User's Manual for the Automated Denture Furnace for Metal Ceramics

DENTAMATIC 500/CHAMELEON-M

The furnace is designed for production of metal ceramic teeth as well as for other denture operations. This is a fully automated vacuum furnace with microprocessor control. It has 100 standard programs each of which can be edit.

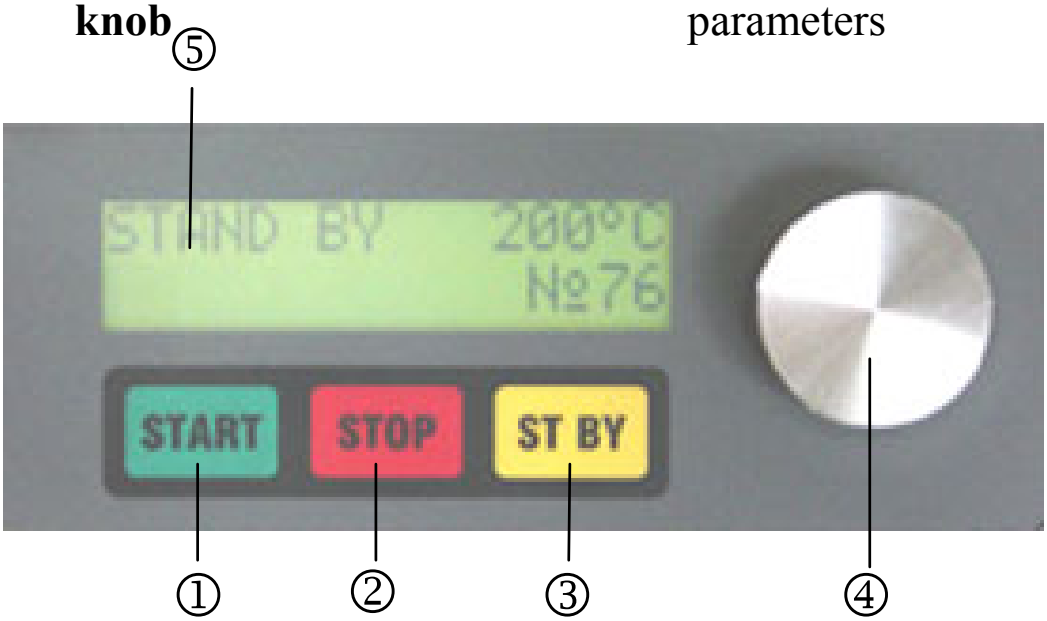
TECHNICAL DATA

- Power supply – AC 220V/50÷60Hz or 110V/60Hz Hz;
- Admissible variation of the supply voltage +10, – 5%;
- Maximum power consumption (without pump) – 1350 W;
- Average power consumption in operation – approx. 300 W;
- Pump power consumption – max 270 W;
- Overall dimensions 530mm/230mm/230mm;
- Weight – approx. 11,5÷14 kg;
- Number of the programmes – 100;
- Software protection against heater damage in case of thermal sensor failure;
- Diameter of the production chamber – 92 mm;
- Height of the production chamber – 80 mm;
- Maximum speed of temperature increase – 200°/min;
- Operation in °C or °F
- Controllable Stand-by mode (StandBy) 100÷600°;
- Number of the admissible starts per 24 hours – unlimited;
- Automatic thermal calibration at every start of program;
- PC control;
- Thread thermal calibration (option);
- Average life-expectancy of the muffle and the heater (quartz protected) – 10 years.

OPERATION INSTRUCTIONS

1. Buttons and knobs

START	–	Starts a process
STOP	–	Stops a process
ST BY	–	Maintains the preset stand-by temperature
Multifunctional rotary knob	_	Menu navigation and editing parameters



① **START** button
② **STOP** button
③ **ST BY** button
④ Multifunctional knob
⑤ LCD display

2. Programming

2.1. Turn the furnace power supply on using the switch on the right side. The furnace performs an automatic calibration after each start. After that the furnace display Stand By temperature and number of last program.

