# FIRING OVEN

# DEGETHERM LAB

## INSTRUCTIONS FOR USE


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DEGETHERM OVENS are fully programmed firing ovens for use in prosthetic dentistry, as well as metal processing and other industries, laboratories, and educational institutions. The ovens are manufactured to meet the European standards. They boast low power consumption and a wide range of possibilities regarding the selection of time and rate of heating.

## 1 TECHNICAL INFORMATION

DEGETHERM type: LAB4, LAB6, LAB9

- Voltage: 230 V, 50 Hz
- Power and dimensions of the operating chamber (width, depth, height)
  LAB4: 2.1 kW, 150 x 150 x 110 mm
  LAB6: 2.6 kW, 200 x 200 x 130 mm
  LAB9: 3.0 kW, 250 x 230 x 150 mm
- Heating range: 0 ºC do 1200 ºC
- Thermoelement: Alumel-Chrome (Ni-CrNi) type K
- Heating rate: adjustable from 1 to 10 degrees per minute
- Temperature measurement accuracy: +/-1 °C
- Number of programs: 9 programmable/fully customizable programs
- Each program has 9 segments/sub-programs

## 2 SAFETY PRECAUTIONS

**Warning**


**Prohibition**

**High temperature**

**WARNING!**

Before connecting the appliance to the power mains or before the first use, carefully read the instructions for operation, programming, and connection.

For correct and safe operation of the appliance, please also comply with all instructions and precautions. If the oven and the regulator are used in a way that is not described in these instructions, protection of the user and the measuring circuit must be provided.

Before connecting the appliance, make sure the power mains voltage complies with the specifications of 230 V +/- 5% / 50 Hz. The appliance may be connected to the power mains via a single-phase outlet with a protection ground contact. The supply cable for such outlet shall be laid directly from the distribution board on which is shall be protected with a 16 A fuse. We also recommend an additional safety precaution with a 30 mA current differential switch. Cable cross section is 3 x 2.5 $mm^2$.


**WARNING!**


Do not connect the appliance via extension cables or power strips (extension blocks)! Before any maintenance or repair work, remove the plug from the power outlet. Any task that involves opening of the appliance casing may only be carried out by an authorized service technician. If this provision is breached, the warranty shall be void.
After a repair, the appliance shall be tested for dielectric strength and the protection conduit shall be inspected. In case of a malfunction after which safe operation of the appliance can no longer be guaranteed, any inadvertent further use of the appliance should be prevented.

Sides of the furnace must be moved away from the wall min. 100 mm, exceptions are in case of placing it in special fireproof chambers.
In areas where the furnace is installed it is not permitted to also store flammable or explosive materials.

## Oven rear side view

## 3 OVEN START-UP

Before connecting the oven, check the mains voltage: 230V +/-5% / 50 Hz – if these specifications are not met, the oven may not be switched on.
Connect the network cable to the socket protected with a 16 A fuse and a 30 mA differential switch.
The appliance may only operate at environment temperature of 0 – 30°C.

This symbol indicates that the temperature on the surface of the appliance may exceed 80°C. Touching the appliance may lead to burning. Oven door may only be opened using the wooden handle on the lever.

When the oven is hot, close the door immediately after removing the cuvette. The oven may not be forcefully cooled by opening the door as this will result in additional heating of the exterior surface. Furthermore, when the door is open, temperature in the oven interior cannot be reliably estimated which in turn could lead to burns.

