Operating Guide
Laboratory furnace

English

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Contents

Important basic information

Limitation of liability

The contents of this Operating Guide was created based on applicable laws and standards.
The device has been developed according to the latest technology.

The manufacturer does not accept liability for damages, that may result from:

⚠ *Disregard for/non-observance of the information in the Operating Guide*

⚠ *Intentional false use*

⚠ *Use for purposes other than intended*

⚠ *Use by untrained personnel*

⚠ *Use by non-specialists (in performance of maintenance works, etc.)*

⚠ *Technical changes made to the device, that have not been authorized by the manufacturer*

⚠ *Use of replacement parts, that have not been approved by the manufacturer*

Responsibility of the user

⚠ *The device is intended for commercial use. The user of the device is therefore subject to legal obligations with regard to workplace safety.*

In addition to the safety tips found in this operating guide, the applicable safety, accident prevention, and environmental regulations for the operation of the device must be complied with.

In particular in this regard:

- The user must be informed about the applicable labor safety directives and be able to determine additional dangers in a risk assessment, that may arise in the special work conditions of the device in its place of use. These must be implemented in the form of operating procedures for the operation of the device.
- The user must clearly regulate and define the responsibilities in the installation, operation, maintenance and cleaning.
- The user must make sure that all colleagues who handle the device have read and understood this operating guide.
- The personnel must also be trained at regular intervals and be informed about the possible dangers that may occur when handling the device.
- The operator must allocate the required protective device to personnel.
- The operator must assure that the maintenance intervals described in this operating guide are being complied with.
- The operator must regularly review all safety provisions for their functionality and integrity.

Documentation

Contents and construction

This operating guide is a part of this device. It contains directions and information for the safe handling of the device and must be made available to any user for the entire service life of the device.

This operating guide is intended for trained service personnel.

Identification concept for integrated texts and references

The following reference types are used:

DANGER

An immediate threat of danger that could lead to severe injuries or death.

WARNING

A possibly dangerous situation that could lead to severe bodily injuries or death.

CAUTION

A possibly dangerous situation that could lead to minor bodily injuries.

NOTE

A situation in which possible damage could occur to the product or objects in the vicinity.

NOTE

Reference/tip for easy operation.

⚠ *refers to a general safety tip*

1. refers to operational activities

➲ refers to the consequences of an action

Service address

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Safety

Intended use

Application

The Laboratory furnace is intended for commercial use in dental laboratories and may only be used only for the maturing and preheating of dental casting muffles.

NOTE

For the misuse, incorrect operation, an incorrect connection or incorrect maintenance/repair by untrained personnel, no liability is accepted for possible damages. Furthermore, all guarantees in such cases are excluded.

Requirements of the personnel

Laboratory specialists, trained dental technicians,trained specialist staff entrusted with handling the equipment and who, based on their professional education, knowledge, and experience as well as their knowledge of the relevant provisions, are in a position to carry out the delegated work and can recognize and avoid possible dangers on their own.
Used ***Laboratory furnace*** for the maturing and preheating of dental casting muffles for the conditions determined by the user. Has no access to the interior parts of the device.

Electricians
Based on their professional education, knowledge, and experience as well as their knowledge of the relevant standards and provisions, are in a position to perform work on electrical equipment and to recognize and avoid possible dangers on their own.

Installation conditions

⚠ *Never place and use the device in the vicinity of gas sources.*

⚠ *Protect the device from contact with water.*

⚠ *Take care when setting up the device that it is on a stable and secure foundation and set up well out of the reach of small children.*

⚠ *Protect the device against the effects of weather (moisture, cold, etc.).*

⚠ *Never use the device outdoors.*

Assembly/ connection conditions

⚠ *Only connect the device to a power supply that complies with the voltage input information on the type plate of the device.*

Operation

⚠ *Before doing repair work, the device must be unplugged from the power supply.*

⚠ *Never pull the connection plug out with the cable from the outlet.*

⚠ *If there are damages to the device or the cable or the device no longer functions flawlessly then the device may no longer be used. In this case, you should immediately contact the mihmvogt service center.*