2.2. Programming:
Press the button STOP. The door opens to its lowermost position. On LCD shows “STOP”, temperature of the furnace and number of the program. You may choose number of the program with turning of the knob and push the knob to edit a program. Turn the knob to choose a parameter and press it to edit value (arrows around parameter start flicking). Press the knob to confirm changes.

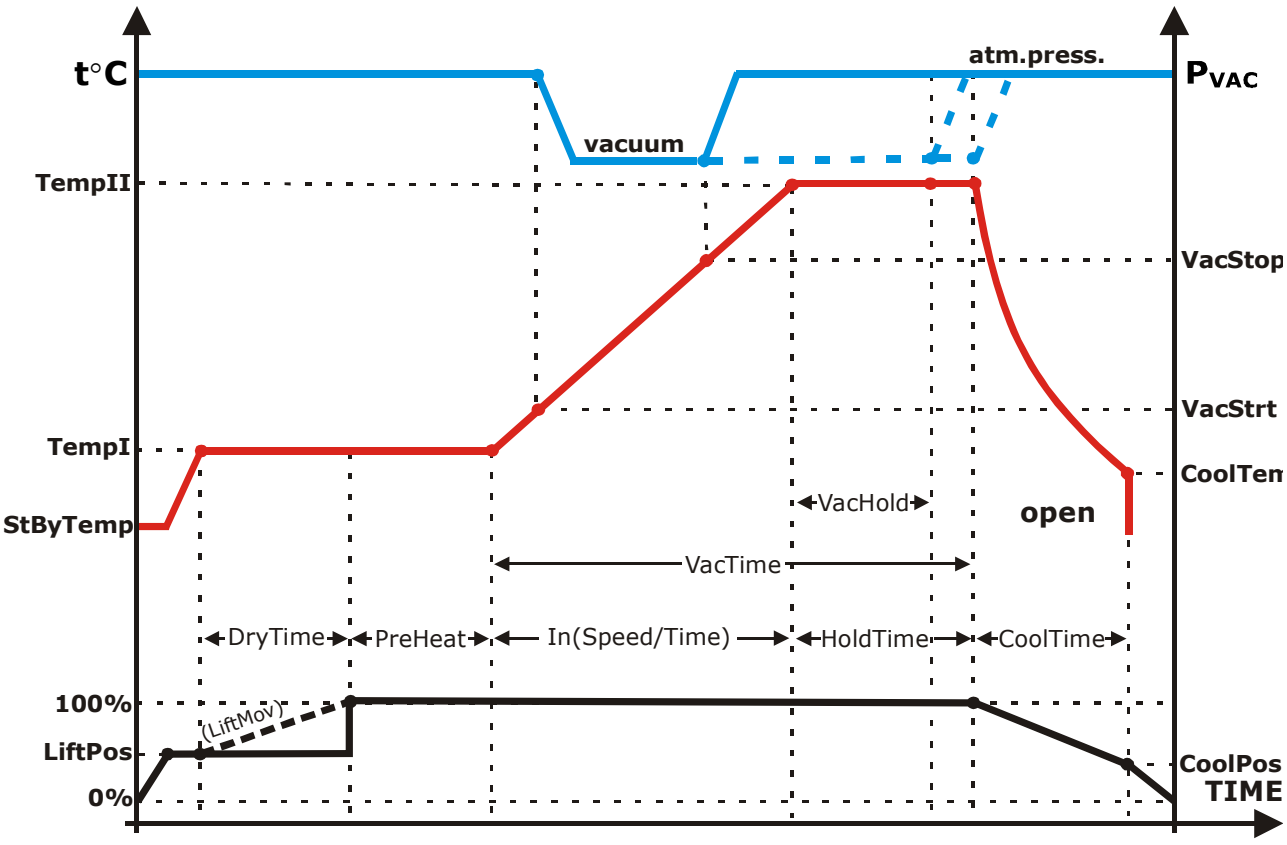
Par.	Description	Value
DryTime	Drying time	0÷16min
Liftpos	Lift position in %	0÷100%
LiftMov	Lift move during drying	Yes, No
PreHeat	Preheating time	0÷16min
TempI	Temperature of the beginning of the temperature increase	Stby÷TempII-40°C TempI max=700°
In	Increase temperature – by speed and by time	By speed, By time
	In(Time) Increase temperature by time	1 ÷90min
	In(Spd) Increase temperature by speed	5°÷200°C/min
TempII	Final temperature	TempI+40°C÷1050°C TempII min=600°C
HoldTime	Final temperature hold period in minute	0÷90min
Vac	Vacuum by: - Time - Temperature - Vacuum start by temperature and stop by time.	
	VacStart – Vacuum start temperature	TempI÷VacStop-40°C
	VacTime – Vacuum time	00:00÷InTime+HoldTime
	VacHold – Vacuum hold time	00:00÷HoldTime
	VacStop – Vacuum stop temperature	VacStart+40°C÷TempII
	Vacuum Off	OFF
CoolTime	Cooling time	0÷16min
	CoolPos – Lift position for cooling	0÷100%
	CoolTemp – Cooling by temperature	100°C÷700°C
Sb	Stand-By temperature	100÷600°
Co	Temperature correction for the particular programme	-25÷0÷25°C

