Instructions for use

# Multimat NTX

CE

DENTSPLY

The text and illustrations of these Instructions for Use have been compiled with the utmost diligence. Nevertheless, the presence of typographic errors or incorrect data cannot be excluded. Please note that DeguDent GmbH will not be responsible for such errors.

# Content

**Dear customer:**

Thank you for your confidence in Multimat® NTX/NTX$^{press}$. This furnace for firing and pressing dental ceramics is a safe high-quality device featuring numerous automated functions. It is characterized by ease of handling and minimal training requirements. The device is nearly maintenance-free and suitable for continuous operation.

We hope you will appreciate your results with the Multimat® NTX/NTX$^{press}$.

# 1 General information

## 1.1 On these Instructions for Use

Compliance with these Instructions for Use is a prerequisite for the successful and safe operation of the Multimat® NTX/NTX$^{press}$. These Instructions for Use contain important information for operating this unit in a safe, appropriate and economic manner. Compliance with these Instructions for Use also helps avoid hazards, limits repair costs and downtime and increase the reliability and prolong the life of the Multimat® NTX/NTX$^{press}$.

These Instructions for Use must be continuously present in the vicinity of the device and must be read by all persons working with the Multimat® NTX/NTX$^{press}$.

DeguDent GmbH will not be responsible for any damage caused by improper use or operation of the Multimat® NTX/NTX$^{press}$ and/or non-compliance with these Instructions for Use.

Note: We are constantly seeking to keep these Instructions for Use up to date. You may download the most recent version from our website **www.degudent.com** at any time.

## 1.2 Layout elements used in these Instructions for Use

Safety notes related to personal injury, accidents or property damage:

**The unit must be opened only by authorized DeguDent GmbH service personnel!**

*Step-by-step instructions*

**1.** Remove…

**2.** Locate…

*Designations of buttons or user interface elements:*

***Start firing*** button

*Emphasis:*

The front of the unit includes the **display (1)** with its...

*Additional notes and hints:*

**Note:** You may also use existing programs to…

## 1.3 Unit types and year of manufacture

Multimat® NTX

Multimat® NTX$^{press}$

Year of manufacture: From 2011 onward

Software version: From 3.0 onward

**Note:** To the extent that pressing functions are described in these Instructions for Use, these descriptions refer exclusively to the Multimat® NTX$^{press}$.

## 1.4 Manufacturer and service addresses

DeguDent GmbH

Rodenbacher Chaussee 4

63457 Hanau

Germany

Phone: +49 180 2324555

Fax: +49 180 2324556

## 1.5 Intellectual property rights



## 1.6 Proper use

The Multimat® NTX/NTX$^{press}$ is a device for **firing and pressing dental ceramic materials**. Observe the ceramic manufacturers' directions and recommendations.

Any use outside or beyond those directions or specifications does not constitute proper use. Any damage resulting from such use will be the sole responsibility of the user of the Multimat® NTX/NTX$^{press}$. The same is true of any unauthorized changes to the unit. Proper use presupposes compliance with all instructions on:

- Safety
- Operation
- Care, maintenance and troubleshooting

described in these Instructions for Use. The unit is intended solely for dental laboratory use. Any use in other locations or for other purposes requires prior written approval of DeguDent GmbH.

# 2 Safety instructions

All DeguDent GmbH devices are designed and produced using **state-of-the-art technology** and following all recognize safety rules.

Nevertheless, using these devices may result in **hazards to operators or third parties or damage** to the Multimat® NTX/NTX$^{press}$ or other property, e.g. if:

- The unit is operated by untrained or not properly instructed personnel.
- The unit is not employed for its proper uses.
- The unit has not been properly operated or maintained.

Use only **qualified and trained personnel** to perform to tasks described in these Instructions for Use. Observe any applicable legal age restrictions!

Personnel to be trained or guided, including vocational trainees, must work with the Multimat® NTX/NTX$^{press}$ only if supervised by an experienced operator!

## 2.1 Safe transport

The unit weighs **22 kg** (Multimat® NTX)/**24.6 kg** (Multimat® NTX$^{press}$) and must be lifted and transported by **two** persons.

The unit is shipped in a **cardboard case** and is protected by an upper and a lower interior **foam shell**. These shells are designed such that the **firing base** is also protected from shock by an elastic foam element. When repackaging the unit, make sure that this protective foam element is properly in place.

## 2.2 Safe operation

To ensure **safe operation** of the unit, read and follow the following instructions:

Do not place the Multimat® NTX/NTX$^{press}$ and the vacuum pump (available separately) in the immediate vicinity of sources of heat to prevent overheating of the unit.

Keep the device clear of the nearest wall or object. The minimum distance is **25 to 30 cm.**

Place the device only on non-flammable surfaces. Keep flammable objects and liquids away from the device.

Position the vacuum pump such that adequate ventilation is assured.

Protect the unit from moisture and steam.

Ensure that the unit and the vacuum pump (available separately) are connected only to the appropriate mains voltage.

Never open the unit under any circumstances. Electric shock hazard!

If the Multimat® NTX/NTX$^{press}$ is not to be used for an extended period, disconnect the unit from mains.

Do not operate the unit unless it is firmly placed on the firing/pressing base to avoid excessive wear and tear on the seals of the firing platform, which might even result in deformation of the carrier plate.

Use only your fingers or a stylus to operate the touch screen. Do not touch the screen with pointed or hot objects.

A furnace with pressing function must always be properly connected to compressed air, even during “normal” vacuum firing cycles.

The pressing tray included with the Multimat® NTX should be used exclusively for pressing cycles. Use the firing base for all firing cycles.

## 2.3 Maintenance and troubleshooting safety notes

Observe the following rules during **maintenance, repairs, or troubleshooting tasks**:

- All repairs must be performed by authorized DeguDent personnel only.
- All work on electrical components must be performed by qualified electricians.
- Disconnect from mains before opening the unit.
- Use only original replacement parts.

Some components of the Multimat® NTX/NTX$^{press}$ are subject to a certain amount of wear and tear.

It is therefore recommended to subject the unit to technical inspections at yearly intervals.

## 2.4 Safe handling of ceramic fibres

The **heat insulation** of the firing chamber and the firing base contain **ceramic fibres** that have been rated as carcinogenic. Measurements performed on a ceramic furnace while in use have shown that the actual level of these fibres is significantly lower than the acceptable risk threshold if the furnace is used as per the manufacturer’s instructions.

Any damage to the furnace must be repaired by a recognized expert (e.g. DeguDent’s Technical Service). Visible **deposits of fibres are freely accessible parts of the furnace** must be removed by **approved cleaning methods** (e.g. by **wiping them off with a moist cloth** or by **vacuuming using approved filters**). **Fibres must never be blown away with compressed air nor brushed away with brooms were brushes while still dry.** Should you detect unusual quantities of visible fibre deposits on freely accessible parts of the furnace, please contact a recognized expert as mentioned above. Use of **defective accessories** containing ceramic fibres must be **discontinued immediately**.

## 2.5 Warning decals on the unit

The **Hot Surface** warning decal alerts the operator to hot temperatures on Multimat® NTX/NTX$^{press}$ surfaces that may prevail near the firing chamber, especially in the case of higher firing temperatures.

The **Generic Hazard** warning decal is attached near the vacuum pump power receptacle (see **3.2 Connectors, page 9**). This decal alerts you to the following safety hazards:

The vacuum pump power receptacle is intended exclusively for connecting a vacuum pump.

The vacuum pump power receptacle carries mains voltage.

The maximum vacuum pump current is 1 A.

# 3 Technical description

## 3.1 Base unit

Both units consist of an attractively designed and stable **metal housing (1)** with a **firing chamber top (2)**. The heat inside the **firing chamber (2)** is generated by a quartz muffle with an openly radiating filament winding. The walls of the heating chamber are filled with **insulating ceramic fibres** to keep the heat loss to a minimum (see also **2.4 Safe handling of ceramic fibres page 7**).

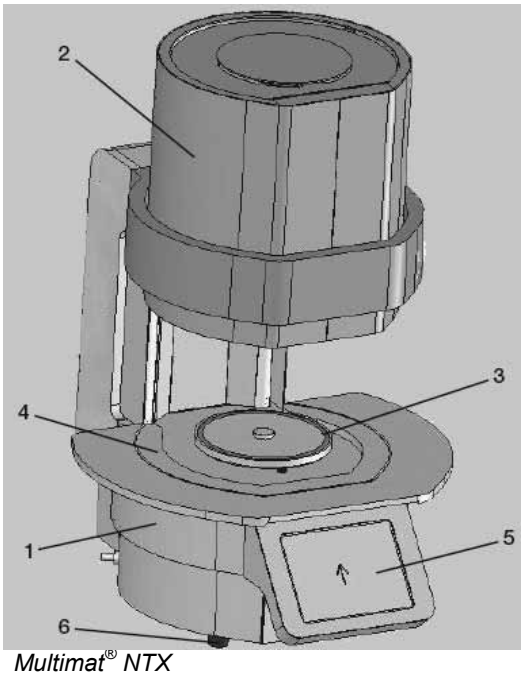
The firing objects are placed on the **firing base (3)** together with the firing support. During the firing process, the firing chamber is lowered onto the carrier plate, to be raised again once the firing process has been completed. The chamber is lowered and raised by a **stepper motor with a geared-down belt drive**.

For more ease of handling, the firing object including the firing support can be placed on the U-shaped **magnetic rest (4)**.

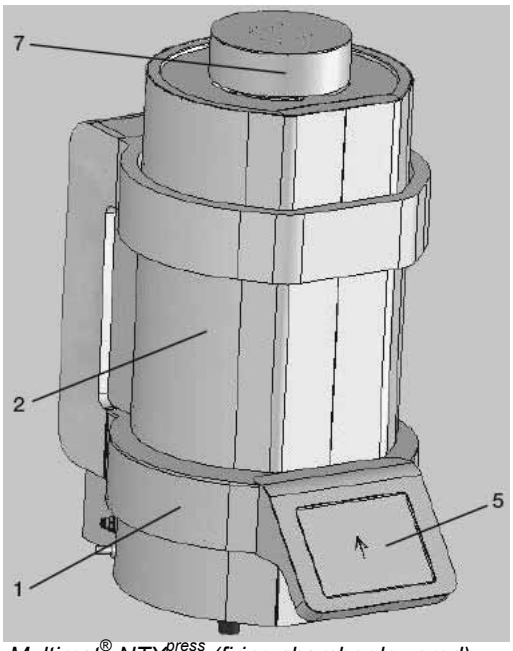
The **touch screen (5)** is ergonomically located at the front of the unit. It allows you to activate the pre-defined (fixed) firing programs or to define and store your own firing programs. All firing processes are controlled by an electronic **microcontroller** inside the unit.

The unit rests on four **feet (6)** for maximum stability.

The Multimat® NTX$^{press}$ additional features a **pressing** function that allows mechanical pressing of pressable ceramics within a running program. To achieve this, a **pressing cylinder (7)** integrated into the upper part of the pressing chamber is moved downwards by air pressure. This also explains why the firing chamber of the Multimat® NTX$^{press}$ is elongated (see illustration).



*Multimat® NTX*



*Multimat® NTX$^{press}$ (firing chamber lowered)*

## 3.2 Connectors

The following electrical components and connectors are available:

**Primary power receptacle (8)**

**Mains switch with automatic circuit breaker (9)**

**RJ45 socket (10)** (for service purposes only)

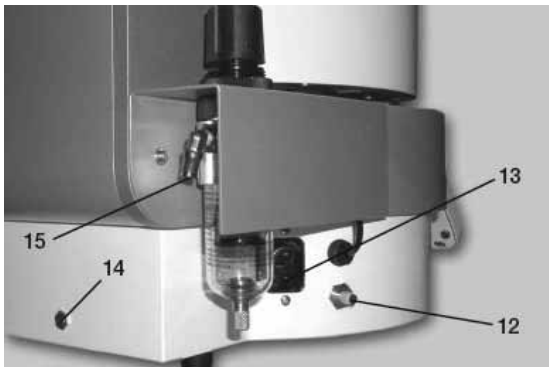
**2 USB connectors (11)** for service updates via USB memory stick)

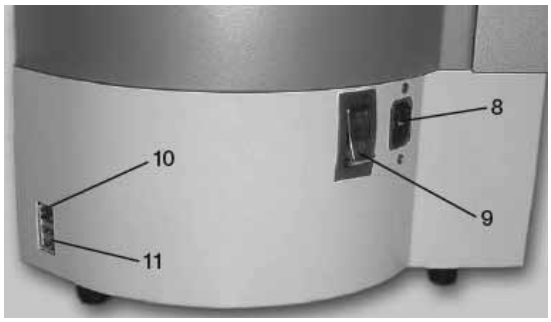
**Vacuum pump air inlet (12)**

**Vacuum pump power receptacle (12)** to provide the optional vacuum pump with mains power.
**The vacuum pump power receptacle is intended exclusively for connecting a vacuum pump.**
**The vacuum pump power receptacle carries mains voltage.**
**The maximum vacuum pump current is 1 A.**

**External speaker connector, 3.5 mm jack (14)**

**Pressurized-air connector for connecting the pressing cylinder to the filter-protected pressure regulator (15)** (Multimat® NTX$^{press}$ only).




## 3.3 Scope of delivery

The scope of delivery includes:

Multimat® NTX/NTX$^{press}$ **ceramic furnace**

**Mains cable for high-temperature devices**

**Instructions for Use**

**USB memory stick**

CD-ROM containing Multimat® NTX/NTX$^{press}$ **application software** for Windows operating systems

**Touch-screen stylus**

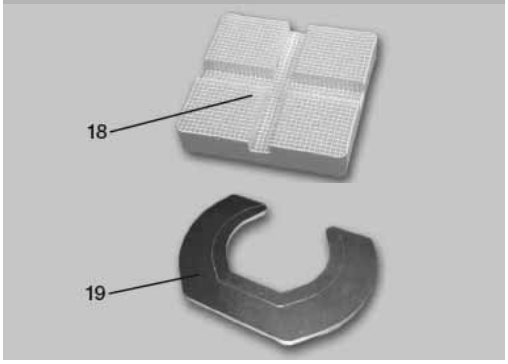
One **firing base (16)**

One **pressing base (17)** (Multimat® NTX$^{press}$ only)

One **firing support (18)**

One **firing object plate (19)**

One pair of **tweezers**

## 3.4 Optional accessories

The following optional accessories are available from DeguDent GmbH:

| REF | Description |
|---|---|
| **D03002220VD** | **Biodent Vacuum pump (20) High-performance** vacuum pump for ceramic furnaces |
| **D 03 532 803** | **Calibration set (21)** “Silver wire test, manual”<br>For controlling the temperature of ceramic furnaces; includes:<br>25 silver wires 0.3 × 37 mm, 5 wire carriers, 1 instruction for use |
| **D 03 260102** | **Vacuum pump oil** 0.5 l |
| **54 69991009** | **Oil change set** |
| **D 03 002 MULT** | **Firing muffles for Multimat®, Multimat® MC,** Ø 92 mm, 1,100 W |
| **D 03002MC2220** | **Firing muffles for Mach 1, Mach 2, Mach 3, MC II and SC**<br>Ø 92 mm, 220 V, 1,200 W |
| **D 03 002 SYSTD** | **Firing muffles for Systomat D, Systomat M and Systomat,** Ø 92 mm |
| **D03002C230V** | **Quartz firing muffle for Multimat® C** |
| **54 69991011** | **Quartz firing muffle for**<br>**Multimat® Touch, Touch&Press**<br>**Multimat®2 Touch, Touch+Press,**<br>**Multimat® NTX/NTX$^{press}$ and Easy** |
| **D430112** | **FAC muffle set**, large |
| **D430111** | **FAC muffle set,** small (not available in Germany) |
| **D430114** | **FAC alumina piston** |
| **D430115** | **FAC wrapping paper** |
| **53 6591 1104** | **MultiMax 450 muffle set**, 4 parts |
| **53 6591 1004** | **MultiMax 450 rubber sleeve**, large |


## 3.5 Technical specifications and operating environment

| | |
|---|---|
| **Power supply** | 230–240 VAC, 50/60 Hz<br>100–125 VAC, 50/60 Hz alternatively<br>120–125 VAC, 50/60 Hz |
| **Acceptable voltage fluctuations** | ±10% or less |
| **Maximum power consumption** | 1 580 W, with vacuum pump |
| **Power consumption in sleep mode** | 18 W |
| **Dimensions** (Multimat® NTX**)**<br>(W × D × H/firing chamber up): | 280 mm × 430 mm × 410/560 mm |
| **Dimensions** (Multimat® NTX$^{press}$**)**<br>(W × D × H/firing chamber up): | 280 mm × 430 mm × 540/690 mm |
| **Weight** (Multimat® NTX**)** | Approx. 22 kg |
| **Weight** (Multimat® NTX$^{press}$**)** | Approx. 24.6 kg |
| **Firing chamber clearance** | 67 mm |
| **Firing chamber diameter** | 85 mm |
| **Deployment** | Indoors only, on a non-flammable surface |
| **Ambient temperature** | 5°C–40°C – preferably 20°C ± 2°C |
| **Humidity** | 80% RH up to 31°C, linear decrease to 50% at 40°C |
| **Heating element** | Quartz muffle with an openly radiating filament winding |
| **Maximum firing temperature** | 1 200°C |
| **Display** | TFT touch screen |
| **Pressing pressure** | Up to 3 bar, controlled, see pressable-ceramic data sheet |
| **Display and input device** | Backlit touch screen, 320 × 240 pixels |

