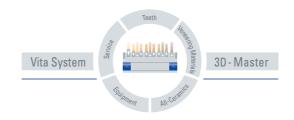
# **VITA INCERAMAT 3**



Operating manual Date of issue: 10-04





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# 1 Technical information

## 1.1 General functions

- 100 freely programmable firing programs
- Illuminated graphic display
- Clearly-structured and controllable firing cycles
- Highest temperature accuracy
- Temperature adjustment program with silver sample
- Automatic temperature adjustment
- In case of power cut < 10 sec no abortion of program
- In case of power cut > 10 sec message in display

#### 1.2 Technical data

Width: 240 mm

Depth: 340 mm

Height: 480 mm

Casting: steel / stainless steel

Weight: 14 kg

Firing chamber - capacity: Diameter : 90 mm

Height: 55 mm

Firing chamber - temperature: max. 1200 °C

#### 1.3 Electrical data

Power supply: 230 Volts AC 50 Hz

Power consumption: max. 1500 Watts

Classification: Safety class 1

# 1.4 Scope of delivery

Furnace in special shipping carton with:

- 1 keyboard
- 1 firing tray
- 1 mains power lead
- 1 pair of furnace tweezers
- 1 operating manual

# 2 Installation and starting-up

#### 2.1 Installation

- When positioning the furnace, the minimum distance of the furnace and any wall is at least 25 cm. The furnace must be placed into a dry, heated room.
- At temperatures of less than 15 °C (e.g after transport) leave the unit for approx. 30 min. before starting-up.
- Make sure that the unit is placed on a heat-resistant surface. Heat radiation and heating up of the unit
  are within a harmless range. However it can not be excluded, that sensitive furniture surfaces and
  veneerings may exhibit slight discoloration due to continuous exposure to heat.
- The furnace must not be exposed to direct sunlight.
- Do not place any combustible objects near the furnace.
- Do not place operating element directly into the heat radiation area of the firing chamber.

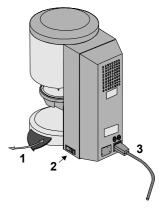


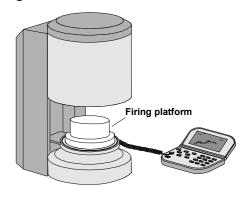
Figure 1

# 2.2 Connecting the furnace to the mains supply

Notice: Prior to starting-up, observe safety advice item 3!

- Connect furnace to the mains supply using the enclosed mains power lead (3). (fig. 1) Do not use multiway socket outlet with extension cable, overload may result in a fire.
- Connect operating element with the furnace (on the side) and open it (fig. 2). Do not place operating element in the area of direct heat radiation of the firing chamber.
- Switch on the furnace with the main switch (fig. 1, item 2), lift will descend into lower position.
- Place the firing tray onto the firing platform. (fig. 2)

Figure 2



# 2.3 Furnace out of operation

If the furnace is not used, the lift should be moved with unit should be switched off with the main switch. (see

into the firing chamber and the fig.1, item2).

Closing the chamber will protect the insulation and avoid the absorption of moisture.

# 3 Safety advice

For your personal safety we would like to ask you to read the following safety-relevant information completely before starting-up the furnace.

#### 3.1 Information of labels

This is a warning label about dangerous electrical current.

Disconnect the unit from the mains supply before opening it (Fig.3).

Caution if rear panel is removed: there may be a residual voltage of up to 400 volts on the board if the unit is switched off.



The manufacturer disclaims any liability for accidents of the user if the furnace is not closed.

**Caution:** Do not place any objects near the lift tray.



When the unit is switched on, the lift will descend into the lower position. (fig. 3)

Use lateral plate to place firing objects on. (fig. 3, item.1)

Furnaces must not be operated without firing tray placed on. (fig. 2)

During continuous operation (max. end temperature, max. firing time) some parts of the firing chamber may reach high temperatures (above 70 °C).

If the unit is connected to the mains supply, do not reach into the open firing chamber to avoid contact with live and hot components.