## 4 FIRST USE OF THE OVEN

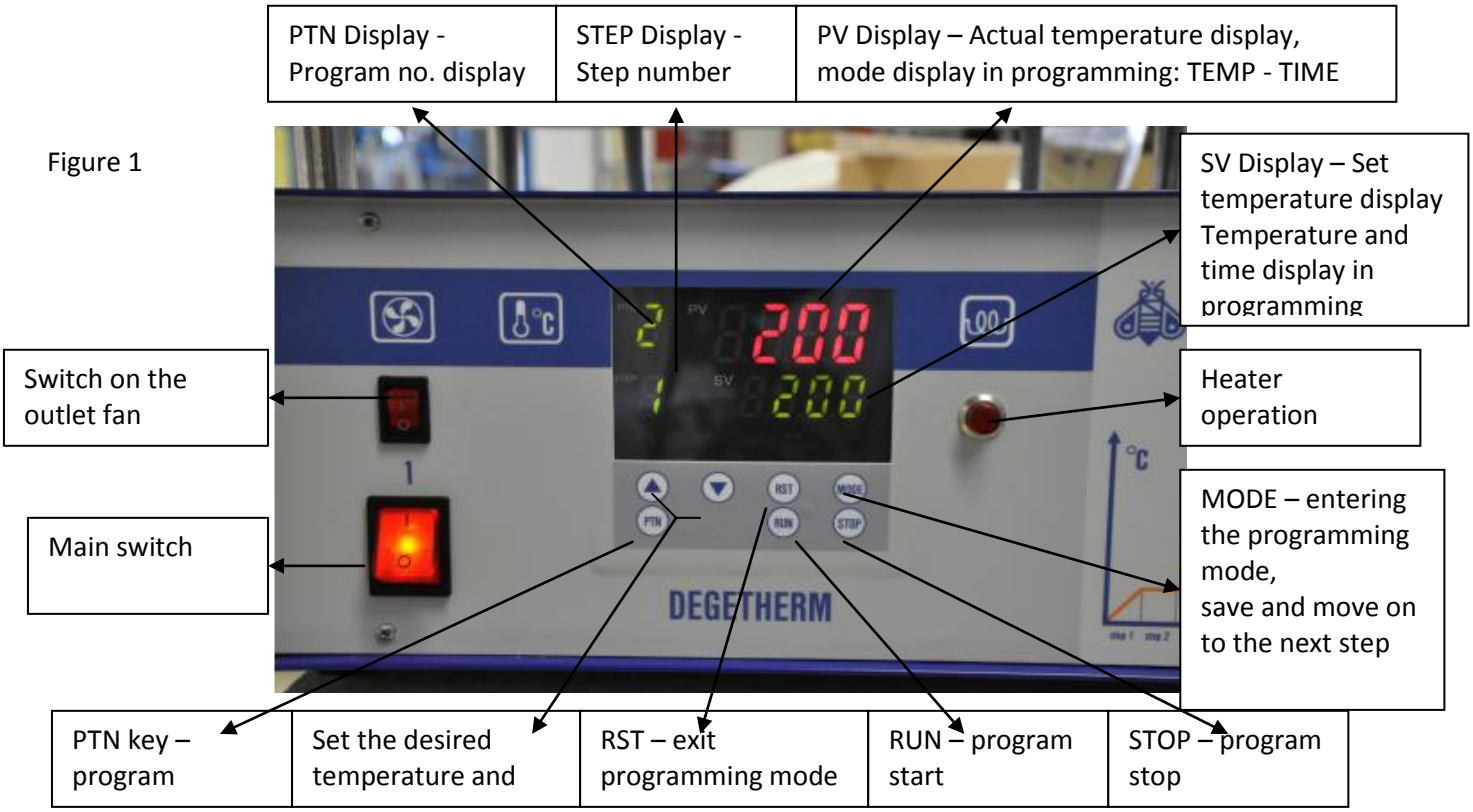
Before permanent use, a new oven must be dried at a temperature of 200–300 °C for approximately three hours. This will cause any residual moisture from the insulation material to evaporate. After the drying process, the oven can be used normally, without any further or repeated drying.
Re-drying is only required when the oven is out of use for a long period of time and it is exposed to humidity from the environment.

## 5 OVEN PROGRAMMING

The oven can be programmed in 9 programs with each program consisting of up to nine steps.