⚠ *Observe and follow the maintenance tips and intervals.*

⚠ *Maintenance, cleaning, and repair work that is not specially assigned to the end user, may only be performed by trained specialist personnel.*

⚠ *For the safety of the user and the longevity of the device, only original replacement parts from the mihmvogt company may be used.*

Disassembly/disposal

⚠ *Dispose of the device in accordance with regional disposal directives.*

Possible incorrect use

- ► Use of untrained and insufficiently qualified personnel.
- ► Use of products that have not been authorized by mihmvogt.
- ► Use of replacement parts that have not been authorized by mihmvogt.
- ► Use that does not correspond to the conformity declaration.
- ► Technical changes and modifications to the device, that have not been approved by mihmvogt.

Observance of the Operating Guide

NOTE

Read this operating guide carefully before use.

For the safe operation of the Laboratory furnace, in addition to the instructions in this operating guide, regional directives (for example accident prevention directives), must be made available to the user of the device.

Technical information

General information

Furnace type	KMP7	GLP7	TLP7	KMP7-U	GLP7-U	TLP7-U
Outside dimensions: (W x H x D) [cm]	40 x 48 x 40	48 x 58 x 52	54 x 65 x 55	40 x 48 x 40	48 x 58 x 52	54 x 65 x 55
Chamber area: (W x H x D) [cm]	15 x 10 x 17	20 x 11 x 25	25 x 17 x 28	15 x 10 x 17	20 x 11 x 25	25 x 17 x 28
Area for casting muffle:	4 items. (6x)	6 items. (9x)	18 items. (9x)	4 items. (6x)	6 items. (9x)	18 items. (9x)
max. Temperature:	1150 °C	1150 °C	1150 °C	1150 °C	1150 °C	1150 °C
Warm-up periods:	60 min.	60 min.	60 min.	60 min.	60 min.	60 min.
	900 °C	800 °C	800 °C	800 °C	800 °C	800 °C
	90 min.	120 min	120 min	120 min	120 min	120 min
	1050 °C	1100 °C	1100 °C	1100 °C	1100 °C	1100 °C
Weight:	31 kg	70 kg	96 kg	31 kg	70 kg	96 kg

Electrical connection data

Furnace type	KMP7	GLP7	TLP7	KMP7-U	GLP7-U	TLP7-U
Rated voltage:	230 V AC	230 V AC	400 V AC (2/N)	230 V AC	230 V AC	400 V AC (2/N)
Frequency:	50 Hz					
Add. deviation from the rated voltage:	±10 %					
Max. power input	1.6 kW	2.6 kW	4.5 kW	1.7 kW	2.7 kW	4.8 kW
Fuse protection (customer side)	Connection to a separate electrical circuit with fuse 16 A, delay fuse					
Type of Protection	IP 20 (Device is protected from the penetration of foreign objects, but not from the penetration of water)					

Operating conditions

Temperature range	+5 - +40 °C
Relative humidity	Up to 31° C: 80%
Maximum humidity	Up to 31° C: 50%
	No condensation
Height	Max. 2000 m
Pollution level	2