Lift tray area

# 3.2 Cleaning the furnace

Unplug the unit each time before it is cleaned!! (fig. 3)

It is not necessary to clean the interior of the firing chamber, cleaning of the casing with a wet cloth within regular intervals will ensure operational reliability.

Do not use hot objects for the keys of the keyboard, e.g. pair of tweezers.

Operating element should only be cleaned with a dry cloth or brush.

Basically, no cleaning agents and no flammable liquids must be used for any type of cleaning work.

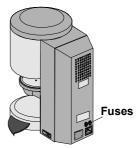


#### 3.3 Fuses

In the rear panel there are two fuses for the unit.
The labels provide information on the fuses used in the unit.
Fuses with different values must not be used.

T1 H 250 V

T 8 H 250 V



#### 3.4 CE-mark



The use of the CE-mark entails the legally binding statement that the unit complies with the basic requirements of guideline 73 / 23 / EEC (Low Voltage Guideline) as well as guideline 89 336 / EWG (EMV - guideline).

## 3.5 Cooling fan

The furnace has been equipped with a cooling fan which will be switched on and provide half of its power after starting a firing program at a temperature of 605 °C to 800 °C in the firing chamber and then offer full power up to the end of the program and cooling down to 600 °C.

The cooling fan avoids excessive heating of the furnace and contributes to ensure the general operational reliability of the furnace.

In case of failure of the cooling fan an error message is shown on the display (see error messages). For safety reasons the furnace should not be operated without the cooling fan.

Do not block the upper cover of the firing chamber or the openings of the rear panel.

## 4 Protection against power failure

# 4.1 Mains power failure

The Inceramat III features a power failure safety device.

This element avoids program abortion and thus incorrect firing during short-time breakdown of the mains voltage supply.

This backup device is activated in the event of a mains power failure during an active firing program.

In case of a failure of less than 15 sec, the program continues and is not aborted.

Display shows Error 09 ( see error messages).

Pressing the Stop key deletes the Error message and the data of the program sequence will be shown on the display again.

In case of failure of more than 15 sec, the program is aborted and the display shows Error 08 ( see error messages). Pressing the Stop key deletes the Error messages.

Error 9 Interruption of program Confirm (Stop)

Error 8 Power failure Confirm (Stop)

# 5 Firing programs

# 5.1 General information on firing programs and display

100 freely programmable firing programs are available. The programs include the following adjustable parameters:

Firing programs No. 1 - 100

**Prog Ent Mode** (change/enter program parameters) or

1 Temperature rising rate 00:10 h - 06:00 h

**2** 1. Temperatur 100°C - 300°C

**3** Hold-time 00:00 h - 06:00 h

2 Temperature rising rate 00:10 h - 06:00 h

**5** End temperature max. 1200°C

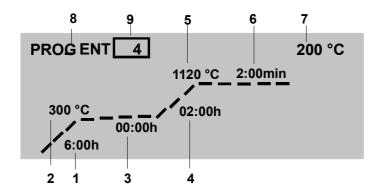
6 Hold-time for end temperature 00:00 - 06:00 h

7 Display for temperature in the firing chamber up to 1200 °C

8 Program display

9 Field to enter program No.

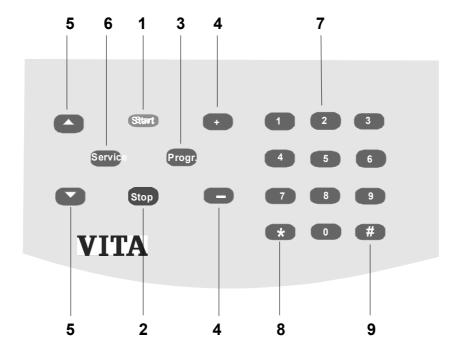
Times are entered in hours and minutes.



# 5.2 Temperature rising rate

The temperature rising rate is displayed in hrs/min in the *Prog Ent*-Mode (program selected). The value to be entered can be selected between 00:10 hr - 06:00 h. A buzzer is heard when incorrect values have been entered.