### 5.1 Front panel description

Figure 1

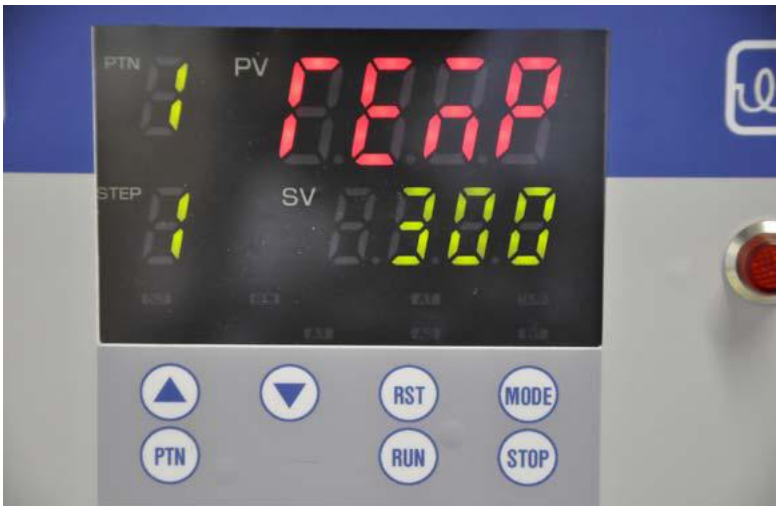


## 5.2 Program entry

- Press the PTN key to select the program number.
- Press the MODE key.

The regulator will switch to programming mode (Figure 2).

Figure 2




- Use the ↑↓ keys to set the desired temperature in step 1. (SV Display)
- Press the MODE key.

The regulator will save the set value and move on to the temperature increase time programming mode (Figure 3).

Figure 3

- Use the ↑↓ keys to set the time in which the temperature is to rise to the set level in the first step (SV Display).

***WARNING! Temperature increase time can be set to a maximum of 10°C per minute.***
***If a higher value is set, the oven will switch off automatically.***

- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold programming in step 2 (Figure 4).

Figure 4


- Use the ↑↓ keys to set the same temperature value in step 2 as in step 1 (Figure 2), (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold time programming mode in step 2 (Figure 5).

Figure 5

- Use the ↑↓ keys to set the temperature hold time in step 2 (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the desired temperature programming mode in step 3 (Figure 6).

Figure 6


- Use the ↑↓ keys to set the desired temperature in step 3. (SV Display)
- Press the MODE key.

The regulator shall save the set value and move on to the temperature increase time programming mode in step 3 (Figure 7).

Figure 7


- Use the ↑↓ keys to set the temperature increase time in step 3 (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the desired temperature programming mode in step 4 (Figure 8).

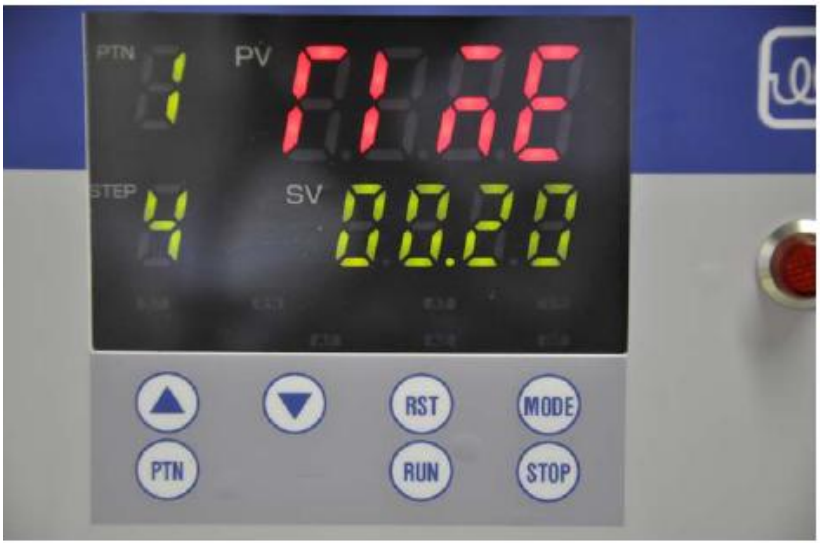
***ATTENTION! Temperature increase time can be set to a maximum of 10°C per minute.***
***If a higher value is set, the oven will switch off automatically.***

