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1 Technical Specifications

**Dimensions:**
- height: 560 mm
- width: 360 mm
- depth: 335 mm

**Firing chamber** (interior space):
- diameter: 96 mm
- height: 70 mm

**Weight:**
- 19.0 kg

**Power Supply:**
- 110/230 Volts A.C., 50/60 Hz

**Max. power consumption:**
- 1.5 KW

**Classification:**
- Safety Class 1

**Fuse:**
- 230V / 8 amp, 110V / 2 amp

**Max. firing chamber temperature:**
- 1200°C

**Power supply for vacuum pump:**
- 110/230 Volts A.C., 50/60Hz, max. 0.2KW

**Vacuum pump (optional):**
- Type PJ 9080-023.3
  - 110/230 Volts A.C., 50/60Hz, IP 20
  - Weight: approx. 6.4 kg

**Supply schedule:**

Special shipping carton, containing:

1 VITA VACUMAT 2500 furnace
1 control panel
1 firing tray
1 mains power lead
1 pair of furnace tweezers
1 set of firing stands A+B, grey
1 set of firing stands G, grey
1 Operating Manual
1 vacuum pump (only supplied on special order)

supplied with painted casing:
1 aluminium-platform for depositing hot firing trays

If any items are missing, contact your supplier immediately. Save the carton and packaging materials, in case you ever need to relocate the furnace.
2 Safety advice

This furnace may only be operated with the supplied mains power lead!

Prior to making the electrical connection, make sure that

- the furnace power switch is OFF.
- the furnace voltage matches your power supply. Confirm the line voltage for your furnace by checking the line voltage designation on the rating plate on the back of furnace.
- the protection fuse and the wiring system in your laboratory are suitable to carry the total electric load of the furnace (see rating plate and/or technical specifications).
- the wiring system in your laboratory has an efficient earth connection in compliance with rules and laws in force.
- the plug is inserted into a suitable wall socket which can easily be reached.
- the mains power lead is laid out in such way as to ensure that it does not come into contact with any hot surfaces or objects and that it does not obstruct any passage way.

● The manufacturer disclaims any liability in case these accident-preventing rules are not observed ●

This is a warning symbol about dangerous electrical current. Disconnect furnace from the mains power supply before opening it for maintenance or repair work. Contact your VITA dealer or a qualified service technician if your furnace needs to be repaired or serviced.

This label gives information on the power connection of the vacuum pump.

Never use cleaning agents or flammable liquids for cleaning the furnace

3 Installation and Starting-Up

(see also Safety Advice)

1. When positioning the furnace, the minimum distance between all sides of the furnace and any wall should be at least 25 cm.
2. Make sure the furnace power switch is OFF. Connect the furnace to the mains outlet, using the supplied mains power lead.
3. Connect the plug of the vacuum pump to the socket at the rear of the furnace and then slide the vacuum hose onto the nozzle.
4. Attach the operating panel to the front of the casing and connect the spiral cable to the right or left side.
5. Press the Power ON/OFF switch at the left to switch on the furnace. The firing tray lift will descend to its lower position. The LCD indicators in Block A display the current firing chamber temperature and the time of day.
6. Place the firing tray onto the lift support plate.
   Notice: Never operate the VITA VACUMAT 500 without the firing tray on the lift support plate. It may cause damage to the furnace.
7. Press the "Start" key. The firing tray ascends into the firing chamber, and the temperature starts rising until it has reached the factory-set starting temperature of 500 °C.

Once the starting temperature has been reached, the furnace is ready for use with any firing program.
For further operating information, see the appropriate section of the Operating Manual.

4 Control panel

4.1 Description (Block A)

Display shows:
1. Firing chamber temperature 20°C - 1200°C
2. Time of day (while no firing program has been selected)
3. Date (call via key when no program is active)
4. Utility values
5. Error messages
6. Millivolt display in adjustment program

Calls values utility programs

4.2 Description (Block B)

Display shows:
1. Program No.: 1 - 499
2. Firing programs 1 - 300
3. Values for utility programs
4. Program phase in which power failure occurred

Calls values for utility programs
4.3 Description Pre-drying (Block C)

PRE-Drying LED
1. "ON" when PRE-Drying is a phase of the selected program
2. Flashes in Input-Mode
3. Flashes when PRE-Drying is active
4. Flashes when STAND-BY program is active

Display shows:
1. STAND-BY temperature 200°C-800°C
2. PRE-Drying temperature 200°C - 800°C