# 5.3 Functions of keys in the On-, Prog Ent- and Prog Run- modes



Mode: On Unit is switched on, lift in lower position, no active program

**Prog Ent:** program selected program started

1 Start Prog Ent-Mode: start of program (previously changed values are stored)

Prog Run-Mode: no function

2 STOP Prog Ent-Mode: back to display of temperat. firing chamber/time and date if

field program No. is displayed

or

if field for program value is displayed, then

back to field program No.

Prog Run-Mode: abortion of firing program

3 Prog On Mode: activates Prog Ent-Mode, program that was selected last is called

*Prog Ent-Mode:* no function *Prog Run-Mode:* no function

4 On-Mode: no function

Prog Ent-Mode: change of program No. and program values, plus/minus

Prog Run-Mode: no function

5

On-Mode: manually moving lift up/down Prog Ent-Mode: selection of the program steps.

Storing after changing a value and calling

next program step

Prog Run-Mode: manually moving lift up/down

6 Service

On-Mode: call utilities (see utilities)

Prog Ent-Mode: call function input for vacuum parameters

call function input of cooling parameters call function of lift positions pre-drying

Prog Run-Mode: no function

7 \* \* \* \*

On-Mode: 0 to 9 no function

Prog Ent-Mode: 0 to 9 enter program No. and program values

Prog Run-Mode: no function

8

On-Mode: no function

Prog Ent-Mode: sets back value – deletes program entry

Prog Run-Mode: no function

9

On-Mode: no function

*Prog Ent-Mode:* stores changed value and starts next program step.

Prog Run-Mode: no function

#### 5.4 Prog Ent-Mode, selecting a program, changing program values

Precondition: On-Mode, lift tray in lower position, no active program.

Prog

program that was started last is displayed, e.g. No. active field features a frame.

Start

program starts (Prog Run-Mode)

or

changing program No.

- selecte entering new program No. with keys (2) or keys (1).
- press key (3) to confirm the program



program starts

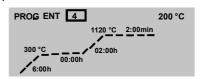
or

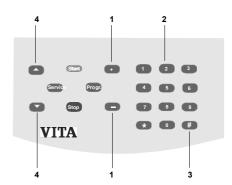
changing program values

- select desired program value with key (4) (value in the frame)
- enter value with keys (2)
- store with key (3) or key (4)



program starts

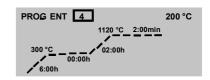




#### 5.5 Prog Run-Mode, program started

Precondition: On-Mode, lift tray in lower position, no avtive program.

Prog Ent-Mode selected (programm selected, see item 7.5)

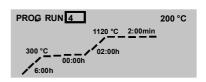


Start program with Start key.



The countdown of the respective time informs about the program progress.

For safety reasons, the lift will not automatically descend into the lower position at the end of the program. Move lift to lower position using key.



#### 6 **Utilities (service programs)**

#### 6.1 Function of keys in the Service-Mode:

Precondition: On-Mode, lift tray in lower position, no active program.



1 2 3 4 5 6

7 8 9

# Service

- call utilities, start with No. 1
- store changes and end utility (service program).



changes of values or entering using the keys



Selecting On = Key 1 or Key "plus" Selecting Off = Key 0 or Key "minus"



store changes and call next service program.





press once, set back change of value. press two times to end service program.

#### 6.2 Service No. 1 Lift speed



is pressed display shows previously selected values, e.g.







These keys are used to select between raising and lowering speed, selected value is displayed in a frame and can be changed.

Acceptable values: Lowering: approx. 6 - 16 sec. Raising: ca. 6 - 16 sec.

(Service)

store and end





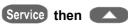
or



store and call next service program.

Note: When selecting/changing values, the lift moves into the upper or lower position after approx. 5 sec to determine the correct speed.

# 6.3 Service No. 2 Signal time



is pressed until Service No. 2 is displayed. Display shows previously selected values.

SERVICE 2 SIGNAL TIME :



Acceptable values: 0 - 20 sec.

Service store and end

or



store and call next service program.