## 3.6 Features

- Menu-driven firing parameter display
- 1000 freely programmable and storable programs; numerous pre-defined sample programs available
- Currently running programs may be modified
- Existing programs can be modified and saved as customized programs
- Existing programs can be copied, deleted or renamed
- Up to 99:59 minutes of vacuum time
- Set and actual vacuum display
- Adjustable vacuum
- Up to 99:59 minutes of firing time
- Up to 25 minutes of firing and pre-heating time
- Heating rates of 1–120°C/minute
- Controlled cooling
- Manual or programmable fast cooling via vacuum pump
- Time-to-completion countdown display
- Overheating protection and muffle monitoring
- High-precision temperature settings
- Standby operation to avoid moisture in the firing chamber
- Vacuum program to avoid moisture in the fibre insulation
- Global hours-of-operation counter
- Vacuum pump hours-of-operation indicator
- Language selection
- Error message display
- Automatic continuation after short-term power-outs
- Unlimited data retention after power-outs
- Automatic mains frequency adjustment
- Beep signals, can be deactivated
- Software-assisted calibration using a silver wire test

# 4 Commissioning

## 4.1 Unpacking and checking accessories

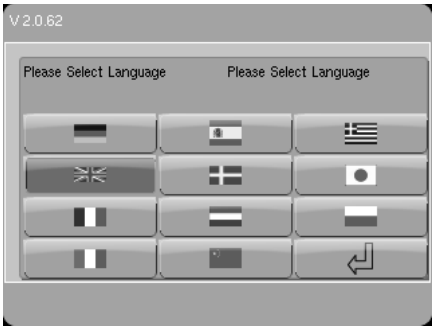

1. Check the **Shockwatch sticker** on the cardboard box. If the sticker has turned red, the impact energy during transport was higher than allowed, and your unit could be damaged. Ask the transport agent to confirm the triggering of the Shockwatch label in writing.
2. Open the cardboard case and remove the upper foam shell.
3. Remove the unit including its accessories. The first person must hold the unit with both hands below the control panel at the front of the unit, while the other person must hold the base of the unit with both hands. Have two persons lift the unit from its packing case, then remove the components and accessories. Always have two persons transport the unit. See illustration on page **6**.
4. Check the delivery for completeness (see **3.3 Scope of delivery, page 9**) or damage in transit. Notify DeguDent GmbH immediately of any damage.

## 4.2 Setting up and connecting

1. Place the device on a sturdy, non-flammable surface. The minimum distance from the nearest wall or object is 25 to 30 cm.
2. Connect the device end of the **mains cable** to the unit. Connect the mains plug of the mains cable to a properly installed and protected mains socket. The Multimat® NTX/ NTX$^{press}$ must be the only device on its circuit. No extension cords may be used.
3. Connect the tubing between the vacuum pump (available separately) and the air inlet that the device (see illustration).
4. Connect the pressurized-air lead for the pressing cylinder to the filter-protected pressure regulator (Multimat® NTX$^{press}$ only).

## 4.3 Language selection

Turn on the unit with the ***ON/OFF*** key. The system will start the boot sequence. Your **language selection** will be retained even after the unit has been turned off. Tapping the ***Continue*** button confirms your choice.




## 4.4 Installing the firing base

Install the firing base in the firing lift as shown on the display.
Put the magnetic firing platform in place where appropriate. Confirm by tapping the ***Continue*** button.

# 5 PC application program

The Multimat® NTX/NTX$^{press}$ includes a PC application program on CD-ROM.
This program will run reliably under the Windows Vista, XP or 2000 (SP2) operating systems. It offers the following features:

- Convenient definition of firing programs in the PC
- Exporting data to the ceramic furnace via a USB stick
- Importing data from the ceramic furnace via a USB stick

A comprehensive installation guide and program description is included on the -ROM as a PDF file.

# 6 Function button overview


***Home (main menu)***


***Help***


***Manual cooling***


***Delete favourite***


***Open chamber***


***Close chamber***


***Back (one screen)***


***Back (one level)***


***Stand-by mode***

***Program selection***


***Save data***


***Graphic view***


***Fire***


***Tabular view***

***Stop***


***Press***

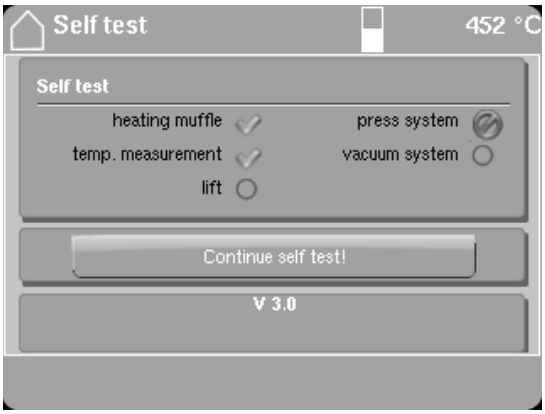
***Cancel vacuum***

***System information***

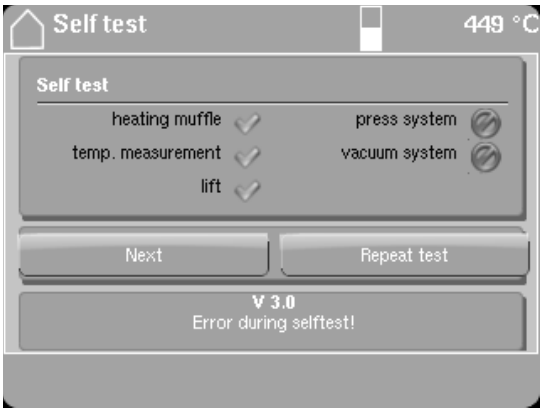
# 7 Operation

## 7.1 Turning on the unit

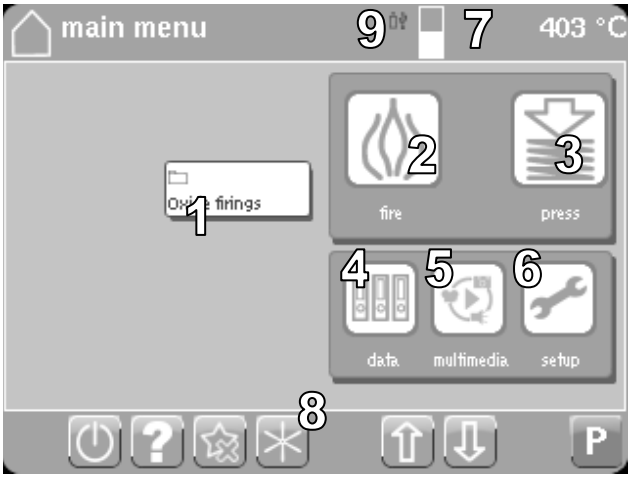
Turn on the unit with the mains switch. The **Self-test** menu appears. Tap the ***Continue self-test*** button to activate the self-test. If a system has tested operative, this is indicated by a checkmark in the corresponding **checkbox,** in case of errors, the checkbox turns red and is crossed out (see **12**, **Error messages and troubleshooting, page 45**).




Tap ***Continue*** to continue to the **heating program**. This program is turned off by default. This will take you to the main menu.



## 7.2 Main menu




Once the **self-test** and **pre-heating program** has run, the **main menu** will appear on the display. Custom-selected **favourite programs** or **folders (1)** can be displayed on the left side, allowing them to be started/opened instantly. For more information on defining favourites, see **8.1 Define favourites menu, page 31**.

Tapping the ***Fire* (2)** button on the top right panel opens the **Fire/Programs** menu. Tapping the ***Pressing* (3)** button opens the **Press/Programs** menu.

Tapping the ***Data* (4)** button opens the **Data Administration** menu (see **7.8.1,Data manager menu, page 23**); tap the ***Setup* (6)** button to open the **Setup** menu. Tapping the ***Multimedia* (5)** button opens the menu for photo, audio or video files.

The right side of the header always starts with the **chamber** icon **(7)** that indicates whether the chamber has been raised or lowered.

The menu footer displays the **function buttons (8)** to tap for different program functions. Different function buttons may be used within the various menus as appropriate (see **6, Function button overview, page 14**).

The **USB stick (9)** symbol will appear in the menu header as soon as a USB stick is connected. The stick symbol can have one of three different colours:

- Red: USB device recognized but not usable
- Yellow: USB device with read-only access (please check the USB stick on the PC).
- Green: USB device with read/write access

Tapping the ***ON/OFF*** button powers down the Multimat® NTX/NTX$^{press}$ to Standby mode (customizable).

Tapping the ***Delete favourites*** button deletes entries for programs or folders saved as favourites from the main menu.

Tapping the ***Help*** button displays help related to the current symbols.

Tapping the ***Manual cooling*** button initiates the fast-cooling function (see **8.2 Manual fast cooling, page 32**)

Tapping the ***Open chamber*** button raises (opens) the firing chamber.

Tapping the ***Close chamber*** button lowers (closes) the firing chamber.

To directly select a program by its number, tap the ***Program selection*** button (see **8.3 Selecting and starting a program by number, page 32**).

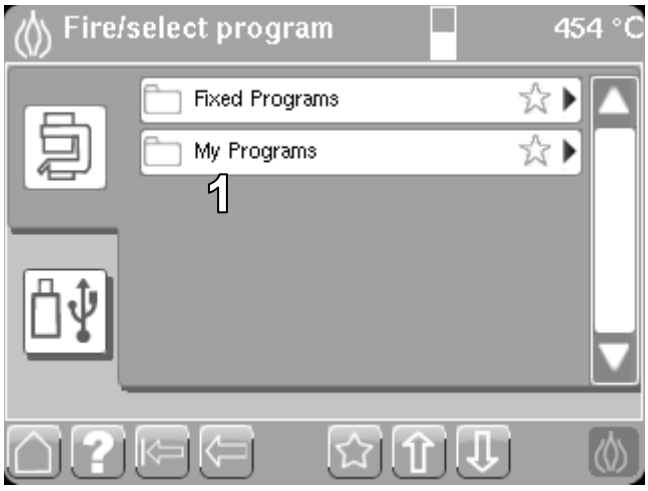
## 7.3 Firing/Programs menu

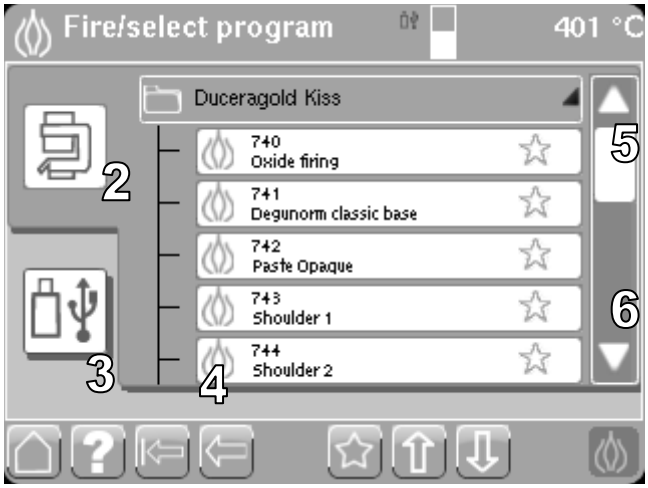
The **Firing/Programs** menu includes two folders called ***Fixed Programs*** and ***My Programs.*** These folders let you choose from a number of fixed or custom firing or pressing programs/folders.

Once you open this menu, you will see a selection list of existing folders, each identified by the **Folder (1)** icon. To open the folder, tap on it. The menu will change to display a selection list of folders/programs contained in it. If a selection list contains more than a few folders/programs, you may need to ***scroll*** up **(5)** or down **(6)** to find the corresponding folder/program.

Within the selection lists, folders are characterized by the **Folder (1)** icon, firing programs are characterized by the **Firing (4)** icon and pressing programs are characterized by the **Pressing** icon.

The **Firing/Programs** menu allows you to select a program either from the unit's internal memory or from a USB memory stick inserted into the unit. To select, tap either the ***Internal*** **(2)** button or the ***USB stick*** **(3)** button. Once you have done so, proceed as described previously.




Tapping the ***Home*** button returns you to the main menu.

Tapping the ***Help*** button displays help related to the current symbols.

Tapping the ***Back*** button returns you to the previously opened menu.

Tapping the ***Open chamber*** button raises (opens) the firing chamber.

Tapping the ***Close chamber*** button lowers (closes) the firing chamber.

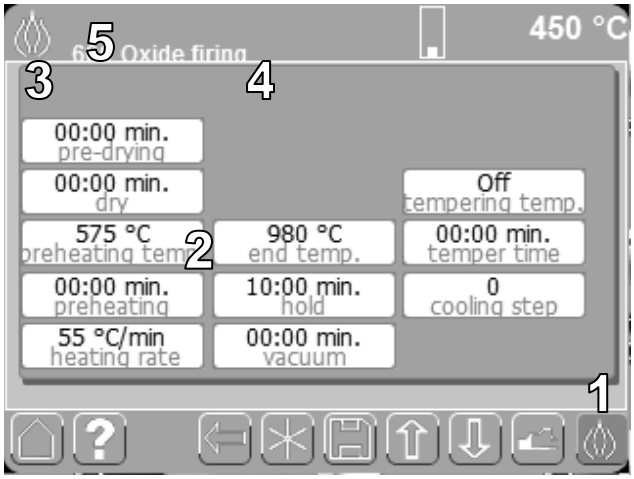
## 7.4 Program menu

Once you have selected a specific (firing or pressing), a table with the firing or pressing parameters will appear.

You can either start the program directly by tapping the ***Fire* (1)** button or by editing the firing or pressing parameters.

The **parameters (2)**, e.g. *Pre-heating temp*, are shown in rectangular white fields. If a parameter is selected, a **numeric keypad** will appear to allow numeric entries. Tapping the ***Enter* (6)** button confirms your entry. Tapping the arrow button on the left cancels your entry and dismisses the numeric keypad. Tapping the ***Back* (7)** button lets you move the cursor to correct and incorrect entry.

The **Firing (3)** icon in the header identifies the program is a firing program. The **Pressing** icon identifies the program as a pressing program. Next to the eye can you will find the **filename (4)** and immediately below the corresponding **program number (5)**.





The ***cooling level*** parameter offers several cooling options.

The cooling level feature is activated by default.

The following: levels are available:

Level 0 – Chamber immediately moves to its upper position – no controlled cooling

Level 1 – Chamber opens approx. 70 mm

Level 2 – Chamber opens approx. 50 mm

Level 3 – Chamber position remains unchanged

Use the ***numeric keypad* (1)** to select the desired cooling level. Tapping the ***Enter* (2)** button confirms your entry.

Tapping the ***Time*** **(1)** button changes the cooling mode to time-controlled.

Use the ***numeric keypad*** **(1)** to select the desired cooling level. Tapping ***Enter*** **(3)** confirms your entry.

Tapping the ***Back*** **(4)** button lets you move the cursor to correct and incorrect entry.


Tapping the ***Cooling*** **(1)** button changes the cooling mode back to the cooling levels.

Tapping the ***Fast cooling*** **(2)** button turns on automatic fast cooling after firing.

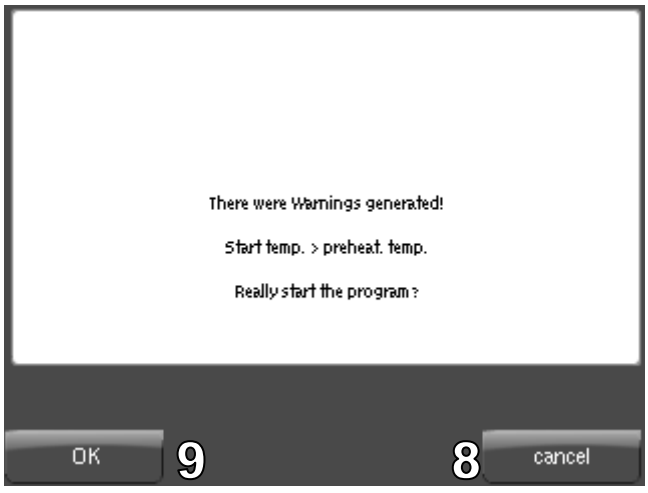
This is indicated in the display by three ***asterisks***.

Tapping ***Enter*** **(3)** confirms your entry.


Once you tap the firing or pressing icon, the selected program is checked for plausibility. The following messages may appear:

- Base temperature > pre-heating temperature
- Base temperature > final temperature
- No pressing time entered
- The pressure entered
- Base temperature > pre-heating temperature
- Base temperature > final temperature
- Pre-heating temperature > final temperature
- Tempering temperature > final temperature
- Vacuum on > vacuum off
- Vacuum on < pre-heating temperature
- Vacuum selected without indicating vacuum level

Tapping the ***Cancel*** **(8)** button takes you back to the table where you can correct your entries. Pressing ***OK*** **(9)** starts your program.