Display shows:
1. PRE-Drying time 00:00 min - 40:00 min
2. Time remaining of running program
3. Set-Point during running program (when pressing Input-Mode key)

Activates Input-Mode
1. Changes PRE-Drying temperature
2. Changes PRE-Drying time
3. Calls set-points during running program

4.4 Description Heating-up (Block D)

HEATING-UP LED
1. "ON" indicates a firing program has been selected
2. Flashes in Input-Mode
3. Flashes when HEATING-Up is in Process

Display shows:
1. Temperature rising rate in °C/min
2. Valid entries 20°C/min 120°C/min

Temperature
1. Rising time in min:sec
2. Valid entries 3:00min - 20:00min

Activates Input-Mode
1. Temperature rising rate in °C/min
2. Temperature rising time min:sec
3. Call set-points during running program
4.5 **Description Firing temperature & End temperature** (Block E)

- **END temperatur LED**
  1. „ON“ indicates a firing program has been selected
  2. Flashes in Input-Mode
  3. Flashes when END temperatur „HOLD“ is active

- **Display shows:**
  1. END temperature 200°C - 1200°C

  **Dispaly shows:**
  1. Time for firing at END temperature
  2. Remaining time of running program
  3. Set-Point during running program
      (when pressing Input-Mode key)

  **Activates Input-Mode**
  1. END temperature 200°C - 1200°C
  2. Temperature rising time min:sec
  3. Call set-points during running programm

---

4.6 **Description Vacuum-parameters** (Block F)

- **MAX.Vacuum and reduced VACUUM LED**

- **Display shows:**
  1. VACUUM pump START either:
     a) at the beginning of the heating-up phase
        (display shows PRE-Drying temp.)
     b) at a selectable temperature during HEATING-Up
  2. Vacuum in millibar during active vacuum program

- **Display shows:**
  1. Vacuum „STOP“ controlled by temperature (max value = end temperature)
  2. Vacuum „STOP“ controlled by time (1:00 - 60:00 min)

  **Activates Input-Mode**
  1. Vacuum pump „START“ controlled by temperature
  2. Vacuum pump „STOP“ controlled by time
  3. Vacuum pump „STOP“ controlled by temperature
  4. Calls set-points during running program

**To edit values, see Operating Block F- Vacuum Parameters**
4.7 Description Slow Cooling (Block G)

COOLING LED
1. Flashes when COOLING is a phase of the selected program
2. Flashes in Input-Mode
3. Flashes when COOLING is the active phase in the running program
4. Flashes in FAST COOLING phase of firing chamber

COOLING „HOLD“ LED
1. Flashes when COOLING „HOLD“ is a phase of the selected program
2. Flashes in Input-Mode
3. Flashes in COOLING „HOLD“ phase

LED for position of lift tray
1. Flashes when COOLING with closed or open firing chamber has been selected
2. Flashes in Input-Mode
3. Flashes in COOLING phase

Display shows:
1. COOLING temperature 300°C - 1000°C
2. Fast COOLING of firing chamber to 50°C below STAND-BY temperature

Display COOLING phase „HOLD“ 0:00 min - 40:00 min

Activates Input-Mode
1. COOLING temperature 300°C - 1000°C
2. Time for COOLING „HOLD“ 0:00 min - 40:00 min
3. Select lift tray position
4. Select program FAST COOLING of firing chamber to 50°C below STAND-BY temperature

To edit values, see Operating Block G - SLOW COOLING

4.8 Description of Keyboard & Lift position keys (Block H)

INPUT Keyboard

Lift „ASCEND“

PRE-DRYING lift position LED’s:
In Input-Mode three pre-drying lift positions may be selected. LED’s show selected lift position. When pre-drying is less than two minutes, the lift position in the middle will be selected.

Lift „DESCEND“

ENTER - Key

DELETE - Key

Program „STOP“

1. Program „START“
2. STAND-BY program „START“ (firing chamber closed and HEATING-UP to STAND-BY)
4.9 Operating Block C - Pre-drying temperature & Pre-drying time

Select program using keyboard and press Enter-Key "#"

Activate Input-Mode with PRE-DRYING Key

flashing PRE-DRYING LED
upper LCD 'PRE-DRYING temp.' shows ?? ??
lower LCD 'PRE-DRYING time' shows value min:sec

Change PRE-DRYING temperature?
YES

enter value using keyboard and press Enter-Key '#'

NO

Press Enter-Key '#'

flashing PRE-DRYING LED
upper LCD 'PRE-DRYING temp.' °C
lower LCD 'PRE-DRYING time' shows ?? ??