# 6.4 Service No. 3 Function of STOP - key

Service then is

is pressed until Service No. 3 is displayed.

Display shows previously selected values.

SERVICE 3 PRESS STOP KEY: Stop 1 x



changes of values

Acceptable values: 1 = press Program Stop once

2 = press Program Stop two times

Service store and end

or



store and call next service program.

# 6.5 Service No. 4 Show total operating hours.

Service then

is pressed until Service No. 5 is displayed. Display shows total operating hours of the furnace (example)

SERVICE 4 OPERATING HOURS : 00060 h

Service end

or



call next service program.

#### 6.6 Service No. 5 Show total operating hours of muffle

Service then



is pressed until Service No. 5 is displayed. Display shows operating hours of muffle (example).

SERVICE 5 FIRING HOURS : 00020 h

Service

end or



call next service program.

#### 6.7 Service No. 6 Call up unit No.

Service then



is pressed until Service No. 6 is displayed. Display shows unit No.

SERVICE 6 UNIT NO. : 010050

(Service)

end

or





call next service program.

#### 6.8 Service No. 7 Call up Software No..

Service then



is pressed until Service No. 7 is displayed. Display shows Software No.

Core = Software No. of main board Ctrl = Software No. of keyboard

SERVICE 7 SOFTWARE VERSION: Corelnc: V 6.4 Ctrlinc: V 1.1

(Service)

end or





call next service program.

#### 6.9 Service No. 8 Service-Hotline

Service then

or



is pressed until Service No .8 is displayed. Display shows Tel. \* 49 (0) 7761/562222

SERVICE 8 HOTLINE: \*49 (0) 7761 - 562222

Service end





call next service program.

## 6.10 Service No. 9 Temperature adjustment with silver sample

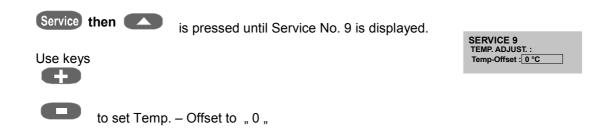
With this program and the VITA silver sample set (VITA Order No. B 230) the temperature in the firing chamber can be checked and readjusted in the range of plus/minus 20 °C. Upon readjusting it must be ensured that the instructions to perform (instructions in the silver sample set) the test with the silver sample are strictly adhered to.

Noncompliance leads to incorrect measurements and thus to incorrect adjustment.

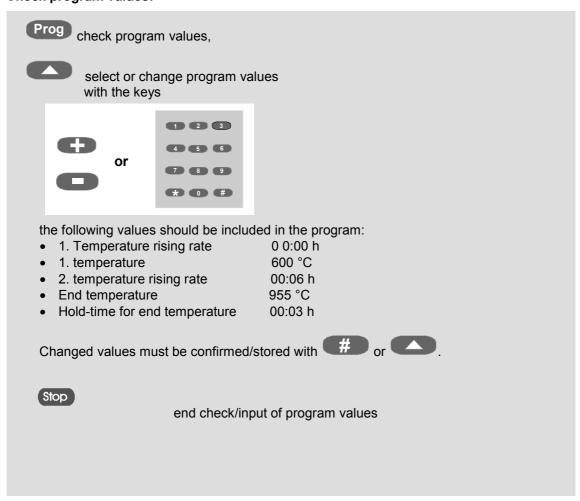
#### Note:

A changed value (Temp-Offset) is only stored, if the program has been started by pressing the "Start" key.

If no complete program run is desired, the program can be discontinued by pressing the "STOP" key; the changed value is still stored.



#### Check program values:



Start program: entered value is stored

Place silver sample on lift tray



is pressed, program starts

## acoustic signal is heard at the end of the program



signal off

melting point of silver sample is O.K. (silver should have melted slightly)



program completed

melting point of silver sample is not O.K.





adjustment of temperature e.g. plus 10°C (range of plus/minus 20°C)

then



program starts - see, \* acoustic signal at the end of the program.

When the melting point of the silver sample is reached the program is

ended by pressing the Service key.



Temperature control and thus the temperature in the firing chamber are adjusted with this value.