Tapping the ***Home*** button returns you to the main menu.

Tapping the ***Help*** button displays help related to the current symbols.

Tapping the ***Back*** button returns you to the previously opened menu.

Tapping the ***Star*** button initiates the fast-cooling function.

Tapping the ***Save data*** button lets you save the displayed/edited parameters under a new filename. The filename is entered on the alphanumeric keypad that appears.

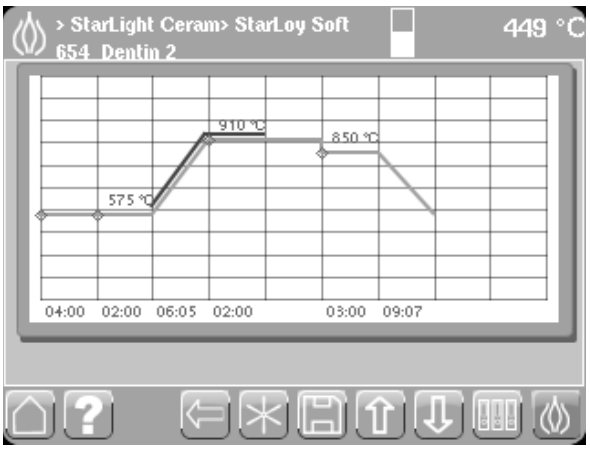
Tapping the ***Open chamber*** button raises (opens) the firing chamber.

Tapping the ***Close chamber*** button lowers (closes) the firing chamber.

Tapping the ***Fire*** button starts the selected program.

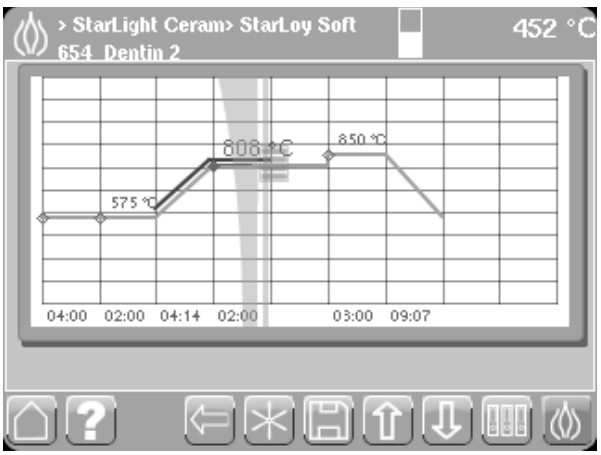
Tapping the ***Graphic view*** button opens the **Graph** menu.

Tapping the ***Graph*** button will display the firing or pressing parameters in graphic view. The graphic view is also shown after selecting a firing or pressing program. The x-axis indicates time, while the y-axis indicates temperature.

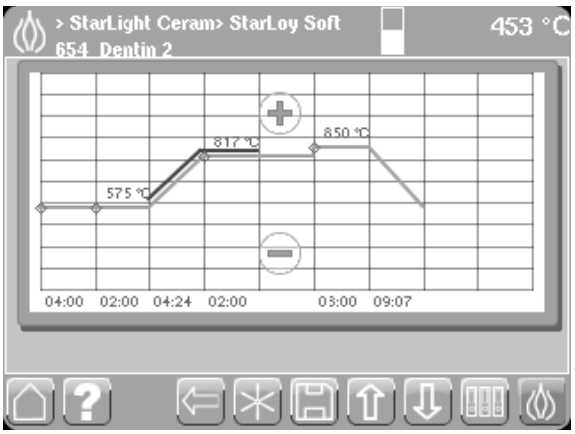



You make changes section of the firing curve by tapping it:

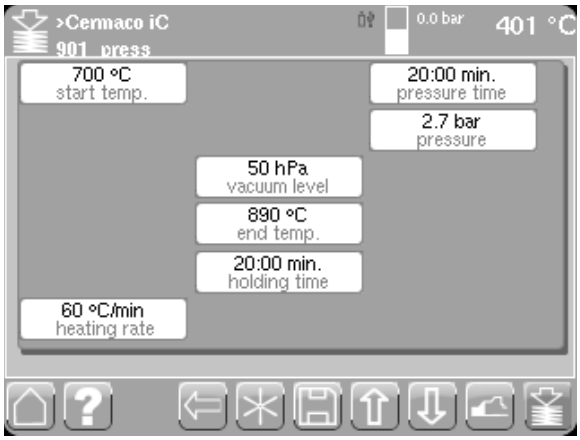
- Pulling the curve upward will increase the temperature.
- Pulling the curve downward will decrease the temperature.



Alternatively, the temperature may be changed by tapping the ***plus*** and ***minus*** buttons that appear when you take your fingers off the display.




Pressing programs are edited in the same way as firing programs.




Fixed programs can be modified only for single program run. It is not possible to store the changes to this fixed program permanently. However, you may save the modified program as a custom program.

## 7.5 Firing parameters

**Base temp.** The temperature prevailing prior to the start of the firing program. Select a value between 100°C and 1,200°C.

**Pre-drying (pre-set drying time).** The chamber is heated in order to reach the pre-heating temperature. During this time, the firing chamber will be open. Select a duration between 0 and 25 minutes.

**Dry.** The chamber is heated in order to reach the pre-heating temperature. During this time, the firing chamber will gradually close. Select a duration between 0 and 25 minutes.

**Pre-heating temp.** The temperature to be reached prior to firing. Select a value between 100°C and 1,200°C.

**Pre-heating.** The chamber is heated in order to reach the pre-heating temperature. During this time, the firing chamber will be open approx. 1 cm. Select a duration between 0 and 25 minutes.

**Heating rate.** This is the speed of the temperature increase during the heating phase. Select a value between 1°C and 120°C per minute.

**End temp. (pre-set firing temperature).** The temperature to be reached during firing. Select a value between 300°C and 1,200°C.

**Vacuum level.** Shows a pre-set value representing a vacuum between 1 hPa and 99 hPa.

**Hold (pre-set firing time).** The duration of the firing. Select a value between 0.0 and 99.9 minutes.

**Vacuum.** The time during which the vacuum pump will be running. Select a value between 0.1 and 99.9 minutes.

**Tempering temp.** This temperature setting corresponds to the temperature to be reached during tempering. Select a value between 300°C and 1,200°C.

**Temper time.** Pre-set tempering time. Select the duration between 0 and 25 minutes.

**Cooling step.** Cooling in multiple stages results in a gradual release of tension within the ceramic material. Cooling will begin immediately after firing or as programmed via the menu. The following cooling levels can be defined:

- Fast cooling 
- Level 0 – Chamber immediately moves to its upper position – no controlled cooling
- Level 1 – Chamber opens approx. 70 mm
- Level 2 – Chamber opens approx. 50 mm
- Level 3 – Chamber position remains unchanged

## 7.6 Pressing parameters (Multimat® NTX$^{press}$ only)

In addition to the temperature, vacuum and time parameters, the following parameters must be defined specifically for the pressing procedure:

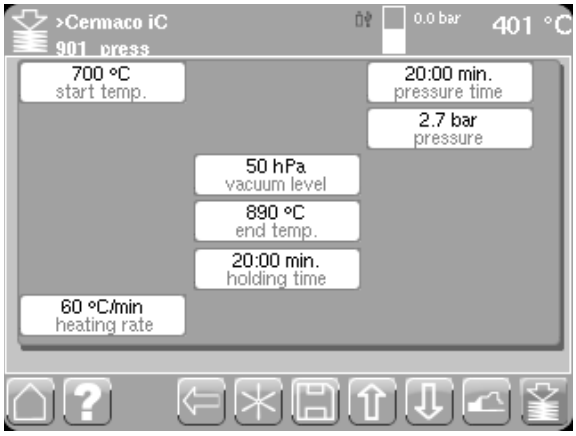
**Pressure time.** Time during which the pressing ram performs the pressing said. Select a duration between 0 and 25 min.

**Pressure.** Monitored pressing pressure indicated in bar (pressure cannot be set electrically!).

The starting point in each case is the **base temperature** (preset to 400°C). Once the program has been started, the unit pre-heats to the pre-set **starting temperature**. Once the **starting temperature** has been reached, the chamber opens, and the pressing muffle with its pressing cylinder can be placed on the pressing tray. *Tapping the down arrow closes the chamber and initiates the heating phase at the pre-set heating rate (e.g. 60°C/min).* Once the **final temperature** has been reached, the program enters the **holding phase** during which the vacuum pump will be active. **Pressing** immediately follows the holding phase.

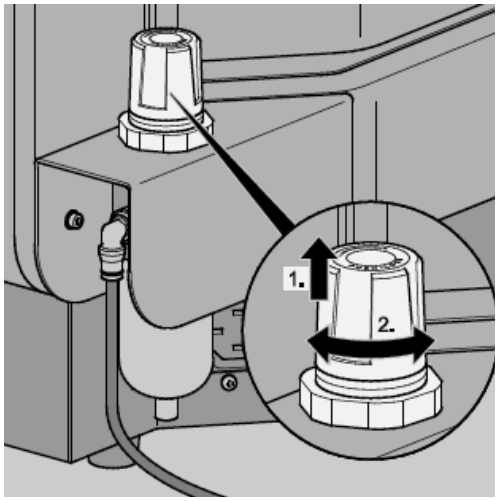
## 7.7 Setting the “Pressure” program parameter on the Multimat® NTX

The Multimat® NTX offers a permanent pressure control feature. The pressure selected in the pressing program (1) is the pressure required for that program. Before starting the pressing program and as the pressing program is executed, this value is continuously checked against the pressure detected that the pressure reducer. **The pressing program does not change the pressure.** The **current** pressure (2) is shown in the header.




To adjust the current pressure to the required pressure for the selected program, proceed as follows:

1. Pull the pressure control upward (1.)
2. To increase the pressure, turned the pressure control clockwise (2.).
3. To decrease the pressure, turned the pressure control counterclockwise (2.).



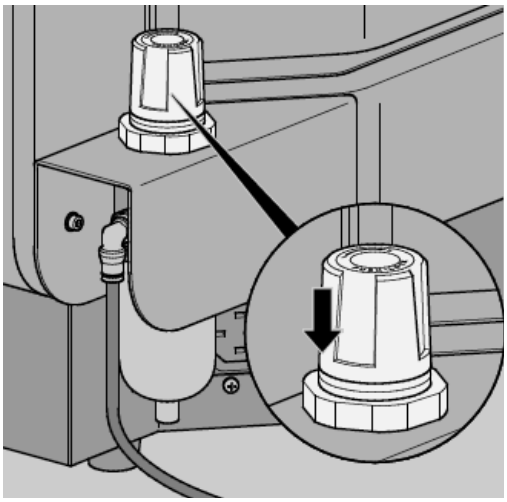
**Note:**

When the pressure is reduced, several seconds may pass until the displayed pressure in the header changes, as the pressure lines of the Multimat® NTX will still be under the previous, higher pressure, which will take some time to decrease. The tolerated difference between the current pressure and the pressure selected in the pressing program is **±0.2 bar**.

If the current pressure already exceeds the pressure selected for the pressure program at the time the pressing program is started, the pressing program will not be executed. The user will be prompted to select the correct pressure.

If the current pressure exceeds the pressure selected for the pressing program, a message will be displayed after program execution. **Note that the pressing process will not be discontinued.**

To lock the setting of the pressure control, press the pressure control downward. The pressure control will lock.



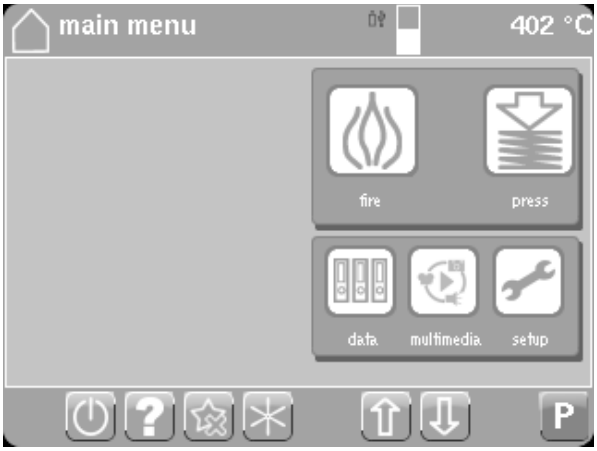
**Note:**

To be able to start a pressing program, make sure that the current pressure corresponds to the pressure required by the specific program.

## 7.8 Data manager

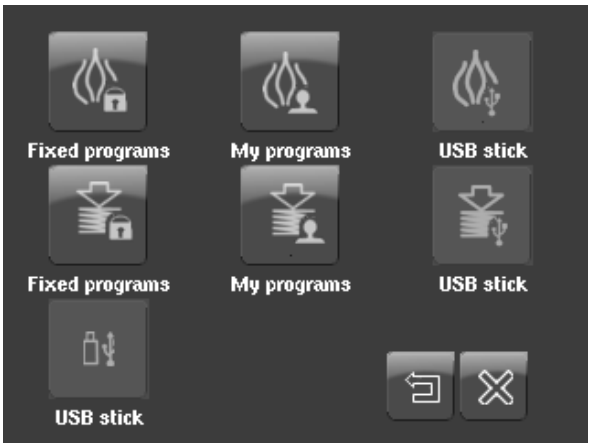
### 7.8.1 Data manager menu

Tap the ***Save data*** button in the Main menu to open the **Data manager** menu. Here you can create and manage your folders or pressing and firing programs.



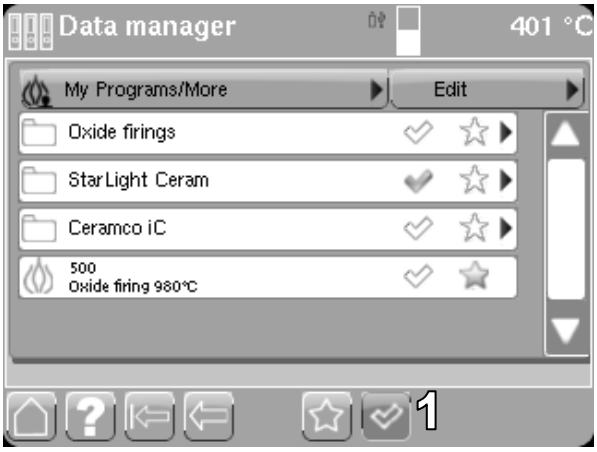
### 7.8.2 Menu Firing programs

To the appropriate ***icon*** to open the individual menus for administering firing or pressing programs, fixed programs or custom programs or USB stick data.



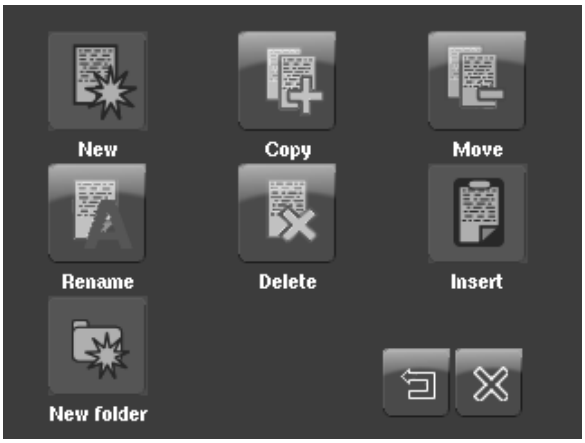

### 7.8.3 Copy/Move

Once you have selected the ***Firing***/***Fixed Programs,*** you will see a list of programs. Tapping the ***Selection*** **(1)** button will activate the selection function. Tap the folder/program you want to work with (the corresponding checkmark will turn green) and then tap the ***Edit*** button.




You can now select what operation to perform on the selected program.
The following operations are available:

- New (only for ***Firing/My Programs*** or ***Pressing/My Programs***)
- Copy
- Move
- Rename
- Delete
- Insert (only if ***Copy*** or ***Move*** was selected).




**Fixed programs cannot be renamed, moved or deleted.**

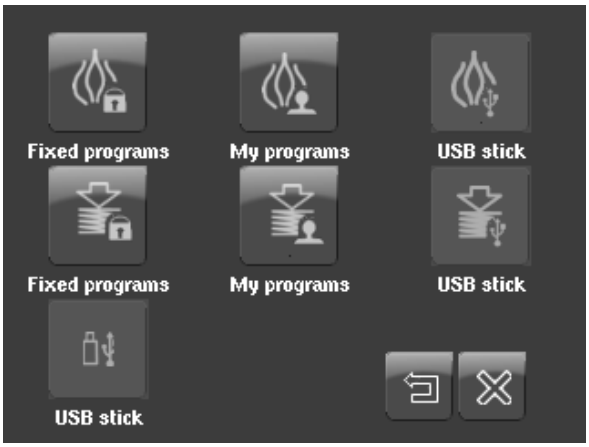
**Fixed programs can only be copied to the custom programs area or to a USB memory stick.**

Once you have selected one of the available operations, will be returned to the selection window.