Invalid Entries will result in error message 'Err'

Change PRE-DRYING time?
YES

enter value using keyboard and press Enter-Key '#'

NO

Press Enter-Key '#'

flashing PRE-DRYING LED
upper LCD shows 'PRE-DRYING temp.' °C
lower LCD 'PRE-DRYING time' shows ?? ??

Input-Mode may be interrupted at any time by pressing the 'STOP'-Key

Valid Input: 200°C - 800°C

Valid Input: 0 min - 40:00 min

PRE-DRYING LED 'ON'
upper LCD shows 'PRE-DRYING temp.' °C
lower LCD shows 'PRE-DRYING time'

Lift positions for PRE-DRYING, see Page 10

E N D

After program start PRE-DRYING values may be changed until PRE-DRYING LED is flashing. Thereafter program sequence is active and changes are no longer possible.
4.10 Operating Block D – Heating - up

Select program using keyboard and press Enter-Key '#'

Activate Input-Mode with HEATING-UP Key

flashing HEATING-UP LED
upper LCD shows ??
lower LCD shows value min:sec

Change HEATING-UP parameter?

YES

NO

Press Enter-Key '#'

Activate Input-Mode using HEATING-UP Key
selected parameter shows ?? ??

enter value using keyboard and press Enter-Key '#'

HEATING-UP LED 'ON'
upper LCD shows value °C/min
lower LCD shows value min:sec

END

Notice: Changes of PRE-DRYING temperature or END temperature after this input sequence will result in a change of the HEATING-UP time (min:sec). The HEATING-UP rate (°C/min) is not affected.

After program start HEATING-UP values may be changed until HEATING-UP LED is flashing. Thereafter program sequence is active and changes are no longer possible.

To call the set-points display during the running program, press the HEATING-UP Key. Display-Reset is done automatically.
4.11 Operating Block E - Firing temperature & End temperature

Select program using keyboard and press Enter-Key ‘#’

Activate Input-Mode with END temperature key

flashing END temperature LED upper LCD shows END temperature ?? ?? lower LCD shows End temp. HOLD time

Change END temperature?

YES

enter value using keyboard and press Enter-Key ‘#’

flashing END temperature LED upper LCD shows END temperature °C lower LCD ‘Temp. HOLD time’ shows ?? ??

NO

Press Enter-Key ‘#’

Valid Input: 200°C - 1200°C

Invalid entries will result in error message ‘Err’

Change END temperature HOLD time?

YES

Press Enter-Key ‘#’

Valid Input: 0 min - 40:00 min

END temperature LED ‘ON’ upper LCD shows END temperature °C lower LCD shows Temperature HOLD time

NO

Input-Mode may be interrupted at any time by pressing the ‘STOP’ key

After program start END temperature and END temperature HOLD time may be changed until END temperature LED is flashing. Thereafter program sequence is active and changes are no longer possible.
4.12 Operating Block F - Vacuum parameters

Select program using keyboard and press Enter-Key '#'

vacuum programmed?

START LED 'ON'
upper LCD shows pump START at °C
lower LCD shows pump STOP at °C or min:sec

LCD-Displays 'OFF'
LED Start/Stop 'OFF'

Input-Mode may be interrupted at any time by pressing the 'STOP' key

Activate Input-Mode with VACUUM Key

flashing START LED
upper LCD shows START value °C
(presetted to PRE-DRYING temperature)

Program VACUUM?

Change START value?

YES

Press Enter-Key '#'

END

NO

Press '''-Key

Input-Mode may be interrupted at any time by pressing the 'STOP' key

Vacuum programmed?

NO

YES

enter value using keyboard and press Enter-Key '#'

Valid Input: 200°C - 1200°C

Invalid entries will result in error message 'Err'

START LED 'ON'
upper LCD shows START value °C
flashing STOP LED
lower LCD shows STOP value °C or min:sec
Invalid entries will result in error message 'Err'.