Silver sample set VITA Order No. B 230

VITA silver sample set for temperature control contains:

#### Description

- Ceramic tray
- 3 silver rods with a length of 70 mm and a diameter of 1.5 mm
- description

#### 6.11 Service No. 10 Automatic temperature adjustment

Automatic temperature adjustment is activated after switching on the furnace at intervals of 100 operating hours of the muffle.

During this process the display shows Auto Electronic for approx. 15 sec.

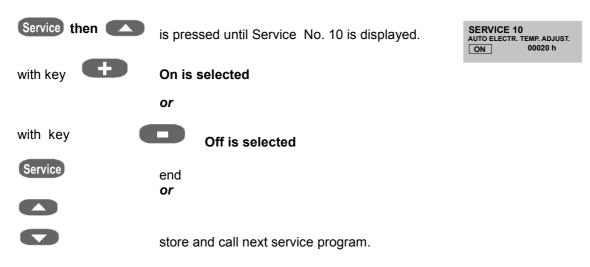
#### Preconditions are:

Automatic temperature adjustment ON

- 100 operating hours of muffle have expired
- Temperature in the firing chamber lower than 50 °C

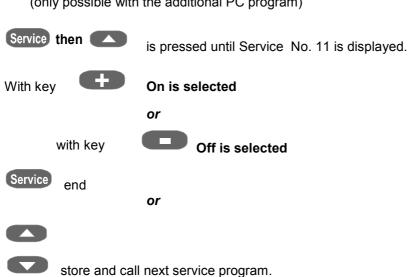
Automatic temperature adjustment considers resp. corrects any deviation of the electronic components within the temperature measuring circuit. Accordingly, a constant temperature control of +/- 1 °C is ensured even when the furnace is operated over longer periods.

## Selecting Service program:



#### 6.12 Service No.11 Storing process data

(only possible with the additional PC program)



SERVICE 11 STORE PROCESS DATA

#### 6.13 Service No. 12 Brightness / contrast of display





is pressed until Service No. 12 is displayed. Display shows previously selected values.

Brightness: 60%





These keys are used to select between brightness and contrast; the selected value is underlined and can be changed.

Acceptable values: Brightness: 0 - 100 % Contrast: 0 - 100 %





changes of values



store and end

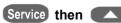






store and call next service program.

#### 6.14 Service No. 13 Setting of time

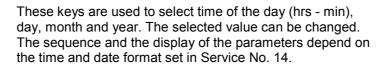




is pressed until Service No. 13 is displayed.

SERVICE 13 TIME DATE: 15: 05 01 .12. 2002





Acceptable values:

0 - 24 (0 - 12 am, 0 - 12 pm) Hours:

Minutes: 0 - 60Month: 1 - 12 Day: 1 - 31 Year: until 2099





change of values

Service store and end

or





store and call next service program.

#### 6.15 Service No. 14 Time - Date format

Service then

is pressed until Service No. 14 is displayed.

TIME-DATE FORMAT: Time: 15:05 Date: TT. MM. JJ

These keys are used to select between date and time.

changes

(Service)

store and end

or

store and call next service program.

#### 6.16 Service No. 15 Basic service parameters

Notice: When this program is run, personal values that have been entered into the individual sections will be overwritten with the values recommended by the manufacturer of the furnace.

Prestored basic program settings for:

Service No. 1 Lift speed, = 10 = 14

Service No. 2 Time for buzzer 5 sec

Service No. 3 Abortion of firing program Press Stop key once

Service No. 9 Temperature adjustment with silver sample Temp -Offset = 0

Service No. 10 Automatic temperature adjustment

On

Service No. 11 Storing process data Off

Display brightness Service No. 12

60 %

contrast

60 %

#### Reading basic furnace settings in the memory:

Service then



is pressed until Service No. 15 is displayed. Display shows e.g. 0067h

SERVICE 15 BASIC SERVICE VALUES : 0067 h man

meaning: performed last during operating hour 0067.

man = performed manually (mit Prog. No.15) auto = automatically (only with new board) or

or

Keep key pressed for approx. 5 sec, (countdown on the display), only then

basic furnace setting are read in the memory.