Construction and function

General overview

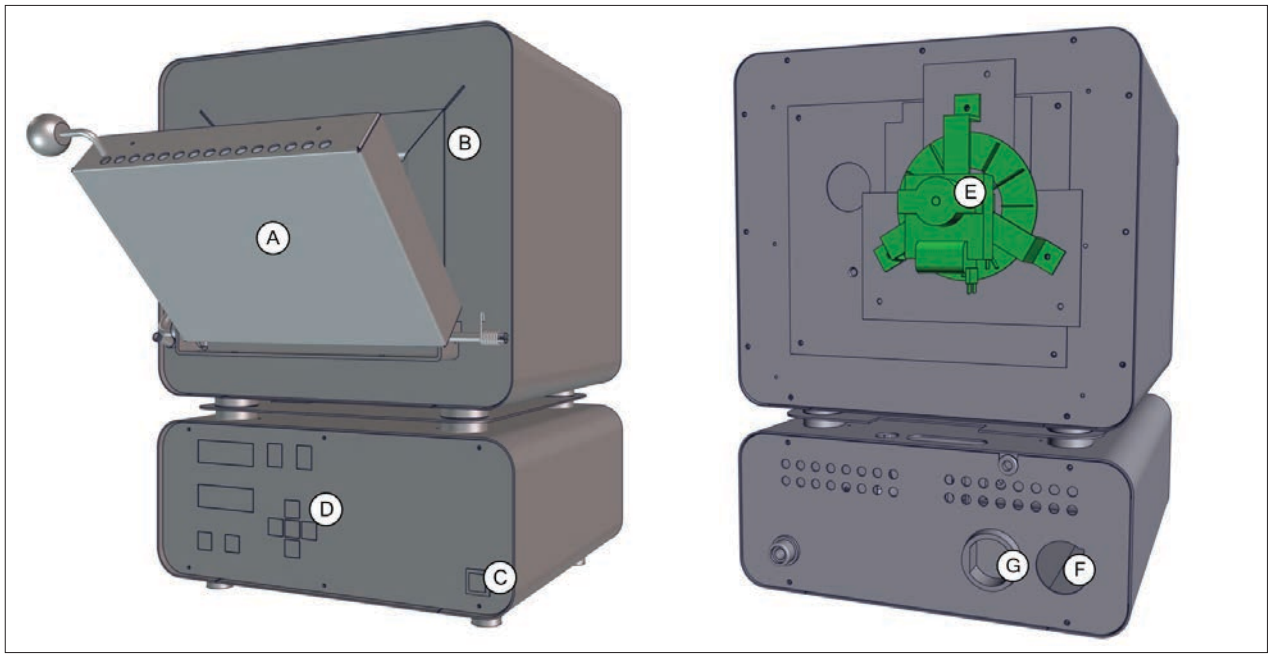

Fig. 1: Component overview (example representation furnace type KM U)

A	Furnace door	E	Air circulation fan (optional)
B	Combustion chamber	F	Electrical outlet "Vapor"
C	ON/OFF switch	G	Electrical outlet "Blower"
D	Regulator unit (example representation)		