Valid Input time: 1:00 min - 40:00 min
Valid Input temp.: 200°C - 1200°C

START LED 'ON'
upper LCD shows START value °C
STOP LED 'ON'
lower LCD shows STOP value °C or min:sec.
flashing LED 50% or 80% or 100%

select value with VACUUM Key and press Enter '#'

START LED 'ON'
upper LCD shows START value °C
STOP LED 'ON'
lower LCD shows STOP value °C or min:sec
LED 50% or 80% or 100% 'ON'

E N D

After program start changes of VACUUM values are no longer possible.
After start of vacuum-pump the LCD 'START value' shows the vacuum 0 to -bar.
4.13 Operating Block G - Slow cooling

Select program using keyboard and press Enter-Key ‘#’

YES

cooling programmed?

NO

LCD-Displays ‘OFF’

COOLING LED’s ‘OFF’

COOLING LED ‘ON’

upper LCD shows COOLING temperature in °C

COOLING ‘HOLD’ LED ‘ON’ when programmed

lower LCD shows COOLING ‘HOLD’ in min:sec

Activate Input-Mode with COOLING Key

Input-Mode may be interrupted at any time by pressing the ‘STOP’ key

YES

flashing COOLING LED

upper LED shows COOLING temperature ?? ??

COOLING ‘HOLD’ LED ‘ON’ when programmed

lower LCD shows ‘HOLD’ min:sec

Change COOLING temperature?

YES

enter value using keyboard and press Enter-Key ‘#’

NO

Press Enter-Key ‘#’

Valid Input: 300°C - 1000°C

Invalid entries will result in error messages ‘Err’

COOLING LED ‘ON’

upper LCD shows COOLING temperature ‘C

flashing COOLING ‘HOLD’ LED

lower LCD COOLING ‘HOLD’ shows ?? ??

Change COOLING ‘HOLD’ time?

YES

enter value using keyboard and press Enter-Key ‘#’

NO

Press Enter-Key ‘#’

Valid Input: 0 min - 40:00 min

Select lift position ‘open’ or ‘closed’ using COOLING Key and press ENTER-Key ‘#’

END

After program start COOLING values may be changed until COOLING LED’s are flashing. Thereafter program sequence is active and changes are no longer possible.
5 Adjusting the firing chamber temperature

The VITA VACUMAT 2500 furnace is supplied with a digitally controlled potentiometer for automatic adjustment of the firing chamber temperature. The factory-set temperature test circuit is adjusted as follows: At 1000°C a voltage of 9.25 millivolt may be measured at the built-in thermocouple (PtRhPt). Should the measurements differ during the life of the furnace, the adjustment may be checked and corrected using the supplied program.

The adjustment program is selected as follows:

1. Select program No: 494 and press the "#"-Key

The program displays the following settings:

- Pre-drying temperature: 600°C
- Pre-drying time: 6:00 min
- Heating-up time: 6:00 min
- Final temperature: 1000°C
- Hold-time for final temperature: 5:00 min

2. Press the "Start"-Key

The program starts, parameters may not be changed, the program must be stopped by pressing the "Stop"-Key.

The upper LCD-Display in Block A indicates the temperature of the firing chamber in °C (degrees Celsius). The lower LCD-Display in Block A indicates the value in millivolt.

After two minutes in the hold-phase at a temperature of 1000°C, a short signal sounds which indicates the lift-keys "UP / DOWN" may now be used for adjustment. Using the "UP / DOWN" keys (UP = Increase, DOWN = Decrease), the voltage value may now be adjusted to 9.25 millivolt. At a temperature range of 1000°C a change of 0.01 millivolt causes a change in the firing chamber temperature of 1°C.

6 Protection against power failure

The VITA VACUMAT 2500 is protected against power failure. This backup device is activated immediately in the event of a mains power failure during a firing or stand-by program. If the power failure lasts for less than 20 seconds the program continues. In case of power failure for more than 20 seconds the program is aborted and the following is displayed:

The upper LCD-Display of Block A indicates program time remaining, min:sec. The lower LCD-Display of Block A indicates phase where program was aborted:

- Phase 1 = Pre-drying phase
- Phase 2 = Heating-up phase
- Phase 3 = Hold-temperature phase
- Phase 4 = Cooling phase

Pressing of the "STOP"-key deletes all messages and the furnace is once more ready for use.

Notice: In case of the mains power supply in the laboratory being turned off accidentally with the furnace in operation or on stand-by, the same symptoms as those of a power failure will be indicated after the power resumes.
7 Utilities

All programs listed may be selected by entering the respective program number using the keyboard (BlockH). The selection must be confirmed by pressing the “#”-key. The programs may only be selected if no firing program is active. To stop or cancel a program, press the “Stop”-key.