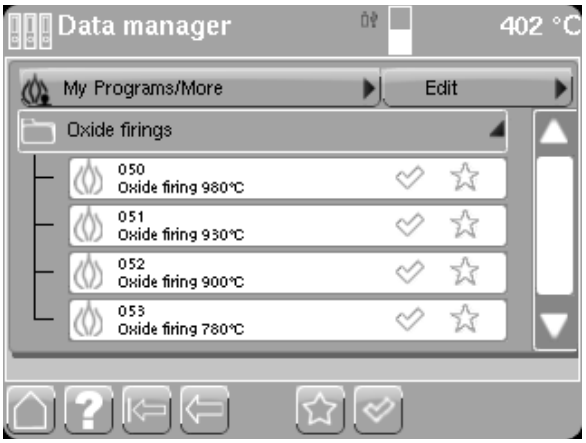
If the selected operation is ***Copy*** or ***Move***, you may now select the target folder to copy/move the folder/program to. To do so, tap the ***Edit*** **(2)** button.

The selection window for the firing/pressing programs will open. Open the desired target area, e.g. ***My Programs***, by tapping it. Tap the desired target folder the selected. The folder open, showing the firing/pressing programs it contains.

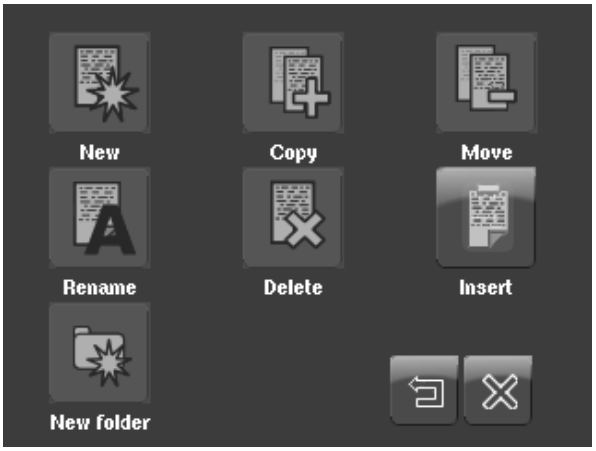

Tap ***Edit*** again. You will see a selection window with available operations.




The ***Insert*** icon is now active. Tap it to open the list of memory locations (numbers).




Memory locations already in use will be shown in red; available memory locations will be shown in green. Select a free memory location and tap the ***Enter*** button. The program will be inserted (saved) into the previously selected folder. If you select a memory location that is already in use, that number will turn yellow. Programs that have been saved cannot be overwritten. Instead, all programs will be moved to a block of free memory locations.



**Hint:**

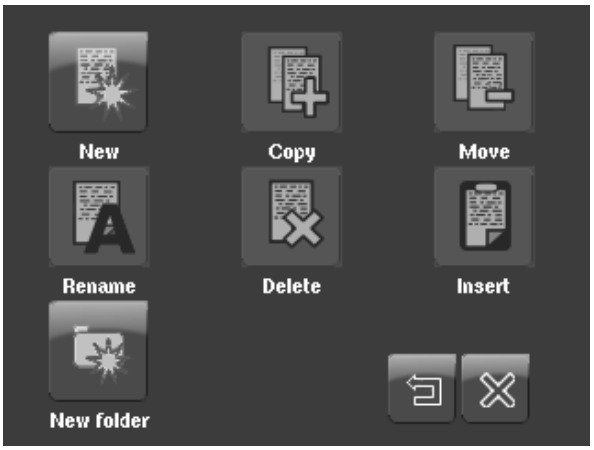
When copying or moving multiple programs, make sure that a sufficiently large block of memory locations is available by moving or deleting existing programs.


## 7.8.4 Create a program

You may create new firing/pressing programs in the custom programs area. To do so, select the desired target folder for the new program from the selection window for the firing/pressing programs. The folder open, showing the firing/pressing programs it contains.

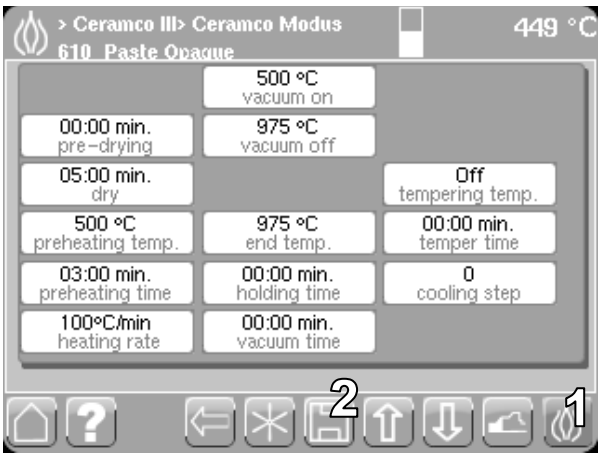
Tap the ***Edit*** button. You will see a selection window with available operations.

Tap the ***New*** button to open the menu for creating a new firing program.



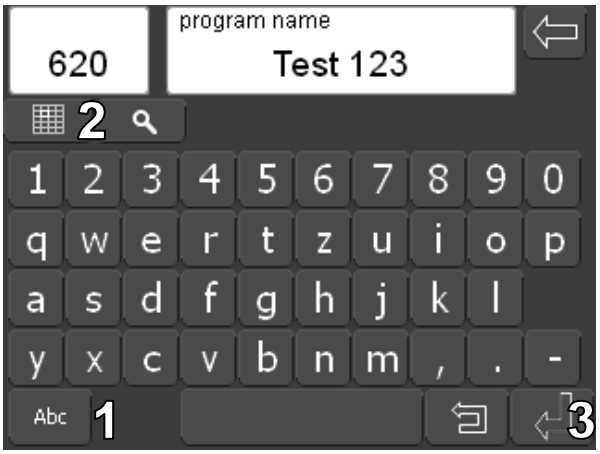

Now select the desired **firing mode**. This will take you to a screen with pre-set parameters, which you may modify if desired by tapping them, setting the appropriate values and then tapping the ***Enter*** button.

You may either tap the ***Fire*** **(1)** button to start firing program immediately or give the program a name and save it using the ***Save data*** **(2)** button.




.
Tap the ***Typing Mode*** **(1)** button to alternate the overlay keyboard between uppercase and lowercase letters.

The Typing Mode button will change mode each time it is tapped. In mode 1.1, only the first letter of each word will be capitalized. Mode 1.2 allows only numeric digits to be entered. Mode 1.3 allows only lowercase letters to be entered. Mode 1.4 finally allows only uppercase letters to be entered.





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Tapping the ***Search*** **(1)** button will automatically locate a free memory location. Tapping the ***Table*** **(2)** button will let you select a memory location yourself.

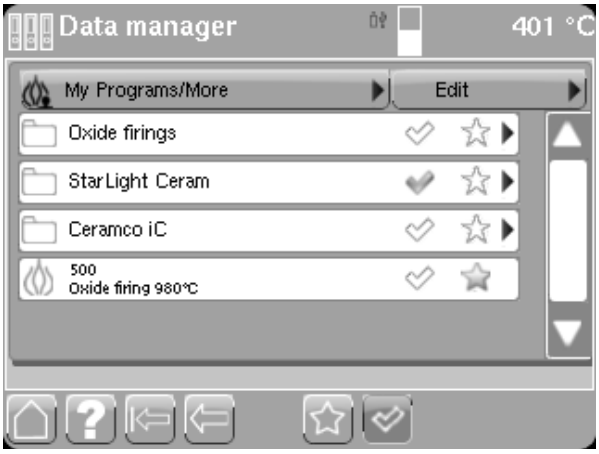
Memory locations already in use will be shown in red; available memory locations will be shown in green. If you select a memory location that is already in use, that number will turn yellow. Confirming the selection will save the program to the next available memory location.

Once you have selected a memory location and turned it by tapping ***Enter*** **(3)**, the new program name and memory location will be displayed. You can now either start the program by tapping the ***Fire*** button or open it later via the main menu (**Data, My programs**).

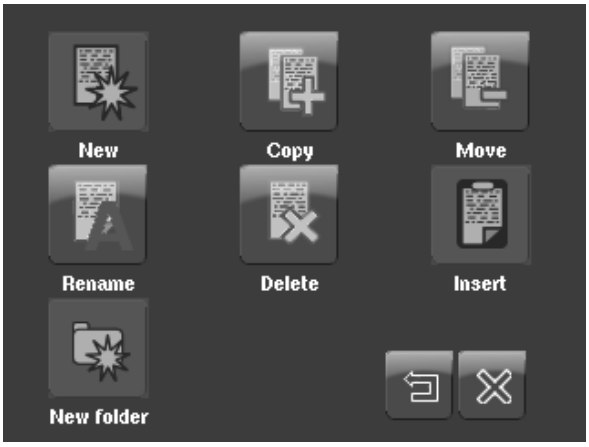
### 7.8.5 Rename programs

The ***Rename*** button will let you rename programs or folders.

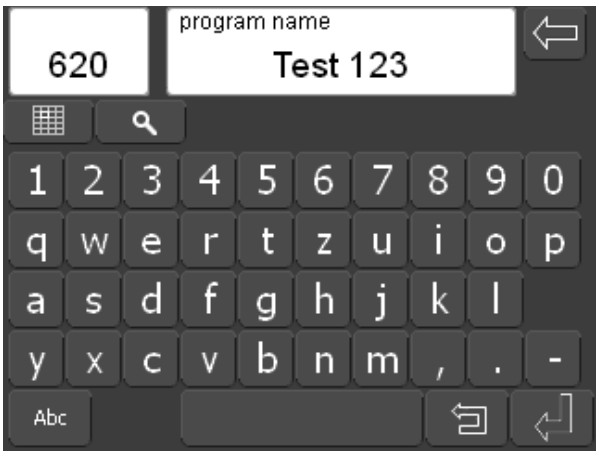
Select the corresponding folder/program by tapping it and then tapping the ***Edit*** button.




Then tap the ***Rename*** icon.




Enter a name for the new folder and confirm by tapping the ***Enter*** button.




Tap the **Typing Mode (1)** button to alternate the overlay keyboard between uppercase and lowercase letters.

The Typing Mode key will change mode each time it is tapped. In mode 1.1, only the first letter of each word will be capitalized. Mode 1.2 allows only numeric digits to be entered. Mode 1.3 allows only lowercase letters to be entered. Mode 1.4 finally allows only uppercase letters to be entered.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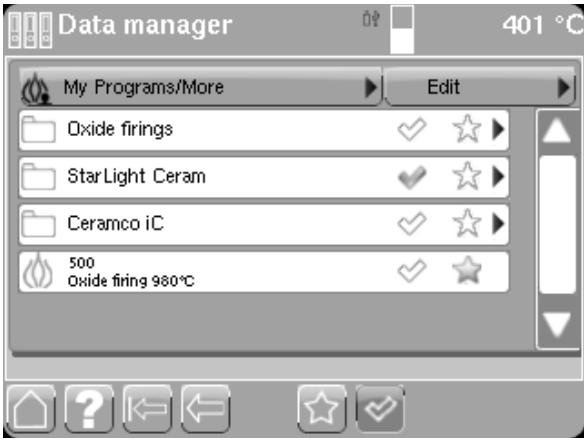
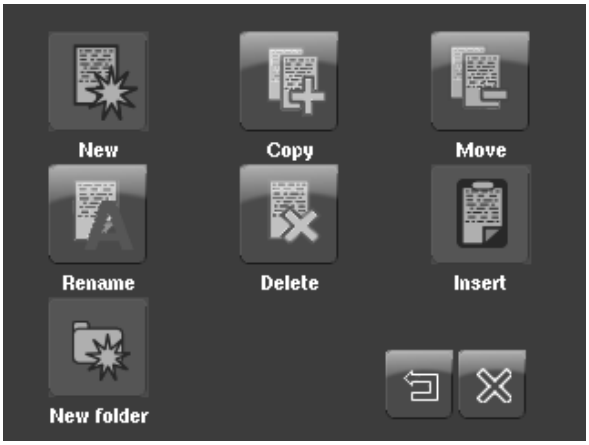
### 7.8.6 Delete firing programs

The ***Delete*** button lets you delete programs or folders.

This menu lets you delete individual firing programs or entire folders within the **My Programs** folder.




Folders/programs are selected by tapping the corresponding ***checkboxes***. Tap the ***Edit*** button.




Then tap the ***Delete*** icon.

You will be shown a confirmation prompt to help prevent accidental deletions. On confirmation, the selected folder/programs will be deleted from internal memory/the USB memory stick.

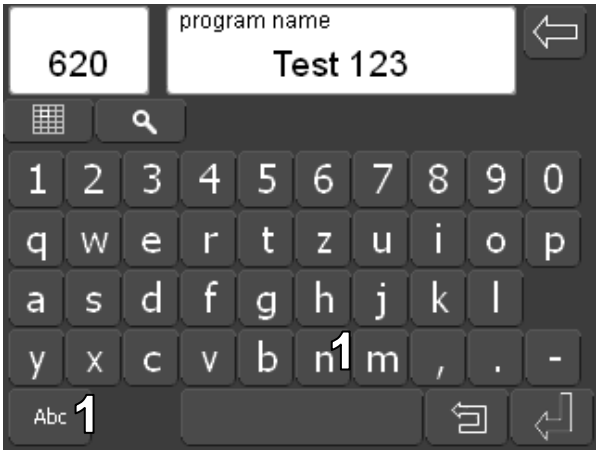
### 7.8.7 Create new folders

The ***New folder*** button let you create a new folder.

Tap the ***Edit*** button and then tap the ***New folder*** button. Enter a name for the new folder and confirm by tapping the ***Enter*** button.


Tap the **Typing Mode (1)** button to alternate the overlay keyboard between uppercase and lowercase letters.

The Typing Mode key will change mode each time it is tapped. In mode 1.1, only the first letter of each word will be capitalized. Mode 1.2 allows only numeric digits to be entered. Mode 1.3 allows only lowercase letters to be entered. Mode 1.4 finally allows only uppercase letters to be entered.





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# 8 Special features

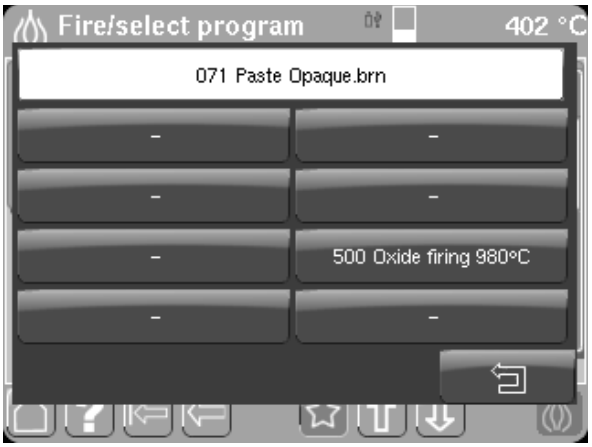
## 8.1 Define favourites menu

You can save programs you expect to use frequently to the **Favourites** in the main menu to be able to start them directly from there.

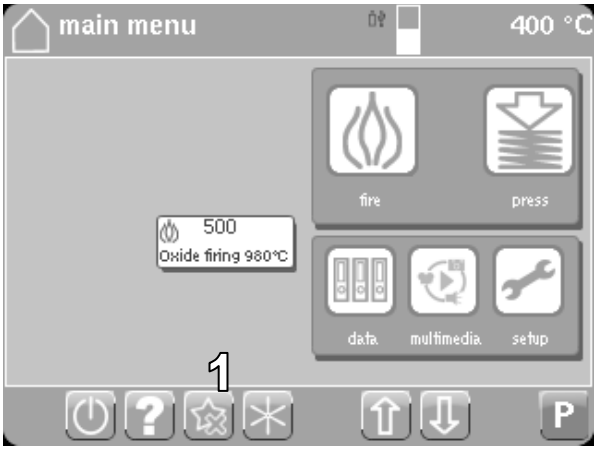
Tapping the ***Star*** **(1)** button will activate the favourites feature. Tapping the folder/program will take you to the table where you can store your favourites.

(Keeping the stylus on the yellow ***Star*** symbol for several seconds will turn it white again, and the corresponding program or folder will no longer appear as a favourite in the main menu.)


Tap a free favourites position to link the desired program to the button and place it on the left side of the main menu. Folders/programs stored as favourites are marked with a yellow star in the selection list. With the favourites feature active,, tapping a folder/program marked with a yellow star will remove it from the list of favourites (see **7.2, Main menu, page 16**)




Tapping the ***Delete favourite*** **(1)** button lets you remove programs or folders saved as favourites from the main menu.



The corresponding folder/program is removed by tapping its deletion symbol. Tapping the ***Escape*** **(1)** button cancels the action and returns to the previous menu.


Tapping the ***Home*** button returns you to the main menu.

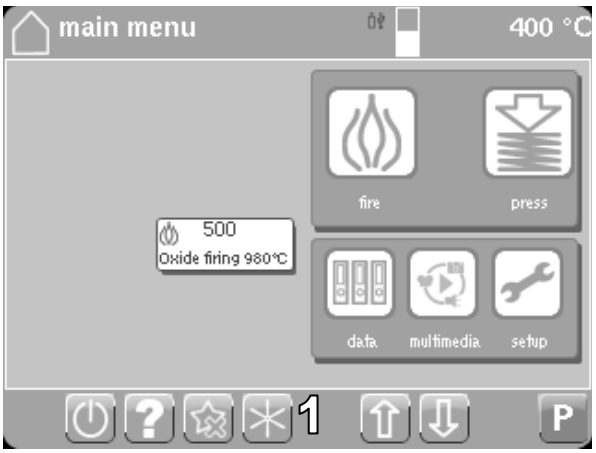
Tapping the ***Help*** button displays help related to the current symbols.