Service ]

end

or



call next service program.

#### 6.17 Service No. 16 Reading basic program values in the memory

Service then



is pressed untilService No. 16 is displayed. Display shows e.g. 0020h meaning: performed last during operating hour 0020.

BASIC PROGRAM VALUES : 0020 h man

or

man = performed manually (with Prog.No.16) auto = automatically (only with new board)

#### reading in the memory with key

or

Keep key pressed for approx. 5 sec, (countdown on the display), only then the



firing table is read in the memory.

Service

end

for

call next service program.

#### 6.18 Service No. 17 Deleting process data

Service then



is pressed until Service No. 17 is displayed. Display shows e.g. 0016h

DELETING PROCESS DATA:

performed last during operating hours 0016 Meaning:

0 = no data records are stored in

the memory

4 Keep key pressed for approx. 5 sec,

or (countdown on the display), only then the

data records stored in the memory will be deleted.

Service end

or

call next service program.

Notice: During the transfer to a PC using the FDS program, the data records in the memory will be automatically deleted.

#### 6.19 Service No. 18 Writing / reading program parameters

The data of the firing programs have been stored in the memory of the keyboard. In order not to lose individually entered data in case of an exchange of the keyboard, it is possible to write the values into the memory of the board using service program no. 18 "Writing". To avoid loss of data, this procedure should be carried out after changing firing programs.

If required, the firing programs can be read in the memory of the keyboard again using the "READ" service program.

Service dann

is pressed until Service No. 18 is displayed. Display shows:

**SERVICE 18** 

Use keys to select:

write = writing values in the memory of the furnace or

read = reading in the memory of the keyboard

Keep key pressed for approx. 5 sec,

(countdown on the display), only then the or

data are transferred.

Service end

or

call next service program.

## 6.20 Service No. 19 Writing / reading service parameters

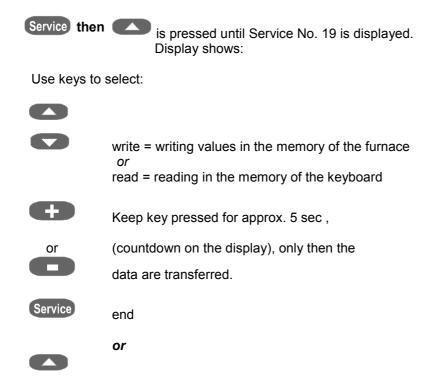
The Service parameter data (standard values, see operating manual, Service Program No. 15) have been stored in the memory of the keyboard.

In order not to lose individually entered data in case of an exchange of the keyboard, it is possible to write the values into the memory of the board using service program no. 19 "Writing".

To avoid loss of data, this procedure should be performed after changing service parameters.

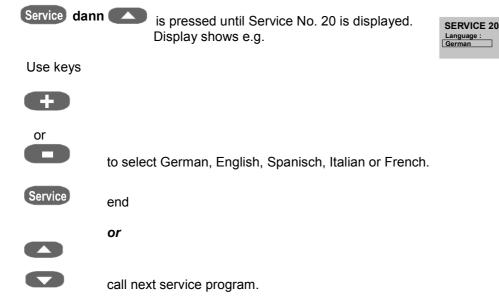
If required, the service parameters can be read in the memory of the keyboard again Using the service program "Reading".

SERVICE 19
SERVICE-PARAMETER:
LESEN
SCHREIBEN



# 6.21 Service No. 20 Selecting the language

call next service program.



# 6.22 Error messages Error 01 - 29

In case of a malfunction the message Error xx is shown on the display.

The message can be reset by pressing the Stop key or by switching the unit on and off.

If the malfunction is not eliminated, the message is repeated, the unit, however, can only be operated after eliminating the malfunction.

When one of the error messages listed below is displayed, contact the manufacturer or an authorized service company, see also Service No. 8, Service-Hotline.

In most cases it is necessary to open the furnace in order to detect or to verify an error that has occurred.