<table>
<thead>
<tr>
<th>Number</th>
<th>Program</th>
<th>Description</th>
<th>Display</th>
<th>Operating Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>470 + #</td>
<td>Enter time</td>
<td>time-format 12 or 24 hours</td>
<td>lower LCD Block A</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>select with program 473</td>
<td></td>
<td></td>
</tr>
<tr>
<td>471 + #</td>
<td>Enter date</td>
<td>format MM:TT or TT:MM</td>
<td>lower LCD Block A</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>select with program 474</td>
<td></td>
<td></td>
</tr>
<tr>
<td>472 + #</td>
<td>Enter year</td>
<td>4-digit entry</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td>473 + #</td>
<td>Enter time format</td>
<td>Selection 1 = time-format 12 hours</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection 2 = time-format 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>474 + #</td>
<td>Enter date format</td>
<td>Selection 1 = Format MM:TT</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection 2 = Format TT:MM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>475 + #</td>
<td>Display off furnace serial</td>
<td>6 digits maximum</td>
<td>lower LCD Block A+B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td>476 + #</td>
<td>show operating hours</td>
<td>display in hours and minutes</td>
<td>lower LCD Block A+B</td>
<td></td>
</tr>
<tr>
<td>477 + #</td>
<td>show software version</td>
<td>displays software version</td>
<td>lower LCD Block A</td>
<td></td>
</tr>
<tr>
<td>481 + #</td>
<td>stand-by temperature</td>
<td>Entry: 200°C - 800°C</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500°C - 0°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>482 + #</td>
<td>signal on program end</td>
<td>Selection 1 = signals once</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection 2 = permanent signal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>483 + #</td>
<td>program termination with &quot;Stop&quot;-Key</td>
<td>Selection 1 = press &quot;Stop&quot; 2x</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection 2 = press &quot;Stop&quot; 1x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>484 + #</td>
<td>start firing program when</td>
<td>Selection 1 = start when temperature is higher</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td>temperature of firing chamber</td>
<td>stand-by temperature than stand-by temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>is higher than stand-by</td>
<td>Selection 2 = start at stand-by temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>485 + #</td>
<td>set volume</td>
<td>select &quot;0&quot; - &quot;9&quot;</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td>486 + #</td>
<td>brightness of control panel</td>
<td>select &quot;1&quot; - &quot;4&quot;</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td>display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>487 + #</td>
<td>brightness of remote display</td>
<td>select &quot;1&quot; - &quot;4&quot;</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>488 + #</td>
<td>remote display control</td>
<td>Selection 1 = OFF</td>
<td>lower LCD Block B</td>
<td>Keys Info + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selection 2 = ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>489 + #</td>
<td>Initialization</td>
<td>all factory-set time/date values are read into</td>
<td>lower LCD Block B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>memory (standard settings)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>491 + #</td>
<td>Liftpositions: Pre-Drying and</td>
<td>Pos.1, 1st pre-drying step Value 0 - 100</td>
<td>lower LCD Block A+B</td>
<td>Keys Block H + Save:</td>
</tr>
<tr>
<td></td>
<td>Cool-Down</td>
<td>Pos.2, 2nd pre-drying step Value 30 - 180</td>
<td></td>
<td>Key &quot;#&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pos.3, 3rd pre-drying step Value 50 - 250</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pos.4, cool-down step Value 30 - 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inv. = intervall time Value 10 - 60 sec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>492 + #</td>
<td>Lift speed</td>
<td>select S up 0 - 99</td>
<td>lower LCD Block B</td>
<td>Keys Block H + #</td>
</tr>
<tr>
<td></td>
<td></td>
<td>select S down 0 - 99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Factory settings

#### 8 Changing the muffle

- **Only to be carried out by a qualified service technician!**
- **Contact your VITA dealer or authorized service personnel!**

**Switch off furnace and disconnect from the mains power supply!**

1. Unscrew the four screws on the sides of the top casing of the furnace.
2. Remove top casing of the furnace.
3. Disconnect earthed conductor wire from top casing of furnace.
4. Unscrew and remove top cover of firing chamber.
5. Disconnect all wires from the thermocouple.
6. Lift out insulation stone complete with thermocouple.
7. Disconnect the wires from the defective quartz glass spiral muffle and then lift it out.
8. Place new muffle into position, then reassemble the furnace in reverse order to that given above.