Figure 8


- Use the ↑↓ keys to set the same temperature value in step 3 as in step 4 (Figure 6), (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold time programming mode in step 4 (Figure 9).

Figure 9



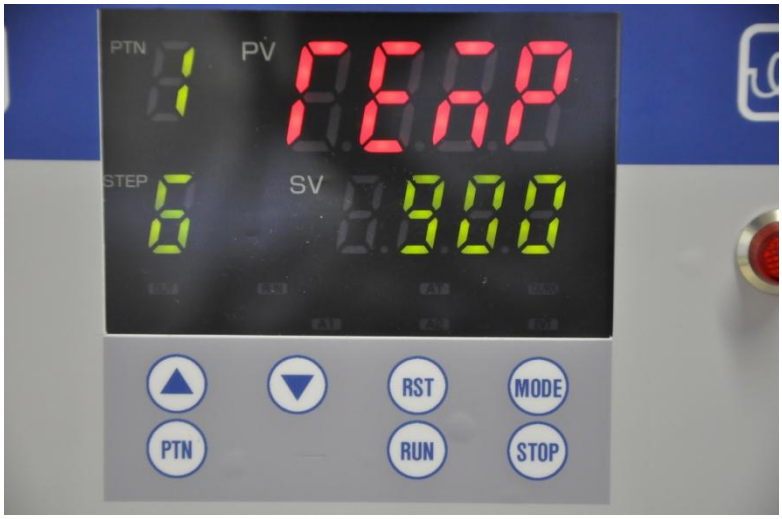

- Use the ↑↓ keys to set the temperature hold time in step 4 (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the desired temperature programming mode in step 5

- Continue with the programming process in the same way in the subsequent steps.

- In the last step, use the ↑↓ keys to set the final temperature (Figure 10) (SV Display).

Figure 10




- Press the MODE key.

The regulator shall save the set value and move on to the temperature increase time programming mode in the last step (Figure 11).

Figure 11


- Use the ↑↓ keys to set the temperature increase time in the last step (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the desired temperature programming mode in the last step (Figure 12).

***ATTENTION! Temperature increase time can be set to a maximum of 10°C per minute.***
***If a higher value is set, the oven will switch off automatically.***

Figure 12


- Use the ↑↓ keys to set the same temperature value in the last step as in the previous step (Figure 12), (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold time programming mode in the last step (Figure 13).

Figure 13


- If "- - - -" is selected on the SV display (Figure 13), then the temperature will be held for an indefinite period of time.
- If a time is set on the SV display (Figure 14), then the oven will hold that temperature until the set time expires and then switch off automatically.

Figure 14


- On other available programs, set all values to "0" (Figure 19).

## 5.3 Entering a program without any program steps for a quick temperature rise to the final value

- Use the PTN key to select the program number.
- Press the MODE key.

The regulator will switch to programming mode (Figure 15).

Figure 15


- Use the ↑↓ keys to set the desired temperature in step 1. (SV Display)
- Press the MODE key.

The regulator will save the set value and move on to the temperature increase time programming mode (Figure 16).

Figure 16


- Use the ↓key to set the time in step 1 so that the dashes appear on the display ("- - - -") (Figure 16) (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold programming in step 2 (Figure 17).

Figure 17


- Use the ↑↓ keys to set the same temperature value in step 2 as in step 1 (Figure 17), (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold time programming mode in step 2 (Figure 18).