Tapping the ***Back*** button returns you to the previously opened menu.

## 8.2 Manual fast cooling

**Fast cooling** means that the vacuum pump is turned on **immediately after termination of the program** once the firing chamber has opened and will suck in air through the firing chamber until the base temperature is once again reached.

To start **manual cooling**, wait for the program to terminate and then tap the ***Star*** **(1)** button. The firing chamber will be lifted, and the vacuum pump will run until the base temperature is reached.




## 8.3 Selecting and starting a program by number

1. Tap the ***Program selection*** button on the main menu.

2. Use the **numeric keypad** to enter the number of the desired program and confirm by tapping the ***Enter*** button.

3. The menu for the corresponding **program** (firing or pressing program) appears.

4. Tap the ***Fire*** or ***Press*** button to start the program.

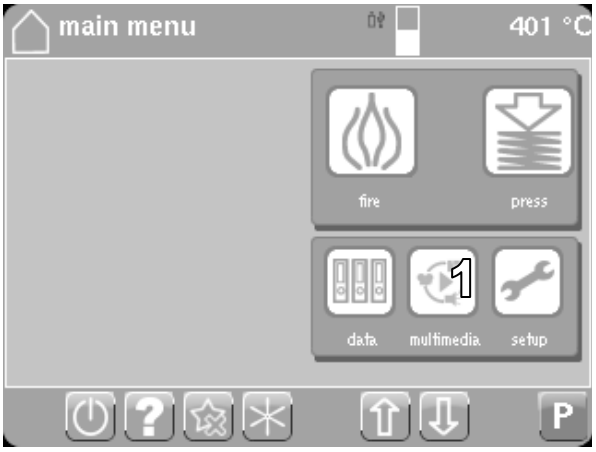
## 8.4 Entering standby mode

The Multimat® NTX/NTX$^{press}$ standby mode **optimizes the moisture level** inside the firing chamber and keeps moisture away from the insulation. Standby refers to **constant heating** at a fixed temperature (can be selected between 0°C and 150°C).

The standby temperature is defined in the **Settings** menu (see

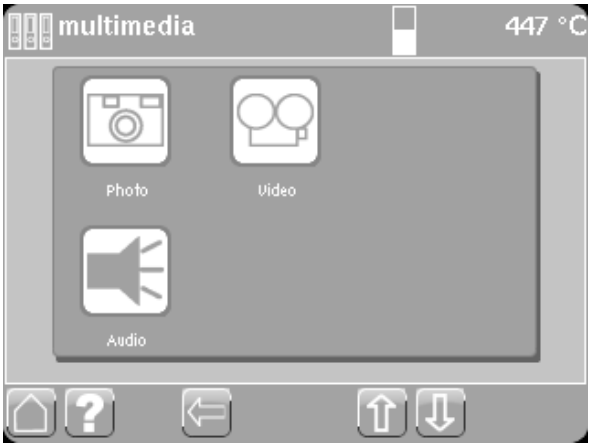
## 8.5 Multimedia

Tap the ***Multimedia*** **(1)** button to open the multimedia file management menu. The multimedia file must reside on a USB memory stick.



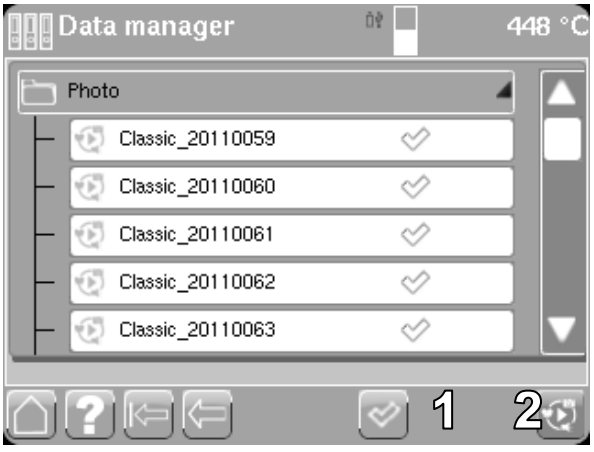

In this menu, the data are arranged by

- Photos
- Audio
- Video




Tapping the ***Photo*** button will open a folder on the USB stick, where you can view or edit stored photo images.

Tapping an image file once will open the photo viewer. Alternatively, you can tap the ***Selection*** **(1)** button and start the photo viewer by tapping the ***Multimedia*** **(2)** button.



When the photo viewer opens, all photos residing on the USB memory stick are previewed in a film strip. The selected image or the first image of the selection are indicated by yellow frame and shown in an enlarged preview. Tapping the ***Full screen*** **(1)** button displays the yellow-framed image in **full-screen mode (4)**.

Use the ***arrow*** **(2)** buttons to move to the next image. The ***skip*** **(3)** buttons take you to the first or last image in the strip.

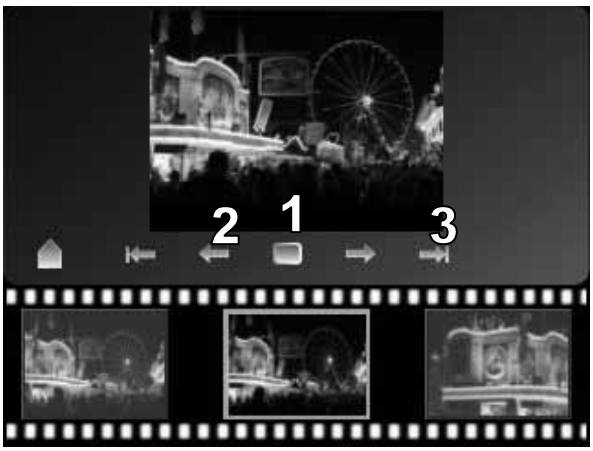



**Image specifications**
**File format:**
3GP, 3rd Generation Partnership Project
e.g. Nokia Phone Video)
**Video:**
Codec: MPEG4,
Frame size: 320 × 240
Frame rate: 20 frames/s
Bit rate: 128 kbps
**Audio:**
Codec: AAC-LC
Bit rate: 128 kbps
Sampling rate: 48 kHz


Audio and video files can be played back or edited in the same manner. Tapping on an audio file will open the audio player and play back the selected audio file or files on the USB memory stick. Tapping the ***Minimize*** **(1)** button minimizes the player, allowing you to continue operating the furnace as the audio file continues to be played.

**Format specifications**
Audio files must be in MP3 format.
Bit rate: 128–256 kbps


**DeguDent GmbH will not responsible for any damage caused by playing a video, audio or other file.**

# 9 Setup

Tapping the ***Setup*** **(1)** button in the Main menu will take you to the **Setup** menu. From here you can reach other submenus or you can define settings or activate functions:

The **Settings** menu contains several basic device settings such as the standby temperature. 9.1The **Parameters** menu contains various parameters such as cycle times (see **9.1, Settings menu, page 35**).

The **Update** menu contains options for installing the most recent version of the Multimat® NTX/NTX$^{press}$ controller software.

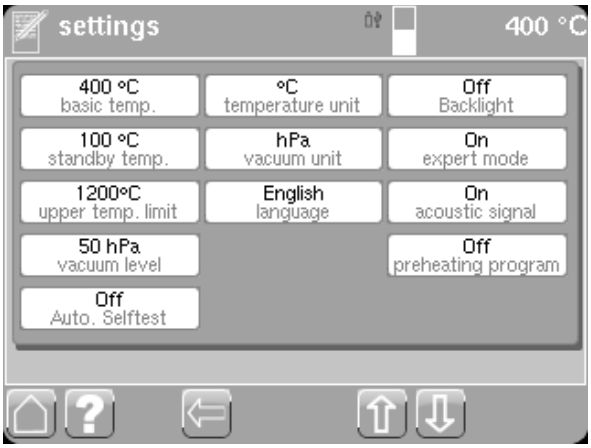
**Backup** opens a menu for backing up data on a USB stick.

In addition to the firing and pressing programs, the Multimat® NTX/NTX$^{press}$ offers several utility programs, e.g. for calibration using a silver wire test or for drying. These can be accessed in the **Special programs** menu (see **9.2, Special programs menu, page 37**)



## 9.1 Settings menu

The **Settings** menu is reached from the **Setup** menu. It allows you to define certain basic device settings (default values):




**Basic temperature.** Sets the temperature prevailing prior to the start of the firing program.

**Standby temperature.** Sets the temperature for standby mode.

**Upper temperature limit.**
Maximum firing temperature.

**Vacuum level.** Vacuum level.

**Auto. Selftest:** Select On or Off. If the setting is On, the selftest will be started automatically once the firing chamber is closed.

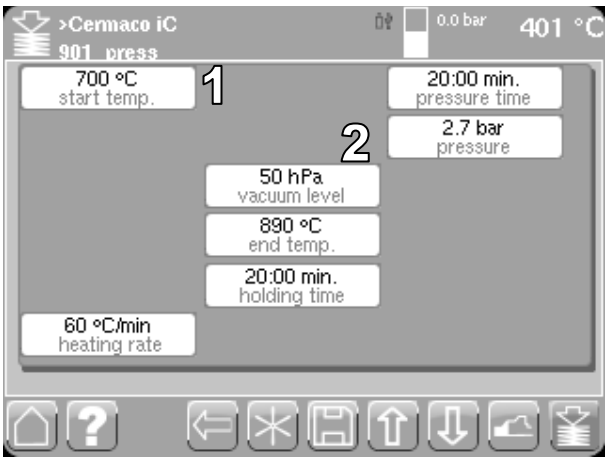
**Temperature unit.** Select °C or °F.

**Vacuum unit.** Select bar or hPa.

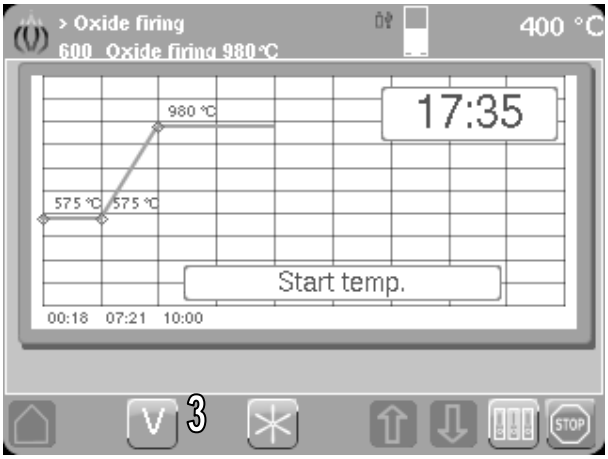
**Language.** Select the menu/display language.

**Backlight.**
On: Backlight on in standby.
Off: Backlit off in standby.

**Expert mode.** If expert mode is activated, the **Fire** menus will additionally contain the **Basic temperature (1)** and **Vacuum level (2)** parameters.




The graphic representation of a firing program additionally contains the ***Cancel vacuum*** (3) button. This button allows removing the vacuum manually at any time once the furnace has attained the pre-selected vacuum.
A cancelled vacuum **cannot** be restored.

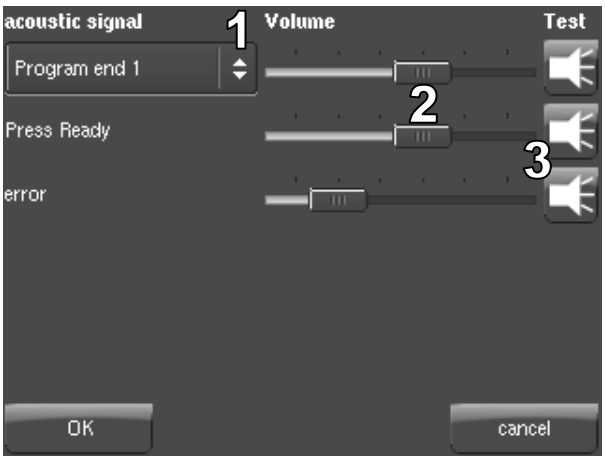



**Acoustic signal.** Can be turned on or off. The volume can be controlled. The following options are available:

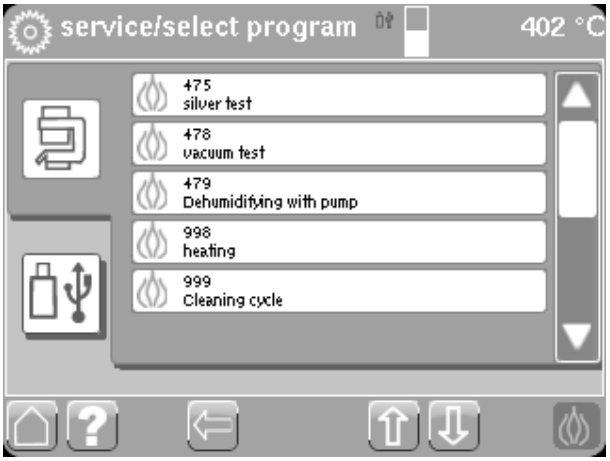
- **End of program**
  Tapping the ***arrow*** buttons **(1)** selects one of two possible acoustic signals. Use the ***slide control*** **(2)** to select the desired volume. Tapping the **speaker symbol (3)** lets you test the acoustic signal.

- **Ready to press**
  Use the ***slide control*** **(2)** to select the desired volume. Tapping the **speaker symbol (3)** lets you test the acoustic signal.

- **Error**
  Use the ***slide control*** **(2)** to select the desired volume. Tapping the ***speaker symbol*** **(3)** lets you test the acoustic signal.



## 9.2 Special programs menu




The **Special programs** menu is reached from the **Setup** menu. Here you can start a number of calibration and maintenance programs.

**Silver wire test.** Starts the calibration program (see **11, Calibration using a silver wire test, page 43**).

**Heating program:** Starts the pre-heating program to heat the muffle to the pre-defined temperature (see **10, Maintenance and cleaning, page 42**).

**Dehydration:** Starts a program for pre-heating or for dehydrating the insulation layer (see **10, Maintenance and cleaning, page. 42**).

Two programs are available:

• **Dehydration with pump**

• **Dehydration without pump**

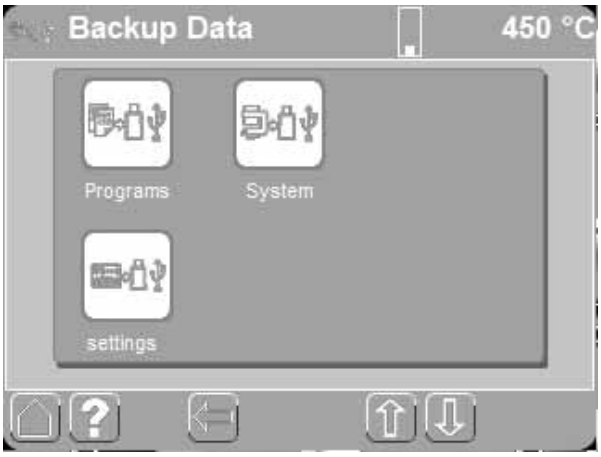
**Cleaning cycle**: Use to clean the firing chamber, including the carrier and pins.

## 9.3 Backup menu

This menu allows data to be backed up and restored.


In the **Backup Data** menu, the data may be backed up separately by

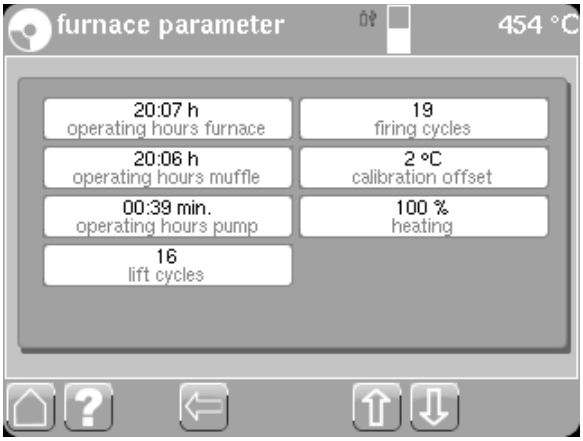
- Programs
- System
- Settings



After tapping **Backup Data**, the data will be backed up to the USB stick, and a corresponding message is displayed.


## 9.4 Parameters menu

The **Parameters** menu is reached from the **Setup** menu. It contains various device parameters:




**Operating hours furnace.** Indicates how many total hours the furnace has been in operation.

**Operating hours muffle.** Indicates how many total hours the muffle has been in operation.

**Operating hours pump.** Indicates how many total hours the vacuum pump has been in operation.

**Lift cycles.** Indicates how often the firing chamber has been raised/lifted.

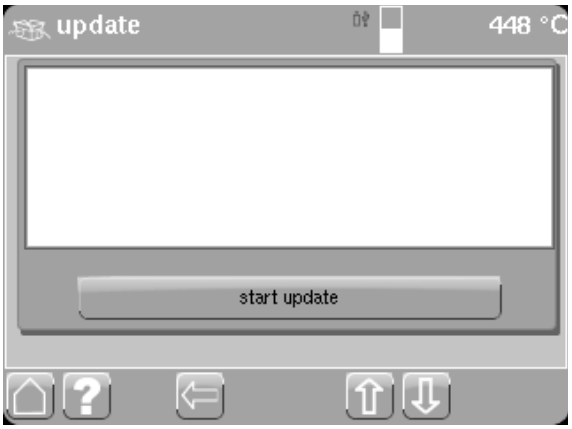
**Firing cycles.** Number of firing cycles.