**CAUTION:** Do not forget to reconnect the earthed conductor wire to the furnace top casing!
9 Error messages

The VITA - VACUMAT 2500 furnace is equipped with a self-checking system which detects and indicates possible errors. The following error messages may occur:

Err 1 The required i.e. the preselected temperature has been exceeded by 80°C.
   1. Hardware failure, change CPU-board

Err 2 Rupture of thermocouple
   1. Defective temperature sensor, change thermocouple

Err 3 Error in vacuum system
   1. Check and clean lift plate seal and lower edge of firing chamber
   2. Check/change seals at firing chamber connections.
   3. Check vacuum pump, change of membran and/or valve flap may be required.

Err 4 Furnace does not heat
   1. Check/change fuse back of furnace
   2. Check/change firing muffle

Err M Should the lift not have reached ist upper or lower within a certain time, the error message „errM“ will appear in flash mode in the temperature indicator °C. At the same time, this monitors the micro-switches for the upper lift positions.

The error message „err M“ will also appear if the microswitch contact is defect. To delete the error message „err M“, press „STOP“ key. The time lapse until this error message appears can be set using program 901 and key #. The time value can be selected in the range 10 - 20 seconds; the factory-stored value is 15 seconds. The time selected must be longer than the time the lift drie takes to move from the lower to the upper position. If the time is too short, the motor will switch off too early and the lift will be unable to reach ist end position. In case of incorrect input of program parameters, a short signal indicates the error and the last valid input is assumed. In order to recognize the reliable closing contact of the microswitches, the debounce-time is set via program no. 902 and key #. The range for the setting is 2 - 10 (number x 15 msec. = debounce time ). The factory-set value is 3. This setting should not be altered.

In case of incorrect input of program parameters, a short signal indicates the error and the last valid input is assumed.

In case of recurring “Err“-Messages after Power OFF/ON, please contact the VACUMAT service Department of your local VITA distributor.

10 Additional service advice

Daily usage of the VITA VACUMAT 2500 is highly demanding. Due to external influence, such as very fine dust, the lift drive system needs to be cleaned regularly with a dry cloth.

The following problems/changes may be solved using the supplied utilities (see pages )

1. Lift drive too slow: Program 492 increases/decreases the lift speed.
2. Change lift position “Pre-Drying” and “Cooling”: Program 491 will change the respective positions.

For servicing, the VITA VACUMAT 2500 may only be shipped in special packing cases. If the original packing case is unavailable, special packing cases may be ordered from your local VITA distributor.
### 11 Firing cycle charts

#### VITA OMEGA

<table>
<thead>
<tr>
<th>Progr. no.</th>
<th>Pre-Drying °C</th>
<th>Temp. approx °C</th>
<th>Vac min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidation firing</td>
<td>1</td>
<td>Follow manufacturer’s instructions</td>
<td></td>
</tr>
<tr>
<td>NEW (1) 1st opaque firing (powder)</td>
<td>2</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>1st opaque firing (paste)</td>
<td>52</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>NEW (1) 2st opaque firing (powder)</td>
<td>3</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>2st opaque firing (paste)</td>
<td>53</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>Dentine firing</td>
<td>4</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>2nd dentine firing</td>
<td>5</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>3nd dentine firing</td>
<td>6</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>Glaze firing</td>
<td>7</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Glaze firing with VITACHROM DELTA Fluid / Akzent Fluid</td>
<td>8</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing with Glasurmasse 740 / Azk 25</td>
<td>9</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Margin porcelain firing &quot;MARGIN=&quot;</td>
<td>10</td>
<td>600</td>
<td>6.00</td>
</tr>
</tbody>
</table>

(1) = Firing of opaque porcelains marked with an asterisk at approx. 20°C higher.