Figure 18


- If "- - - -" is selected on the SV display (Figure 18), then the temperature will be held for an indefinite period of time.
- If a time is set on the SV display (Figure 14), then the oven will hold that temperature until the set time expires and then switch off automatically.
- On other available programs, set all values to "0" (Figure 19).

Figure 19


## 5.4 Programming delayed oven start

If you wish the oven to be heated to the final temperature at a certain time the next morning, first calculate the duration of the desired program and then define the time after which the oven should be started. Follow these steps:

- Use the PTN key to select the program number.
- Press the MODE key.

The regulator will switch to programming mode (Figure 20).

Figure 20


- Set a lower temperature, e.g. 30°C.
- Press the MODE key.

The regulator will save the set value and move on to the temperature increase time programming mode (Figure 21).

Figure 21


- Use the ↑↓ keys to set the same temperature value in step 2 as in step 1 (Figure 2), (SV Display).
- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold time programming mode in step 2 (Figure 22).

Figure 22


- Press the MODE key.

The regulator shall save the set value and move on to the temperature hold programming in step 2 (Figure 23).

Figure 23


- Use the ↑↓ keys to set the desired delay time in step 2 (SV Display).
- In the following steps, program the firing program as described in the instructions above.

## 6 PROTECTION MEASURES

Never clog, close, or cover the flue. The flue may be extended. In addition, a fan may be connected to it and the flue may be connected to an external chimney.
Gasses released during the melting of wax should be evacuated from the room in which the oven is operating by means of a fan or a chimney. The temperature of these gasses in normal operation does not exceed 100°C.
There should be a clearance of at least 100 mm between the wall and the oven rear wall, except in special chambers (fume cupboards/hoods) with fire-proof walls and ventilation devices. Do not store any flammable materials in the room where the oven is installed.


Do not heat explosive or easily combustible materials, gasses, or fluids.

Any intervention into the oven is only allowed when the heating chamber is completely cooled down. If the oven chassis comes into contact with aggressive fluids, it should be thoroughly rinsed and wiped with a cloth soaked in water. Before heating, the exterior and interior of the oven must be thoroughly dried.

Please comply at all times with the instructions provided by the manufacturer of the materials being heated, with regard to heating, temperature, and timing.
When handling with a hot oven (inserting and removing cuvettes), use the special purpose metal pliers and burn-proof gloves.

## 7 FAN OPERATION

The fan can be connected to the oven flue (chimney), and to the 230 V socket (max. 800 W) on the rear side of the oven. The fan is switched on manually using the outlet fan switch (Figure 1).

## 8 NOTES

Before permanent use, a new oven must be dried for at least three hours at a temperature of 200–300°C.

Protective ceramic board is a constituent part of the oven and all objects should be fired on that board.

## 9 FAULTS

- **No light comes on when the main switch is engaged:**

  - Check if there is voltage in the socket.

- **No light on the display comes on when the main switch is engaged:**

  - Check the 2A control fuse on the oven rear wall.
  - If a recently replaced fuse is blown again, call an authorized service center.


**ATTENTION: When replacing the fuse, the oven must be disconnected!**

- **Heater operation light is not lit up and it does not flash after the program is started** (*Figure 1*).

  - Check the main 16 A fuse which should be in the upper position.
  - If the fuse does not remain in the upper position, call an authorized service center.
  - Make sure the door of the heating chamber is closed. When opening or closing of the door, the activation/engagement of the contactor should be audible.
  - If the door lock mechanism does not function properly, call an authorized service center.

- **Despite normal operation of the control panel and signal lights, the oven remains cool:**

  - Heater circuit is broken/disconnected.
  - Safety thermal fuse
  - Call an authorized service center.

- **Instead of the temperature, the display reads dashes or a very high number (e.g. 9999):**

  - Thermoelement or thermoregulator error
  - Call an authorized service center.