**Calibration offset.** Enter/read the calibration offset (see **11, Calibration using a silver wire test, page 43**).

**Heating.** Indicates the power factor.

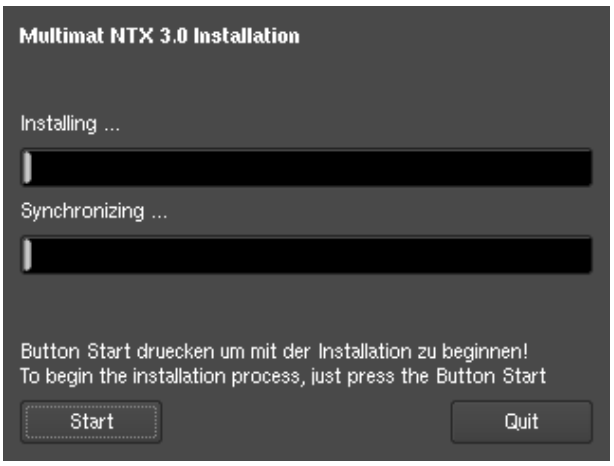
## 9.5 Update menu

The **Update** menu is reached from the **Setup** menu. Once the USB memory stick has been inserted and detected, tap the ***Start update*** button to update the system software to the most recent software version.



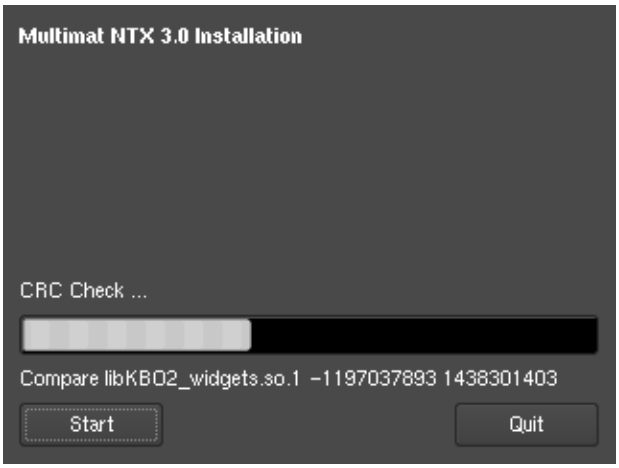

Tap the ***Start*** button to activate the update installation function. Tap the ***Start*** to start the actual update. Depending on the update type, the update may take up to 5 minutes. A progress bar will show how far the update has proceeded.

Once the update is done, the unit is re-started by the Package Manager.



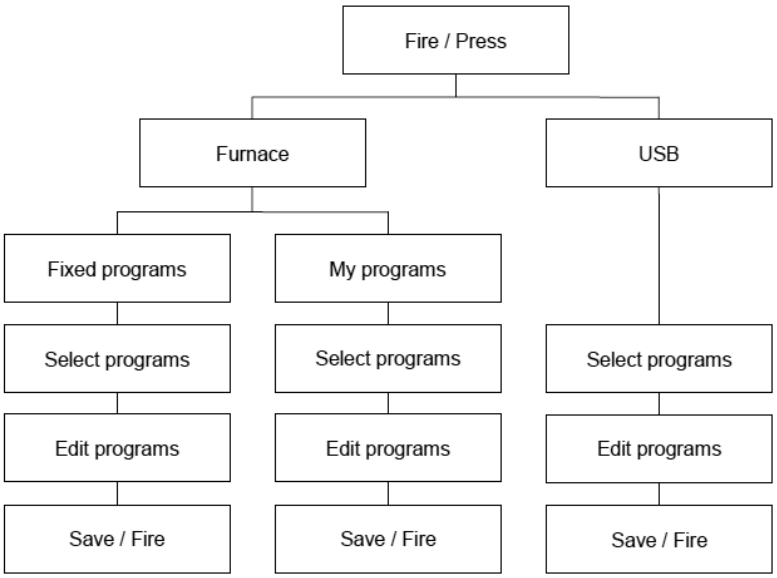

Restart the furnace using the power switch.


After each software update, the system file installation is verified during the startup process. A progress bar will show how far this verification has proceeded.
Once the verification process has been completed, a self-test will be conducted.

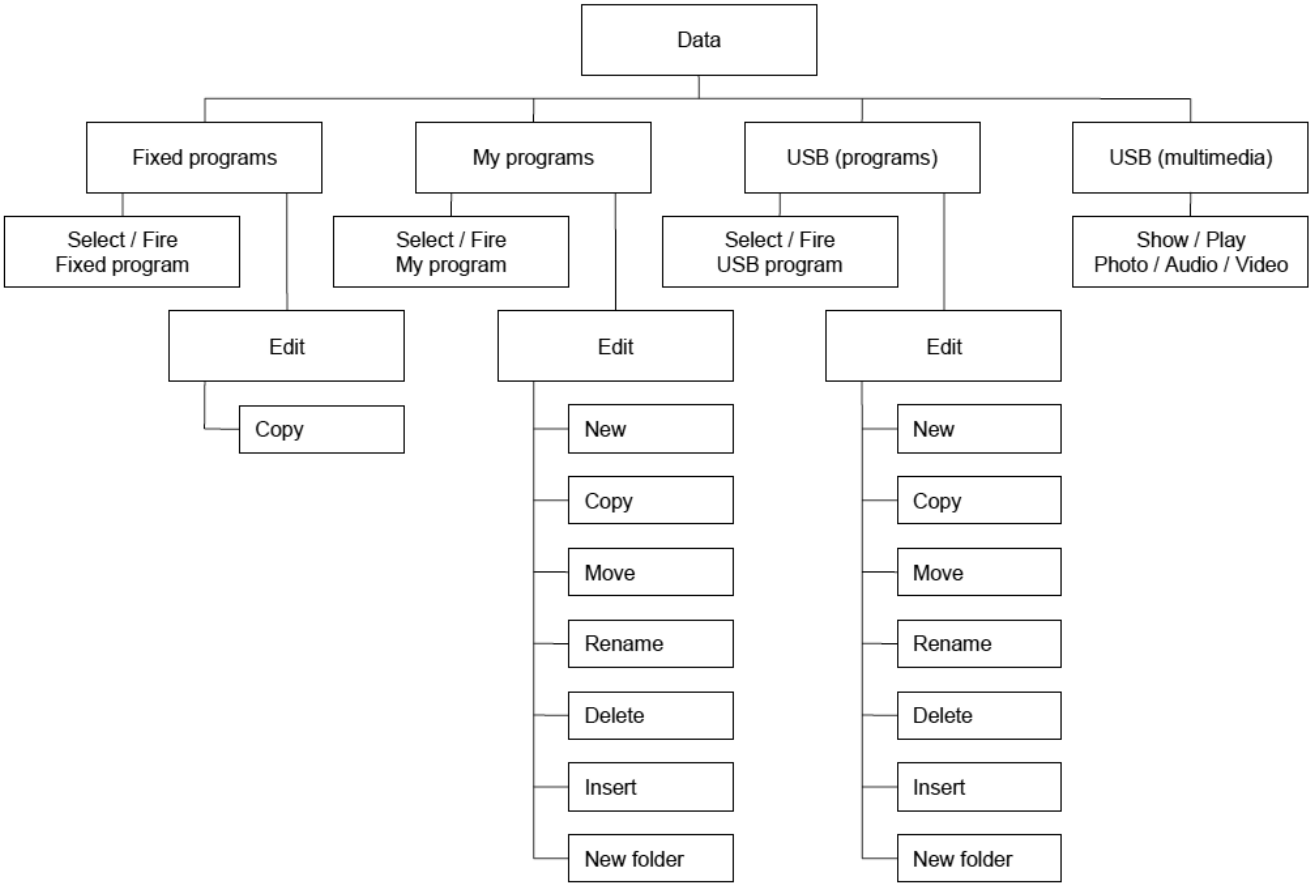


## 9.6 Menu structures overview

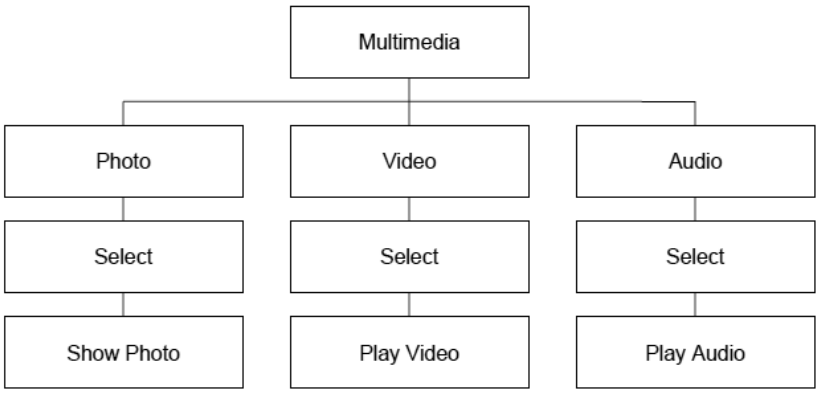
### 9.6.1 Menu structure „Fire / Press“



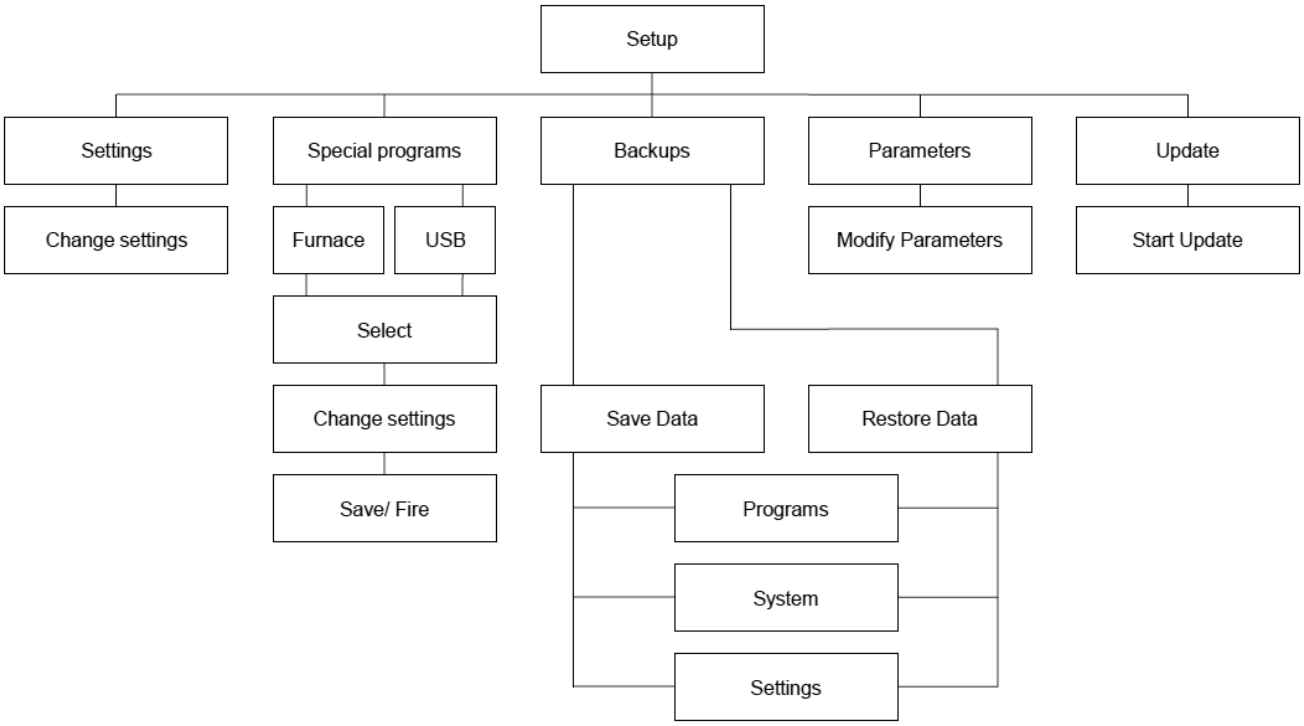

### 9.6.2 Menu structure „Data“



### 9.6.3 Menu structure „Multimedia“




### 9.6.4 Menu structure „Setup“



# 10 Maintenance and cleaning

## 10.1 Heating program

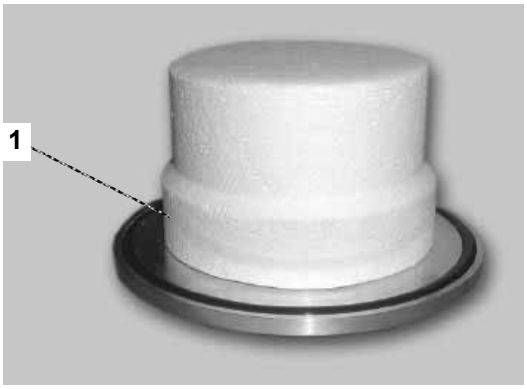
A special program for pre-heating or for drying the insulation layer at the period of non-use has been pre-defined and stored in the unit's internal memory. Its parameters are as follows:

You can start the cleaning cycle from the main menu (Setup, Service programs) (see **9.2, Special programs menu, page 37**)

## 10.2 Firing support maintenance

The firing support (see **3.1 Base unit, page 8**) serves to seal the bottom of the firing chamber. In addition, the **O-ring (1)** ensures a close seal at the sealing surfaces.

Regularly **check** the surface of the firing support/the O-ring for deposits or damage. **Replace** damaged O-rings immediately.




## 10.3 Replacing the firing muffle

If the quality of the firing process deteriorates or if recalibration becomes necessary more frequently (see **11, Calibration using a silver wire test, page 43**) the reason may be that the firing muffle has reached the end of its useful life.

**The firing muffle must be replaced only by authorized DeguDent GmbH service personnel!**

## 10.4 Vacuum pump maintenance

The **vacuum pump** (see **3.4 Optional accessories, page 10**) requires separate maintenance steps, such as oil changes.

For more information, consult the Instructions for Use of the respective vacuum pump.

# 11 Calibration using a silver wire test

The **temperature control** has been precisely calibrated at the factory. Environmental factors, however, may cause the selected temperature and the actual temperature during the firing process to **drift apart over time**. This can be done by **calibrating the unit** and entering a **calibration offset**. Proceed as follows:

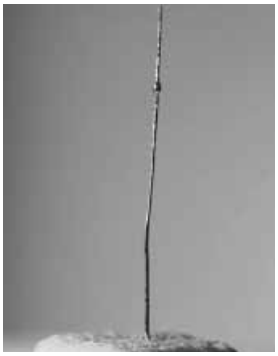
1. Turn on the Multimat® NTX/NTX$^{press}$ (see **7.1, Turning on the unit, page 15**).
2. Set the base temperature to 650°C and pre-heat the furnace for one hour with the chamber closed. While waiting, insert the silver wire into the wire carrier (see **11.1, Silver wire calibration program, page 44**)
3. Select Program no. 475.
4. Open the firing chamber and centre the white carrier and silver wire on the firing base.
5. Start the calibration program (see **11.1, Silver wire calibration program**, **page 44**).

Indicate the final temperature for the silver wire calibration test and tap the ***Fire*** button to start the process.

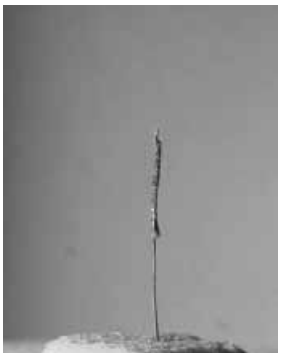
At the end of the firing cycles, you will be asked to indicate whether the firing was executed properly.

- Tap ***Yes*** if the firing was executed properly. The corrected data will be accepted by the system.
- Tap ***No*** if the temperature was too high or too low. Indicate a corrected final temperature for the silver wire calibration test and tap the ***Fire*** button to restart the process.

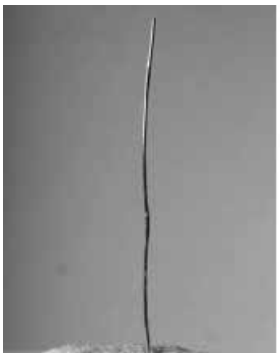
If the selected temperature corresponds to the actual temperature (to within ±2°C), a **small bead of melted silver** will appear at the tip of the silver wire. In this case, it will not be necessary to enter a calibration offset.



If the silver wire has partially or completely **melted to a clump**, this means that the temperature is too high.