#### VITA OMEGA 900

<table>
<thead>
<tr>
<th>Progr. no.</th>
<th>Pre-Drying °C</th>
<th>Temp. approx °C</th>
<th>VAC min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidation firing</td>
<td>41</td>
<td>Follow manufacturer’s instructions</td>
<td></td>
</tr>
<tr>
<td>1st opaque firing (powder)</td>
<td>42</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>1st opaque firing (paste)</td>
<td>54</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>2st opaque firing (powder)</td>
<td>43</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>2st opaque firing (paste)</td>
<td>55</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>Dentine firing</td>
<td>44</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>2nd dentine firing</td>
<td>45</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>3nd dentine firing</td>
<td>46</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>Glaze firing</td>
<td>47</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Glaze firing with VITACHROM DELTA Fluid / Akzent Fluid</td>
<td>48</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing with Glasurmasse 740 / Azk 25</td>
<td>49</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Margin porcelain firing &quot;LUMINARY&quot;</td>
<td>50</td>
<td>600</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Alloys with a thermal expansion coefficient ≥ 14.5 x 10⁻⁶ x K⁻¹ should be fired using slow cooling from the 1st dentine firing onwards. Slow cooling from firing temperature to starting temperature should take no less than 5 minutes. This increases the leucite content in the metal ceramic and raises the thermal expansion coefficient of the ceramic.
### VITA VMK 95

<table>
<thead>
<tr>
<th>Progr. no.</th>
<th>Pre-Drying °C</th>
<th>Temp. approx. °C</th>
<th>VAC min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidation firing</td>
<td>11</td>
<td>Follow manufacturer's instructions!</td>
<td></td>
</tr>
<tr>
<td>1st opaque firing (powder)</td>
<td>12</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>1st opaque firing (paste)</td>
<td>52</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>2st opaque firing (powder)</td>
<td>13</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>2st opaque firing (paste)</td>
<td>53</td>
<td>500</td>
<td>6.00</td>
</tr>
<tr>
<td>Dentine firing</td>
<td>14</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>2nd dentine firing</td>
<td>15</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>3nd dentine firing</td>
<td>16</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>Correction porcelain firing CORRECTIVE</td>
<td>17</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing</td>
<td>18</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Glaze firing with VITACHROM DELTA Fluid / Akzent Fluid</td>
<td>19</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing with Glasurmasse 740 / Akz 25</td>
<td>20</td>
<td>600</td>
<td>4.00</td>
</tr>
</tbody>
</table>

*) = Enter program number yourself

### VITA VMK 68

<table>
<thead>
<tr>
<th>Progr. no.</th>
<th>Pre-Drying °C</th>
<th>Temp. approx. °C</th>
<th>VAC min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidation firing</td>
<td>21</td>
<td>Follow manufacturer's instructions!</td>
<td></td>
</tr>
<tr>
<td>1st opaque firing</td>
<td>22</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>2st opaque firing</td>
<td>23</td>
<td>600</td>
<td>2.00</td>
</tr>
<tr>
<td>Dentine firing</td>
<td>24</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>2nd dentine firing</td>
<td>25</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>3nd dentine firing</td>
<td>26</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>Glaze firing</td>
<td>27</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Glaze firing with VITACHROM DELTA Fluid / Akzent Fluid</td>
<td>28</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing with Glasurmasse 740 / Akz 25</td>
<td>29</td>
<td>600</td>
<td>4.00</td>
</tr>
</tbody>
</table>

VMK 68 N porcelains should all be fired at approx. 10°C higher.

### VITADUR ALPHA

<table>
<thead>
<tr>
<th>Progr. no.</th>
<th>Pre-Drying °C</th>
<th>Temp. approx. °C</th>
<th>VAC min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard core porcelain</td>
<td>31</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Dentine firing</td>
<td>32</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>1st +2st correction firing</td>
<td>33</td>
<td>600</td>
<td>6.00</td>
</tr>
<tr>
<td>Glaze firing</td>
<td>34</td>
<td>600</td>
<td>---</td>
</tr>
<tr>
<td>Glaze firing with VITACHROM DELTA Fluid / Akzent Fluid</td>
<td>35</td>
<td>600</td>
<td>4.00</td>
</tr>
<tr>
<td>Glaze firing with Glasurmasse 740 / Akz 25</td>
<td>36</td>
<td>600</td>
<td>4.00</td>
</tr>
</tbody>
</table>
Soldering in the VITA VACUMAT

**Method 1**

Preheat the restoration, complete with flux and beads solder, in a preheating furnace for 15 – 20 min. at 400°C.

**Program no. 93**

Set final temperature by adding 50 °C to melting point of solder.

- Pre-drying time: 5.00 min
- Heating-up time: 5.00 min
- Hold time: 3.00 min

**Method 2**

Preheat the restoration, with flux but without solder, in a preheating furnace for 15 – 20 min. at 400°C.

**Program no. 94**

Set final temperature by adding 50 °C to melting point of solder.

- Pre-drying time: 1.00 min
- Heating-up time: 3.00 min
- Hold time: 4.00 min