- **If you establish that the temperature in the oven is too high or too low, relative to the set/desired temperature:**

  - Too low power mains voltage
  - Worn out thermoelement
  - Incorrect operation of the thermoregulator
  - Call an authorized service center.

- **On teh display is shown alert A2:**

  - To high temeprature in the oven (nad 1250ºC)
  - Thermoelement or thermoregulator error
  - Turn the oven off nad call an authorized servis center.

## 10 TRANSPORT OF THE FURNACE

- The furnace can only be transported when cooled down to the room temperature.
- From the heat chamber remove the ceramic pedestal
- The door should always be closed
- Be careful the furnace is stable during the transport.
- Furnace weights 45 kg.

## 11 ES – DECLARATION OF CONFORMITY

According to article no. 7. in Annex 2 and point A: Regulation on Machinery Safety (UL RS 75/08)

**Producer:**

INTERDENT d.o.o.
Dol 1, 3342 Gornji Grad

**Person who compiles the technical file:**

**Igor Grudnik**
Dol 1, 3342 Gornji Grad

Product description:

**Firing furnace Degetherm LAB4, LAB6 in LAB9**

**Documentation number: 186**
**Year of production: 2012**

We declare that the products below are in accordance with the following directives:

Directive for electromagnetic compatibility (UL RS 84/01, 32/02, 132/06)
Directive for machinery safety (UL RS 25/06, 75/08)
Directive for electrical equipment (UL RS 27/04)
EMC 2004/108/ES
LVD 2006/95/ES
MD 98/37/ES

and harmonized standards SIST:

| | |
|---|---|
| Machinery safety – Basic conceptsi, general planning prinicipals – 1. part: Basic terminology, methodology | EN ISO 12100-1 |
| Machinery safety – Basic conceptsi, general planning prinicipals – 2. part: Technical principles | EN ISO 12100-2 |
| Machinery safety – Evaluation and reduction of the radiation risk, emitted by the machines – 1. part: General principals | EN 12198-1 |
| Machinery safety – Ergonomic requirements for the display design and contros switches – 1.part: General principals about nteraction between human and displays and control switches | EN 894-1 |
| Machinery safety – Ergonomic requirements for the display design and contros switches – 2. part: Displays | EN 894-2 |
| Machinery safety – Ergonomic requirements for the display design and contros switches – 3. part: Control switches | EN 894-3 |
| Machinery safety – Fuse – General requirements for design and construction of fixed and movable guards | EN 953 |
| Machinery safety – Prevention of unexpected start-up | EN 1037 |
| Machinery safety – Electrical equpement of the machines – 1. part: General requirements | EN 60204-1 |
| Electromagnetic compatibility – General emission standard – 2. part: Industrial environment | EN 50081-2 |
| Electromagnetic compatibility – General emission standard – 2. part: Industrial environment | EN 50082-2 |

| Place and date of issue of the declaration | Stamp of the manufacturer | Signature of responsible person: |
|---|---|---|
| Gornji Grad, 01.12.2012 | INTERDENT d.o.o SI • 3000 CELJE • Opekarniška cesta 26 | |

## 12 WARRANTY FOR PRODUCT: LAB4, LAB6 in LAB9

Product: DEGETHERM LAB
Serial number. ……
Date of sale: ……
Signature of the seller: …….

**Warranty declaration:**

- The product will work flawless during the warranty period if being administered in accordance with its purpose and the instructions provided;
- Warranty period expires after 12 months from purchase day. At your request we will repair failure or defects on the product, if you will report it within the warranty period. Failure will be resolved free of charge within 45 days from the date of failure report. The product, which will not be repaired within this deadline, will be, at your request, replaced with a new one. We will extend the warranty period for the time the product was being repaired..
- Validity of the warranty should be proofed by certified warranty card and original invoice.

**The warranty is voided:**

- If an unauthorized person interferes into the device
- If provided instructions for use are not being considered
- If the device is being mechanically injured
- If the unoriginal spare parts are being build in