For this purpose the aspects described under **Safety advice** must be considered.

Fehler 01	Firing temperature exceeded by more than 20°C or transposition of the thermocouple connections.
Fehler 02	Firing temperature exceeded by more than 30 °C during rising
Fehler 03	Break of temperature sensor, cooling fan runs immediately
Fehler 04	Malfunction of limit switch for lower lift position
Fehler 05	Failure of cooling fan
Fehler 06	Failure of lift motor
Fehler 07	Failure of speed measurement
Fehler 08/ Fehler 09	Error voltage supply resp. supply unit (see also power failure safety device)
Fehler 10	Muffle defective
Fehler 11	Memory, data memory full, Transfer data to PC or delete with Service No. 17,

ERROR 1
Firing temperature > 20°C
Please restart system

## Further error messages:

see also Data Transfer.

Error messages Error 13 to 25 generally refer to malfunctions of the electronic system as well as communication errors between the keyboard and the main board.

When these errors occur, the manufacturer of the furnace or an authorized service company should be contacted.

## 7 Data transfer

The FDS ( $\mathbf{F}$ iring –  $\mathbf{D}$ ata –  $\mathbf{S}$ ystem ) is suitable to transfer firing data to a PC and administrate them to ensure the quality of dental ceramic work.

The program (software on CD) incl. accessories is not included in the delivery of the unit and can be ordered under the Order No. D 34230.

# 7.1 Activate data storage

In order to store firing data "On" must be selected in the service program No. 11.

This ensures that the firing data are stored in the memory and transferred later to a PC using FDS (Firing – Data – System ).

The memory of the furnace can store approx. 300 firing programs and is automatically deleted after a transfer.

The message "memory full" (Error – 11, Memory) is displayed early so that it is always possible to store an active firing program.

If no data are transferred to a PC, the memory can be deleted with the service program No. 17.

If data transfer is activated, a consecutive number is shown in the lower right corner of the display after starting the firing program.

This number should be noted down on your order, to allow for assigning the recorded data record to the order later on.

This number will be registrated in the record under Order No. and also transferrred.

The connecting cable (figure 1) required for the transfer of data is included in the accessories of the PC program.

# 8 Firing charts VITA INCERAMAT

SPINELL Slip technique	Time 1	Temp. 1	Time 2	Time 3	Temp. 2	Time 4
Sintering firing Inlays	0:00	120	0:00	2:00	1180	2:00
Sintering firing     Crown substructures	6:00	120	0:00	2:00	1120	2:00
2. Sintering firing Crown substructures	0:00	120	0:00	1:00	1180	2:00

ALUMINA Slip technique	Time 1	Temp. 1	Time 2	Time 3	Temp. 2	Time 4
Sintering firing	6:00	120	0:00	2:00	1120	2:00
Glass infiltration firing for crown substructures	0:00	200	0:00	0:30	1110	2:00
Glass infiltration firing for bridge substructures	0:00	200	0:00	0:30	1110	6:00

ALUMINA Machine production	Time 1	Temp. 1	Time 2	Time 3	Temp. 2	Time 4
Glass infiltration firing for crown substructures	0:00	200	0:00	0:30	1140	1:00
Glass infiltration firing for bridge substructures	0:00	200	0:00	0:30	1140	2:00

ZIRCONIA Slip technique	Time 1	Temp. 1	Time 2	Time 3	Temp. 2	Time 4
1. Sintering firing	6:00	120	0:00	2:00	1120	2:00
2. Sintering firing	0:00	120	0:00	1:00	1180	2:00
Glass infiltration firing	0:00	200	0:00	0:50	1140	2:30

Sprint Technique	Time 1	Temp. 1	Time 2	Time 3	Temp. 2	Time 4
Sintering firing	0:00	120	0:00	0:30	1120	2:00
Glass infiltration firing for crown substructures	0:00	200	0:00	0:30	1110	2:00

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With the unique VITA SYSTEM 3D-MASTER® all natural tooth shades are systematically determined and completely reproduced.



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