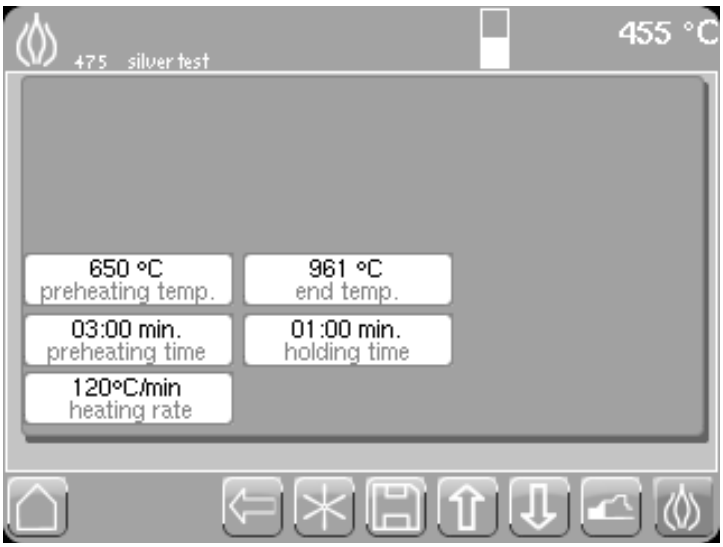
If the surface of the silver wire does **not show any signs of melting**, the temperature is too low.



## 11.1 Silver wire calibration program

The calibration program has been pre-defined and stored in the unit's internal memory. Its parameters are as follows:

| | |
|---|---|
| Pre-heating temp | 650°C |
| Vacuum level | 0 hPa |
| Vacuum time | 0 min |
| End temp | **961 °C**<br>(melting point of silver) |
| Holding time | **1 min** |
| Cooling level | 0 |



# 12 Error messages and troubleshooting

Various failure states and errors are shown in the display in the form of error messages. The following table lists and explains these messages:

| Error message | Possible Causes | Potential remedy | Action(s) |
|---|---|---|---|
| F 02 | Multimedia | Audio or image format was not recognized – audio or image file cannot be replayed | Make the file available in a different format (see the restrictions on audio or image files). |
| F 05 | Vacuum still prevails | No air is entering the system | Notify service technician |
| F 06 | Bus error | Internal system error | If error recurs, notify service technician |
| F 07 | Com error | Error in motor communication | Notify service technician |
| F 08 | Excessive controller temperature | a) Firing support plate above the controller is missing<br>b) Extremely high standby temperature while the chamber is open | Disconnect from mains and allow to cool for about five minutes<br>a) Put support plate in place<br>b) Keep oven them closed when not in use. Restart oven normally once cooled |
| F 09 | Defective heating circuit | Heating muffle or control relay defective | Notify service technician |
| F 10 | Excessive temperature | Current temperature exceeds the pre-set temperature by 35°C or more | Notify service technician |
| F 11 | Reference error | Reference sensor defective | Notify service technician |
| F 12 | Selected vacuum level not attained | Chamber seal or vacuum system leak | Check chamber seal or notify service technician |
| F 13 | Rapid cooling not completed | Stand-by temperature has not been reached | Wait until the stand-by temperature has been reached or terminate rapid cooling with ESC |
| F 14 | Power outage has occurred | Short-term power outage during firing | Check firing result |
| F 15 | Heat sensor error | Internal measurement error | If error recurs, notify service technician |
| F 16 | Battery error | Backup battery voltage too low | Have a service technician change the battery |
| F 19 | Access denied | No read or write access possible for this file | Save the data to a different location or under a different name |
| F 20 | Out of memory | The unit’s internal memory is full | Delete any data or programs no longer needed |
| F 21 | Defective program | Memory error | The controller will delete the defective program automatically; program must be re-entered |
| F 23 | Vacuum was not relieved | Ventilation valve defective | Notify service technician |

| Error message | Possible Causes | Potential remedy | Action(s) |
|---|---|---|---|
| F 24 | Pressure | The desired pressure is not available | Check whether the unit is properly connected to compressed air. and select the correct pressure at the pressure reduced (see **4.2 Setting up and connecting, page 13**); if the desired adjustment is not possible, notify service technician |
| F 25 | Heat sensor broken | Heat sensor or heat sensor wiring broken | Notify service technician |
| F 26 | Incorrect polarity of heat sensor | Plus and minus poles were confused when connecting | Notify service technician |
| F 27 | Error during heating | The furnace experienced a timeout during the heating phase | Restart the unit; if error recurs, notify service technician |
| F 28 | Error initializing the motor control | Motor control could not be initialized during the power-on sequence | Cycle the unit off and back on |
| F 29 | Program number already assigned | An attempt was made to re-assign a program number already in use | Save the program to a different program number, or delete the program that previously occupied the desired number |
| F 30 | Fixed programs cannot be saved | An attempt was made to save a fixed program | Changes to fixed programs cannot be saved to the programs themselves; assign a new program number and save the program as a user-defined program in *My programs* |
| F 31 | Motor controller error | An error has occurred in the motor controller | Cycle the unit off and on. |
| F 32 | Data files too large | Multimedia data cannot be displayed for size reasons (e.g. pictures larger than 5 megapixels) | Reduce the resolution of the image files (a resolution of 320×240 pixels is recommended) |

## 12.1 Power failure

The Multimat® NTX/NTX$^{press}$ offers a **power failure protection feature** that allows the **currently running program** to be **continued** after a power failure of **less than 60 seconds** as soon as the power returns. You will see error message F 14. The maximum duration of the power failure is defined in the **Settings** menu.

**Note:** The firing result must be inspected closely even if the firing program was only interrupted for a very short time.

If the power failure lasts for **more than 60 seconds**, the currently running program will be interrupted.

**Note:** If the **firing chamber** must be open during the power outage, you may **carefully push it up manually**. This will damage neither the motor nor the gear mechanism.

**When shipping the unit, please follow the instructions in section 2.1, Safe transport, page 6!**

**Do not reach into the firing chamber – burn hazard!**

# 13 Fixed programs

**Note:** The parameters listed here have the nature of recommendations. If necessary, conduct your own test firings and adapt the parameters to your own needs. Note that the cooling levels must be defined as per the alloy manufacturers' recommendations.

Base temperature, pre-heating temperature, tempering temperature – in **°C**
Pre-drying, drying, pre-heating time, holding time, vacuum time, tempering time, pressing time – in **mm:ss**
Heating rate – in **°C/min**
Vacuum, pressing pressure – in **hPa**
Cooling level – indicated by **1, 2, 3**

**Oxid firings**

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 600 | Oxid firing 980°C | 575 | 00:00:00 | 00:00:00 | 575 | 00:00:00 | 55 | 980 | 00:10:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 601 | Oxid firing 930°C | 575 | 00:00:00 | 00:00:00 | 575 | 00:00:00 | 55 | 930 | 00:05:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 602 | Oxid firing 900°C | 575 | 00:00:00 | 00:00:00 | 575 | 00:00:00 | 55 | 900 | 00:05:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 603 | Oxid firing 780°C | 575 | 00:00:00 | 00:00:00 | 575 | 00:00:00 | 55 | 780 | 00:05:00 | 00:05:00 | 0 | 00:00:00 | 0 | 0 |

**Ceramco III Ceramco Mode**

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 610 | Paste opaque | 500 | 00:00:00 | 00:05:00 | 500 | 00:03:00 | 100 | 975 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 611 | Powder opaque | 650 | 00:00:00 | 00:03:00 | 650 | 00:03:00 | 70 | 970 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 612 | Margin | 650 | 00:00:00 | 00:05:00 | 650 | 00:05:00 | 70 | 965 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 613 | Dentine, modifiers | 650 | 00:00:00 | 00:05:00 | 650 | 00:05:00 | 55 | 960 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 614 | Natural glaze | 650 | 00:00:00 | 00:03:00 | 650 | 00:03:00 | 70 | 945 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 615 | Overglaze | 650 | 00:00:00 | 00:03:00 | 650 | 00:03:00 | 70 | 935 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 616 | Add On | 650 | 00:00:00 | 00:05:00 | 650 | 00:05:00 | 70 | 940 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |

Vacuum on = Pre-heating temperature  Vacuum off = End temperature

## Ceramco iC Precious Metal

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 620 | Powder opaque | 650 | 00:00:00 | 00:03:00 | 650 | 00:03:00 | 55 | 960 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 621 | Paste opaque | 500 | 00:00:00 | 00:05:00 | 500 | 00:05:00 | 55 | 930 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 622 | Neutral mass for Bio alloy | 500 | 00:00:00 | 00:05:00 | 500 | 00:05:00 | 55 | 900 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 623 | Paste opaque for Bio alloy | 500 | 00:00:00 | 00:05:00 | 500 | 00:05:00 | 55 | 910 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 624 | Shoulder, built-up | 600 | 00:00:00 | 00:05:00 | 600 | 00:05:00 | 90 | 880 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 625 | Shoulder, pressed | 600 | 00:00:00 | 00:05:00 | 600 | 00:05:00 | 90 | 870 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 626 | Dentine 1 | 500 | 00:00:00 | 00:05:00 | 500 | 00:03:00 | 100 | 840 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 627 | Dentine 2 | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 830 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 628 | Glaze firing without glaze | e | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 820 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 629 | Correction | 600 | 00:00:00 | 00:05:00 | 600 | 00:03:00 | 100 | 815 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 630 | Stain glaze | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 805 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 631 | Glaze firing / Final Shoulder | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 805 | 00:00:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

Vacuum on = Pre-heating temperature  Vacuum off = End temperature

## Ceramco iC veneers and dies

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 640 | Dentine 1 | 500 | 00:03:00 | 00:05:00 | 500 | 00:03:00 | 100 | 840 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 641 | Dentine 2 | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 830 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 642 | Natural glaze | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 820 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 643 | Glaze | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 100 | 805 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

Vacuum on = Pre-heating temperature  Vacuum off = End temperature

## StarLight Ceram on StarLoy soft

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 650 | Paste opaque 1 | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 980 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 651 | Paste opaque 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 950 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 652 | Shoulder 1+2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 653 | Dentine 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2 | 50 |
| 654 | Dentine 2 | 575 | 00:00:00 | 00:04:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2 | 50 |
| 655 | Glaze | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 900 | 00:02:00 | 00:00:00 | 850 | 00:03:00 | 2 | 0 |

## StarLight Ceram on StarLoy C

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 660 | Paste opaque 1 | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 980 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 661 | Paste opaque 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 950 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 662 | Shoulder 1+2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 663 | Dentine 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 664 | Dentine 2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 665 | Glaze | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 900 | 00:01:00 | 00:00:00 | 850 | 00:03:00 | 0 | 0 |

## StarLight Ceram

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 670 | Neutral for Bio alloys | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 900 | 00:03:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 671 | Paste opaque for Bio alloys | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 900 | 00:03:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 672 | Paste opaque 1 + 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 930 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 673 | Shoulder 1 + 2 | 600 | 00:00:00 | 00:05:00 | 600 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 680 | Dentine 1 <14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 681 | Dentine 2 <14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 900 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 682 | Glaze <14,3 | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 690 | Dentine 1 >14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 691 | Dentine 2 >14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 900 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 692 | Glaze >14,3 | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:02:00 | 00:00:00 | 850 | 00:03:00 | 0 | 0 |

## Repair masses

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 693 | Opaque | 450 | 00:00:00 | 00:01:00 | 450 | 00:01:00 | 55 | 700 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 694 | Dentine 1 | 450 | 00:00:00 | 00:06:00 | 450 | 00:02:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 695 | Dentine 2 | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 670 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 696 | Glaze | 450 | 00:00:00 | 00:03:00 | 450 | 00:01:00 | 55 | 650 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 697 | Shoulder | 450 | 00:00:00 | 00:04:00 | 450 | 00:02:00 | 55 | 660 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Duceram Kiss

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 700 | Neutral for Bio alloys | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 900 | 00:04:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 701 | Paste opaque for Bio alloys | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 900 | 00:04:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 702 | Powder opaque for Bio alloys | 575 | 00:00:00 | 00:04:00 | 575 | 00:01:00 | 55 | 900 | 00:04:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 703 | Paste opaque 1 + 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 930 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 704 | Powder opaque 1 + 2 | 575 | 00:00:00 | 00:04:00 | 575 | 00:01:00 | 55 | 930 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 705 | Shoulder 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 706 | Shoulder 2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 707 | Dentine 1 <14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 708 | Dentine 2 <14,3 | 575 | 00:00:00 | 00:04:00 | 575 | 00:02:00 | 55 | 900 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 709 | Glaze <14,3 | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 710 | Correction Final Kiss <14,3 | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 880 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 711 | Final Shoulder | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 660 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 712 | Dentine 1 >14,3 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 713 | Dentine 2 >14,3 | 575 | 00:00:00 | 00:04:00 | 575 | 00:02:00 | 55 | 900 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 714 | Glaze >14,3 | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:01:00 | 00:00:00 | 850 | 00:03:00 | 0 | 0 |

## Duceram Kiss on StarLoy C

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 720 | Bonder | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 980 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 721 | Paste opaque | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 722 | Powder opaque | 575 | 00:00:00 | 00:04:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 721 | Paste opaque | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 724 | Dentine 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2/3 | 50 |
| 721 | Paste opaque | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 726 | Glaze | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:01:00 | 00:00:00 | 850 | 00:03:00 | 2/3 | 0 |
| 727 | Correction (Final Kiss) | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 880 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2/3 | 50 |
| 728 | Final Shoulder | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 660 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Duceram Kiss on StarLoy soft

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 730 | Paste opaque 1 | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 980 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 731 | Paste opaque 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 732 | Powder opaque 1 | 575 | 00:00:00 | 00:04:00 | 575 | 00:01:00 | 55 | 980 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 733 | Powder opaque 2 | 575 | 00:00:00 | 00:04:00 | 575 | 00:01:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 734 | Shoulder 1 + 2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 930 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 735 | Dentine 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:02:00 | 55 | 920 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2/3 | 50 |
| 736 | Dentine 2 | 575 | 00:00:00 | 00:04:00 | 575 | 00:02:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2/3 | 50 |
| 737 | Glaze | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 890 | 00:01:00 | 00:00:00 | 850 | 00:03:00 | 2/3 | 0 |
| 738 | Correction (Final Kiss) | 575 | 00:00:00 | 00:03:00 | 575 | 00:01:00 | 55 | 880 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 2/3 | 50 |
| 739 | Final Shoulder | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 660 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Duceragold Kiss

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 740 | Oxide | 575 | 00:00:00 | 00:00:00 | 575 | 00:00:00 | 55 | 780 | 00:05:00 | 00:05:00 | 0 | 00:00:00 | 0 | 50 |
| 741 | Degunorm classic base | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 780 | 00:01:00 | 00:00:10 | 0 | 00:00:00 | 0 | 50 |
| 742 | Paste opaque | 575 | 00:00:00 | 00:07:00 | 575 | 00:02:00 | 55 | 780 | 00:01:00 | 00:00:10 | 0 | 00:00:00 | 0 | 50 |
| 743 | Shoulder 1 | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 744 | Shoulder 2 | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 745 | Dentine 1 with tempering | 450 | 00:00:00 | 00:03:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 720 | 00:03:00 | 0 | 50 |
| 746 | Dentine 2 without tempering | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 747 | Glaze without tempering | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 770 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 748 | Correction Final Kiss | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 720 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 749 | Final Shoulder | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 720 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 750 | Degunorm classic base | 575 | 00:00:00 | 00:07:00 | 575 | 00:01:00 | 55 | 780 | 00:01:00 | 00:00:10 | 0 | 00:00:00 | 0 | 50 |
| 751 | Dentine 1 without tempering | 450 | 00:00:00 | 00:03:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 752 | Dentine 2 with tempering | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 720 | 00:03:00 | 0 | 50 |
| 753 | Glaze with tempering | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 770 | 00:02:00 | 00:00:00 | 720 | 00:03:00 | 0 | 0 |

## Cergo Kiss

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 760 | Dentine 1 | 450 | 00:00:00 | 00:03:00 | 450 | 00:03:00 | 55 | 800 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 761 | Dentine 2 | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 800 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 762 | Glaze | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 790 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 763 | Correction | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 740 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Duceratin Kiss

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 770 | Adhesive bond | 600 | 00:00:00 | 00:04:00 | 600 | 00:02:00 | 99 | 750 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 771 | Opaque 1 + 2 | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 99 | 760 | 00:00:50 | 00:00:10 | 0 | 00:00:00 | 0 | 50 |
| 772 | Shoulder 1 + 2 | 450 | 00:00:00 | 00:04:00 | 450 | 00:03:00 | 55 | 780 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 773 | Dentine 1 | 450 | 00:00:00 | 00:06:00 | 450 | 00:02:00 | 55 | 760 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 774 | Dentine 2 | 450 | 00:00:00 | 00:05:00 | 450 | 00:02:00 | 55 | 750 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 775 | Glaze | 450 | 00:00:00 | 00:04:00 | 450 | 00:02:00 | 55 | 730 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 776 | Final Kiss | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 777 | Final Shoulder | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Cercon ceram Kiss