The furnace Dentamatic500/Chameleon-M for metal less working has additional programs A, B, C, D, E and F. For this programmes the times DRY time, In (time), Hold and Cooling are in format hh:mm, where hh are hours and mm are minutes, in contrast to a usual program with format mm:ss.
In these additional programs the limitation of step time is up to 10 hours. The display shows the time in hh:mm.
Note: There is not vacuum in the additional programs.

2.3 Starting

- Turn the furnace on
- Press the STOP button
- Select the number of the desired programme by the rotary knob.
- Press the START button. The furnace performs automatic calibration after each program start

!!! If the temperature in the chamber is higher than the first temperature, the furnace awaits falling the temperature. Press the button START for the second time if you want to speed up this performing.



3. User information menu

Press and hold the knob and turn the furnaces on.
Turn the knob and you can select:

Serial№ - Furnace serial number
Firmware - Version
Cycles - Counter of the furnace cycles
Lang - Language (English)
Temp.Units - Temperature scale °C/°F
Sound - Sound – On and Off
Tempcorr - Temperature correction for all programs (-25÷+25°C)
Cal - Calibration of the furnace. You can choose:
Original – producer's temperature calibration
Thread – Thread calibration. You can choose own calibration.
Thread Test - Thread test
Press the knob to start the thread calibration.

The parameters Serial№, Cycles and Lang are for information only.
Press the button STOP to leave this programme mode.

4. Displayed messages and causes

4.1 LIFT OVERLOAD

It is displayed if the lift is overload i.e. the motor power has very high value. It is possibly with a mechanic problem (tight-fitting belt).

4.2 MOTOR PROBLEM

It is displayed if there is program lift moving but there isn't a change in lift position. Probably a damage position sensor.

4.3 MICRO SWITCHES PROBLEM

It is displayed if one or and two micro-switches of the lift are damage.

4.4. THERMO COUPLE PROBLEM

It is displayed if there is a damage sensor of the temperature (thermocouple)

4.5 TEMPERATURE OVER LIMIT

It is displayed if the temperature in the chamber exceeds maximum permissible temperature of the furnace. Then the heater is going turn off by protect relay.

4.6 CHAMBER NOT HERMETIC

It is displayed while the furnace is trying turn on the vacuum pump without a close chamber. Probably a damage upper micro-switch of the lift.

4.7 Vac Off

During the performance of the program, before the lift opening from stopping of the vacuum pump, have to pass 25sec. If this time is not pass, the performing of the program is blocked and the furnace display a message VacOff and the time up to opening, accompany with a sound signal.

4.8 PRESSURE TOO LOW

It is displayed if the furnace tray to open the chamber while the pressure is low. After stop of the vacuum pump there is 30 seconds before open of the chamber. After time is up the chamber is going open.

4.9 AC POWER FAIL

It is displayed at the end of program if during the performance there has been a power supply failure.

4.10 AC Power Off

If is displayed if has been a power supply failure. Usually it is difficult to see this message. If there is low voltage the furnace displayed this message. Another reason is a lift problem i.e. consumption of the motor increase for a short time.

WE WISH YOU PLEASANT AND SUCCESSFUL WORK WITH DENTAMATIC500/CHAMELEON-M!