
www.ivoclarvivadent.de

Ivoclar Vivadent Marketing (India) Pvt. Ltd.
503/504 Raheja Plaza
15 B Shah Industrial Estate
Veera Desai Road, Andheri (West)
Mumbai, 400 053
India
Tel. +91 22 2673 0302
Fax +91 22 2673 0301
www.ivoclarvivadent.in

Ivoclar Vivadent Marketing Ltd.
The Icon
Horizon Broadway BSD
Block M5 No. 1
Kecamatan Cisauk Kelurahan Sampora
15345 Tangerang Selatan – Banten
Indonesia
Tel. +62 21 3003 2932
Fax +62 21 3003 2934
www.ivoclarvivadent.com

Ivoclar Vivadent s.r.l.
Via del Lavoro, 47
40033 Casalecchio di Reno (BO)
Italy
Tel. +39 051 6113555
Fax +39 051 6113565
www.ivoclarvivadent.it

Ivoclar Vivadent K.K.
1-28-24-4F Hongo
Bunkyo-ku
Tokyo 113-0033
Japan
Tel. +81 3 6801 1301
Fax +81 3 5844 3657
www.ivoclarvivadent.jp

Ivoclar Vivadent Ltd.
4F TAMIYA Bldg.
215 Baumoe-ro
Seocho-gu
Seoul, 06740
Republic of Korea
Tel. +82 2 536 0714
Fax +82 2 6499 0744
www.ivoclarvivadent.co.kr

Ivoclar Vivadent S.A. de C.V.
Calzada de Tlalpan 564,
Col Moderna, Del Benito Juárez
03810 México, D.F.
México
Tel. +52 (55) 50 62 10 00
Fax +52 (55) 50 62 10 29
www.ivoclarvivadent.com.mx

Ivoclar Vivadent BV
De Fruittuinen 32
2132 NZ Hoofddorp
Netherlands
Tel. +31 23 529 3791
Fax +31 23 555 4504
www.ivoclarvivadent.com

Ivoclar Vivadent Ltd.
12 Omega St, Rosedale
PO Box 303011 North Harbour
Auckland 0751
New Zealand
Tel. +64 9 914 9999
Fax +64 9 914 9990
www.ivoclarvivadent.co.nz

Ivoclar Vivadent Polska Sp. z o.o.
Al. Jana Pawła II 78
00-175 Warszawa
Poland
Tel. +48 22 635 5496
Fax +48 22 635 5469
www.ivoclarvivadent.pl

Ivoclar Vivadent LLC
Prospekt Andropova 18 korp. 6/
office 10-06
115432 Moscow
Russia
Tel. +7 499 418 0300
Fax +7 499 418 0310
www.ivoclarvivadent.ru

Ivoclar Vivadent Marketing Ltd.
Qlaya Main St.
Siricon Building No.14, 2nd Floor
Office No. 204
P.O. Box 300146
Riyadh 11372
Saudi Arabia
Tel. +966 11 293 8345
Fax +966 11 293 8344
www.ivoclarvivadent.com

Ivoclar Vivadent S.L.U.
Carretera de Fuencarral nº24
Portal 1 – Planta Baja
28108-Alcobendas (Madrid)
Spain
Tel. +34 91 375 78 20
Fax +34 91 375 78 38
www.ivoclarvivadent.es

Ivoclar Vivadent AB
Gustav III:s Boulevard 50
169 74 Solna
Sweden
Tel. +46 8 514 939 30
Fax +46 8 514 939 40
www.ivoclarvivadent.se

Ivoclar Vivadent Liaison Office
: Tesvikiye Mahallesi
Sakayik Sokak
Nisantas' Plaza No:38/2
Kat:5 Daire:24
34021 Sisli – Istanbul
Turkey
Tel. +90 212 343 0802
Fax +90 212 343 0842
www.ivoclarvivadent.com

Ivoclar Vivadent Limited
Compass Building
Feldspar Close
Warrens Business Park
Enderby
Leicester LE19 4SD
United Kingdom
Tel. +44 116 284 7880
Fax +44 116 284 7881
www.ivoclarvivadent.co.uk

Ivoclar Vivadent, Inc.
175 Pineview Drive
Amherst, N.Y. 14228
USA
Tel. +1 800 533 6825
Fax +1 716 691 2285
www.ivoclarvivadent.us

Manufacturer:
Ivoclar Vivadent AG
Bendererstrasse 2, 9494 Schaan/ Liechtenstein
www.ivoclarvivadent.com

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