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 780 | Powder liner 1 | 450 | 00:00:00 | 00:04:00 | 450 | 00:04:00 | 55 | 970 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 781 | Powder liner 2 | 450 | 00:00:00 | 00:04:00 | 450 | 00:04:00 | 55 | 960 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 782 | Paste liner 1 | 575 | 00:00:00 | 00:07:00 | 575 | 00:04:00 | 55 | 970 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 783 | Paste liner 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:04:00 | 55 | 960 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 784 | Shoulder 1 | 450 | 00:00:00 | 00:05:00 | 450 | 00:04:00 | 55 | 850 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 785 | Shoulder 2 | 450 | 00:00:00 | 00:05:00 | 450 | 00:04:00 | 55 | 850 | 00:03:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 786 | Dentine 1 | 450 | 00:00:00 | 00:03:00 | 450 | 00:04:00 | 55 | 830 | 00:02:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 787 | Dentine 2 | 450 | 00:00:00 | 00:03:00 | 450 | 00:04:00 | 55 | 820 | 00:02:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 788 | Glaze | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 800 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 1 | 0 |
| 789 | Correction (Final Kiss) | 450 | 00:00:00 | 00:02:00 | 450 | 00:04:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 1 | 50 |
| 790 | Final Shoulder (F-SM) | 450 | 00:00:00 | 00:02:00 | 450 | 00:04:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 1 | 50 |

## Press & Smile

## Cercon ceram press stain technique

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 800 | Stain fixation | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 700 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 801 | Glaze | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 800 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

## Cercon ceram press build-up technique

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 805 | Dentine 1 | 450 | 00:00:00 | 00:03:00 | 450 | 00:04:00 | 55 | 830 | 00:02:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 806 | Glaze | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 800 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 807 | Correction P&S | 450 | 00:00:00 | 00:02:00 | 450 | 00:04:00 | 55 | 680 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |

## Ducera press

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 810 | Paste opaque | 575 | 00:04:00 | 00:02:00 | 575 | 00:01:00 | 55 | 980 | 00:01:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 812 | Correction cervical | 500 | 00:02:00 | 00:02:00 | 500 | 00:02:00 | 55 | 820 | 00:01:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 813 | Stain glaze | 450 | 00:02:00 | 00:02:00 | 450 | 00:01:00 | 55 | 810 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 814 | Correction incisal | 450 | 00:01:00 | 00:02:00 | 450 | 00:01:00 | 55 | 720 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 815 | Correction cervical > 5 units | 500 | 00:02:00 | 00:02:00 | 500 | 00:02:00 | 55 | 820 | 00:01:00 | 00:01:00 | 0 | 00:00:00 | 1 | 50 |
| 816 | Stain glaze > 5 units | 450 | 00:02:00 | 00:02:00 | 450 | 00:01:00 | 55 | 810 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 1 | 0 |
| 817 | Correction incisal > 5 units | 450 | 00:01:00 | 00:02:00 | 450 | 00:01:00 | 55 | 720 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 1 | 50 |

## Duceram plus

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 830 | Paste opaque 1 | 575 | 00:00:00 | 00:05:00 | 575 | 00:01:00 | 55 | 930 | 00:04:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 831 | Paste opaque 2 | 575 | 00:00:00 | 00:05:00 | 575 | 00:01:00 | 55 | 930 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 832 | Powder opaque 1 | 600 | 00:00:00 | 00:02:00 | 600 | 00:01:00 | 55 | 930 | 00:04:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 833 | Powder opaque 2 | 600 | 00:00:00 | 00:03:00 | 600 | 00:03:00 | 55 | 930 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 834 | Shoulder | 600 | 00:00:00 | 00:06:00 | 600 | 00:03:00 | 55 | 920 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 835 | Dentine 1 <14,2 | 600 | 00:00:00 | 00:06:00 | 600 | 00:03:00 | 55 | 910 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 836 | Dentine 2 <14,2 | 600 | 00:00:00 | 00:05:00 | 600 | 00:03:00 | 55 | 900 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 837 | Glaze <14,2 | 600 | 00:00:00 | 00:04:00 | 600 | 00:03:00 | 55 | 890 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 838 | Correction | 600 | 00:00:00 | 00:03:00 | 600 | 00:03:00 | 55 | 880 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 839 | Dentine 1 >14,2 | 600 | 00:00:00 | 00:06:00 | 600 | 00:03:00 | 55 | 910 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 840 | Dentine 2 >14,2 | 600 | 00:00:00 | 00:05:00 | 600 | 00:03:00 | 55 | 900 | 00:02:00 | 00:01:00 | 850 | 00:03:00 | 0 | 50 |
| 841 | Glaze >14,2 | 600 | 00:00:00 | 00:04:00 | 600 | 00:02:00 | 55 | 890 | 00:02:00 | 00:00:00 | 850 | 00:03:00 | 0 | 0 |

## Cercon ceram love

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 850 | Paste liner 1 | 575 | 00:00:00 | 00:07:00 | 575 | 00:04:00 | 55 | 970 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 851 | Paste liner 2 | 575 | 00:00:00 | 00:07:00 | 575 | 00:04:00 | 55 | 960 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 852 | Shoulder 1 | 450 | 00:00:00 | 00:05:00 | 450 | 00:04:00 | 55 | 950 | 00:03:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 853 | Shoulder 2 | 450 | 00:00:00 | 00:05:00 | 450 | 00:04:00 | 55 | 950 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 0 | 50 |
| 854 | Dentine 1 | 450 | 00:00:00 | 00:03:00 | 450 | 00:04:00 | 55 | 900 | 00:02:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 855 | Dentine 2 | 450 | 00:00:00 | 00:03:00 | 450 | 00:04:00 | 55 | 890 | 00:02:30 | 00:01:30 | 0 | 00:00:00 | 0 | 50 |
| 856 | Glaze | 450 | 00:00:00 | 00:02:00 | 450 | 00:03:00 | 55 | 880 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 1 | 0 |
| 857 | Correction | 450 | 00:00:00 | 00:02:00 | 450 | 00:04:00 | 55 | 750 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 1 | 50 |
| 858 | Final Shoulder | 450 | 00:00:00 | 00:02:00 | 450 | 00:04:00 | 55 | 750 | 00:02:00 | 00:01:00 | 0 | 00:00:00 | 1 | 50 |

## Duceram love NPM < 14,6

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 860 | NP-Powder-Bonder | 575 | 00:00:00 | 00:06:00 | 575 | 00:01:00 | 55 | 980 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 861 | NP-Paste-Bonder | 575 | 00:00:00 | 00:08:00 | 575 | 00:01:00 | 55 | 980 | 00:03:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 862 | Paste Opaque 1+2 | 550 | 00:00:00 | 00:08:00 | 550 | 00:01:00 | 100 | 910 | 00:04:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 863 | Shoulder 1 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 880 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 864 | Shoulder 2 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 860 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 865 | Dentine 1 | 500 | 00:00:00 | 00:07:00 | 500 | 00:02:00 | 55 | 820 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 866 | Dentine 2 | 500 | 00:00:00 | 00:06:00 | 500 | 00:02:00 | 55 | 810 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 867 | Glaze | 500 | 00:00:00 | 00:02:00 | 500 | 00:02:00 | 55 | 800 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |
| 868 | Final Shoulder/Correction | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 680 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 869 | Stain | 450 | 00:00:00 | 00:03:00 | 450 | 00:01:00 | 55 | 660 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

## Duceram love NPM > 14,6

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 870 | NP-Powder-Bonder | 575 | 00:00:00 | 00:06:00 | 575 | 00:01:00 | 55 | 980 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 871 | NP-Paste-Bonder | 575 | 00:00:00 | 00:08:00 | 575 | 00:01:00 | 55 | 980 | 00:03:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 872 | Paste Opaque 1+2 | 550 | 00:00:00 | 00:08:00 | 550 | 00:01:00 | 100 | 910 | 00:04:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 873 | Shoulder 1 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 880 | 00:01:00 | 00:00:30 | 850 | 00:03:00 | 1 | 50 |
| 874 | Shoulder 2 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 860 | 00:01:00 | 00:00:30 | 850 | 00:03:00 | 1 | 50 |
| 875 | Dentine 1 | 500 | 00:00:00 | 00:07:00 | 500 | 00:02:00 | 55 | 820 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 1 | 50 |
| 876 | Dentine 2 | 500 | 00:00:00 | 00:06:00 | 500 | 00:02:00 | 55 | 810 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 1 | 50 |
| 877 | Glaze | 500 | 00:00:00 | 00:02:00 | 500 | 00:02:00 | 55 | 800 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 1 | 0 |
| 878 | Final Shoulder/Correction | 450 | 00:00:00 | 00:03:00 | 450 | 00:02:00 | 55 | 680 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 879 | Stain | 450 | 00:00:00 | 00:03:00 | 450 | 00:01:00 | 55 | 660 | 00:01:00 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

## Duceram love Precious Metal

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 880 | Opaque 1+2 | 550 | 00:00:00 | 00:08:00 | 550 | 00:01:00 | 100 | 910 | 00:04:00 | 00:02:00 | 0 | 00:00:00 | 0 | 50 |
| 881 | Shoulder 1 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 880 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 882 | Shoulder 2 | 500 | 00:00:00 | 00:04:00 | 500 | 00:02:00 | 100 | 860 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 885 | Dentine 1 | 500 | 00:00:00 | 00:07:00 | 500 | 00:02:00 | 100 | 830 | 00:01:30 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 886 | Dentine 2 | 500 | 00:00:00 | 00:06:00 | 500 | 00:02:00 | 100 | 820 | 00:01:30 | 00:00:30 | 0 | 00:00:00 | 0 | 50 |
| 887 | Glaze | 500 | 00:00:00 | 00:02:00 | 500 | 00:02:00 | 100 | 800 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

## Ceramco IC - NPM & laser sintered CoCr

| Program number | Program name | Base temperature (°C) | Pre-drying time (min) | Drying time (min) | Pre-heating temperature (°C) | Pre-heating time (min) | Heating rate (°C/min) | End temperature (°C) | Holding time (min) | Vacuum time (min) | Temper temperature (°C) | Temper time (min) | Cooling stage | Vacuum level (hPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 888 | NP-Powder-Bonder | 575 | 00:00:00 | 00:04:00 | 575 | 00:03:00 | 55 | 980 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 889 | NP-Paste-Bonder | 575 | 00:00:00 | 00:06:00 | 575 | 00:03:00 | 55 | 980 | 00:03:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 890 | Powder opaque | 650 | 00:00:00 | 00:03:00 | 650 | 00:03:00 | 55 | 960 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 891 | Paste opaque | 500 | 00:00:00 | 00:05:00 | 500 | 00:05:00 | 55 | 930 | 00:02:00 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 892 | Shoulder, built-up | 600 | 00:00:00 | 00:05:00 | 600 | 00:05:00 | 55 | 880 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 893 | Shoulder, pressed | 600 | 00:00:00 | 00:05:00 | 600 | 00:05:00 | 90 | 870 | 00:00:30 | 00:00:00 |  | 00:00:00 | 2 | 50 |
| 894 | Dentine 1 | 500 | 00:00:00 | 00:05:00 | 500 | 00:03:00 | 55 | 830 | 00:01:00 | 00:00:30 | 0 | 00:00:00 | 2 | 50 |
| 895 | Dentine 2 | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 55 | 820 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 2 | 50 |
| 896 | Glaze | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 55 | 810 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 2 | 0 |
| 897 | Correction | 500 | 00:00:00 | 00:05:00 | 500 | 00:03:00 | 55 | 805 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 50 |
| 898 | Stains / glazes | 500 | 00:00:00 | 00:03:00 | 500 | 00:03:00 | 55 | 790 | 00:00:30 | 00:00:00 | 0 | 00:00:00 | 0 | 0 |

## Pressing programs

### Ceramco IC

| Program number | Program name | Base tempterature (°C) | Holding time (sec.) | Heating rate (°C/min) | Pressure (bar) | Pressing time (sec.) | End temperature (°C) | Vacuum level (hPa) | Vacuum time (sec.) |
|---|---|---|---|---|---|---|---|---|---|
| 901 | Pressing 200 g | 700 | 00:20:00 | 60 | 2,7 | 00:20:00 | 890 | 50 | 00:40:00 |

### Ceramco III press

| Program number | Program name | Base tempterature (°C) | Holding time (sec.) | Heating rate (°C/min) | Pressure (bar) | Pressing time (sec.) | End temperature (°C) | Vacuum level (hPa) | Vacuum time (sec.) |
|---|---|---|---|---|---|---|---|---|---|
| 905 | Pressing 100 g | 700 | 00:20:00 | 60 | 2,7 | 00:10:00 | 930 | 50 | 00:30:00 |
| 905 | Pressing 200 g | 700 | 00:20:00 | 60 | 2,7 | 00:20:00 | 930 | 50 | 00:40:00 |

### Cergo Kiss

| Program number | Program name | Base tempterature (°C) | Holding time (sec.) | Heating rate (°C/min) | Pressure (bar) | Pressing time (sec.) | End temperature (°C) | Vacuum level (hPa) | Vacuum time (sec.) |
|---|---|---|---|---|---|---|---|---|---|
| 910 | 100-g, 200-g muffle | 700 | 00:20:00 | 60 | 2,7 | 00:20:00 | 960 | 50 | 00:40:00 |
| 911 | PressMaster | 700 | 00:40:00 | 60 | 2,7 | 00:40:00 | 960 | 50 | 01:20:00 |

### Cercon ceram press

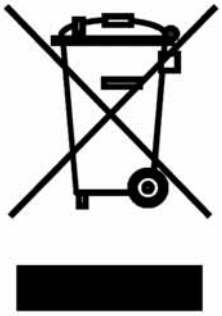
| Program number | Program name | Base tempterature (°C) | Holding time (sec.) | Heating rate (°C/min) | Pressure (bar) | Pressing time (sec.) | End temperature (°C) | Vacuum level (hPa) | Vacuum time (sec.) |
|---|---|---|---|---|---|---|---|---|---|
| 915 | 100-g, 200-g muffle | 700 | 00:20:00 | 60 | 2,7 | 00:10:00 | 940 | 50 | 00:30:00 |
| 916 | Cercon PressMaster | 700 | 00:40:00 | 60 | 3 | 00:20:00 | 940 | 50 | 01:00:00 |

| Ducera press / StarExpress | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Program number | Program name | Base tempterature (°C) | Holding time (sec.) | Heating rate (°C/min) | Pressure (bar) | Pressing time (sec.) | End temperature (°C) | Vacuum level (hPa) | Vacuum time (sec.) |
| 920 | Pressing 100 g | 700 | 00:12:00 | 60 | 2,7 | 00:10:00 | 930 | 50 | 00:24:00 |
| 921 | Pressing 200 g | 700 | 00:20:00 | 60 | 2,7 | 00:10:00 | 930 | 50 | 00:30:00 |
| 922 | PressMaster | 700 | 00:40:00 | 60 | 3 | 00:20:00 | 960 | 50 | 01:00:00 |

| Service programs | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program number | Program name | Base tempterature (°C) | Pre-drying time (sec.) | Closing time (sec.) | Pre-heating temp. (°C) | Pre-heating time (sec.) | Heating rate (°C/min) | End temperature (°C) | Holding time (sec.) | Vacuum time (sec.) | Temper temperature (°C) | Temper time (sec.) | Cooling stage | Vacuum level (hPa) | Firing mode |
| 475 | Silver wire test.brn | 650 | 180 | 30 | 650 | 180 | 120 | 961 | 60 | 0 | 0 | 10 | 1 | 0 | 99 |
| 478 | Vacuum test.brn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 |
| 479 | Dehydration with pump.brn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 |
| 998 | Heating.brn | 575 | 30 | 30 | 575 | 30 | 120 | 980 | 60 | 0 | 0 | 0 | 0 | 0 | 1 |
| 999 | Cleaning.brn | 575 | 0 | 18 | 575 | 180 | 55 | 1100 | 600 | 540 | 0 | 0 | 0 | 50 | 1 |

# 14 Disposal

This device is an electrical device pursuant to the German law on the marketing, return and environmentally compatible disposal of electrical and electronic equipment (ElektroG). The device has been labelled in compliance with the law and marked with the following symbol:



The device is not intended for private or home use. It has been produced and furnished for commercial use and must be disposed of properly by the last user pursuant to the regulation in the ElektroG.

# 15 EC Declaration of Conformity

DeguDent GmbH
Rodenbacher Chaussee 4
63457 Hanau
Germany

We hereby declare that the product

# Multimat® NTX/NTX^press

Device for firing dental ceramic materials

conforms to the basic requirements of the following EC Directives:

1. **EC machine directive 2006/42/EC**
2. **EC directive on electrical equipment designed for use within certain voltage limits (Low-voltage directive) 2006/95/EC**
3. **EC directive for electromagnetic compatibility 2004/108/EC**

The following harmonized standards were applied:
DIN EN ISO 12100-1/A1: 2009-10
DIN EN ISO 12100-2/A2: 2009-10
DIN EN 61010-1: 2004-01
DIN EN 61010-2-010: 2004-06
DIN EN 61326-1: 2008-06

Hanau, 18.02.2011

Dr. Udo Schusser
Research and Development

Hanau, 18.02.2011

Bernhard Kraus
Quality Management

# Fascination
# Prosthetics

GB 50572553/c
Last revision: 11/2012

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DENTSPLY

505725 53/b
Last revision: 06/2012

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DENTSPLY