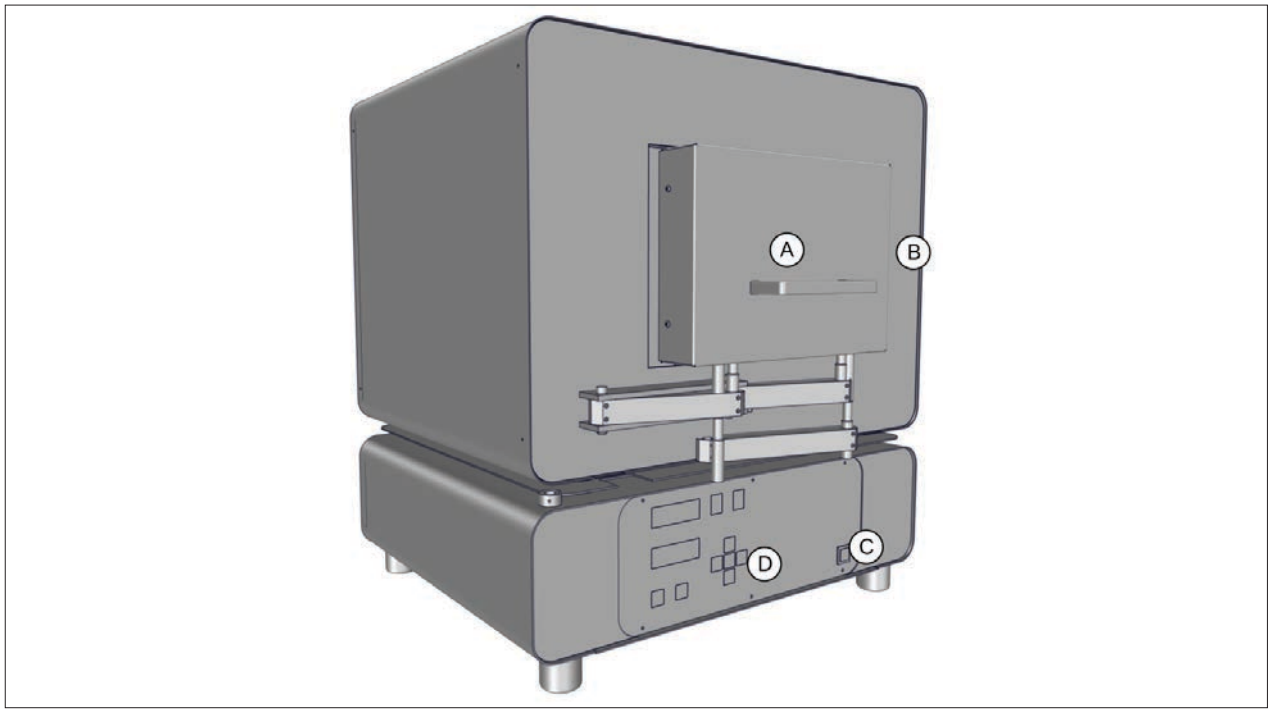

Fig. 2: Component overview (example representation furnace type TL)

A	Furnace door	C	ON/OFF switch
B	Combustion chamber	D	Regulator unit (example representation)

Controls

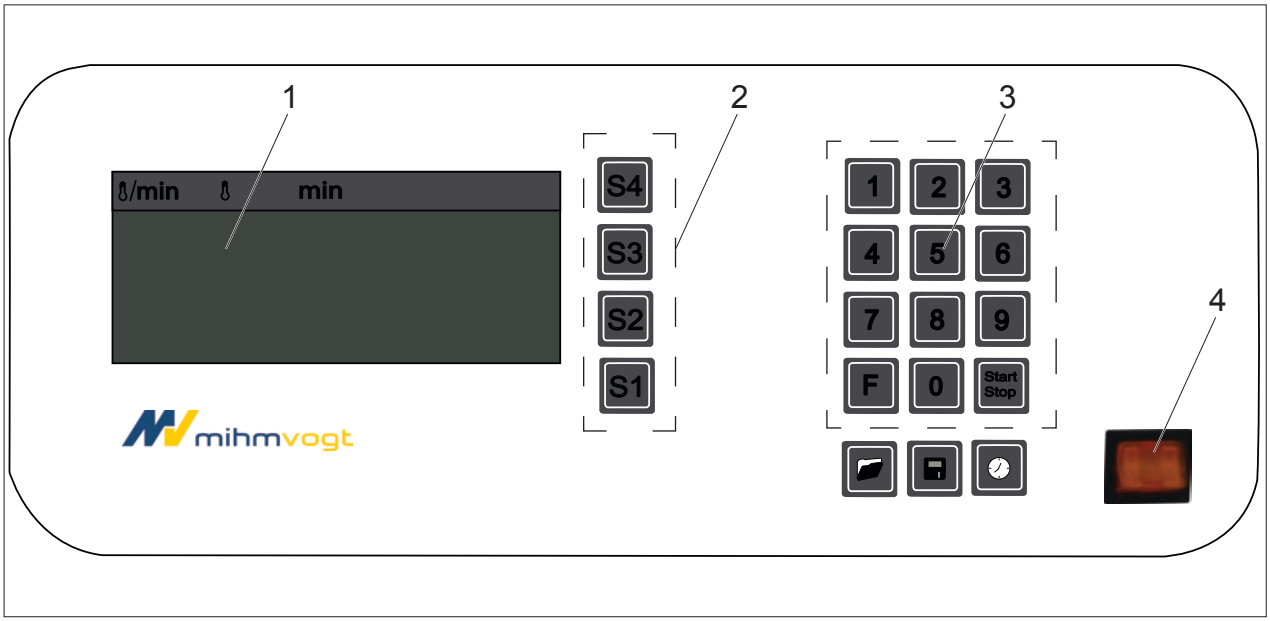

Fig. 3: Controls

1	Display	4	Main power switch		Saving the heating program
2	Heat levels	Start Stop	Starting/stopping the heating program		Timer
3	Numeric keypad		Loading the heating program	F	Calling up the parameters menu

Display

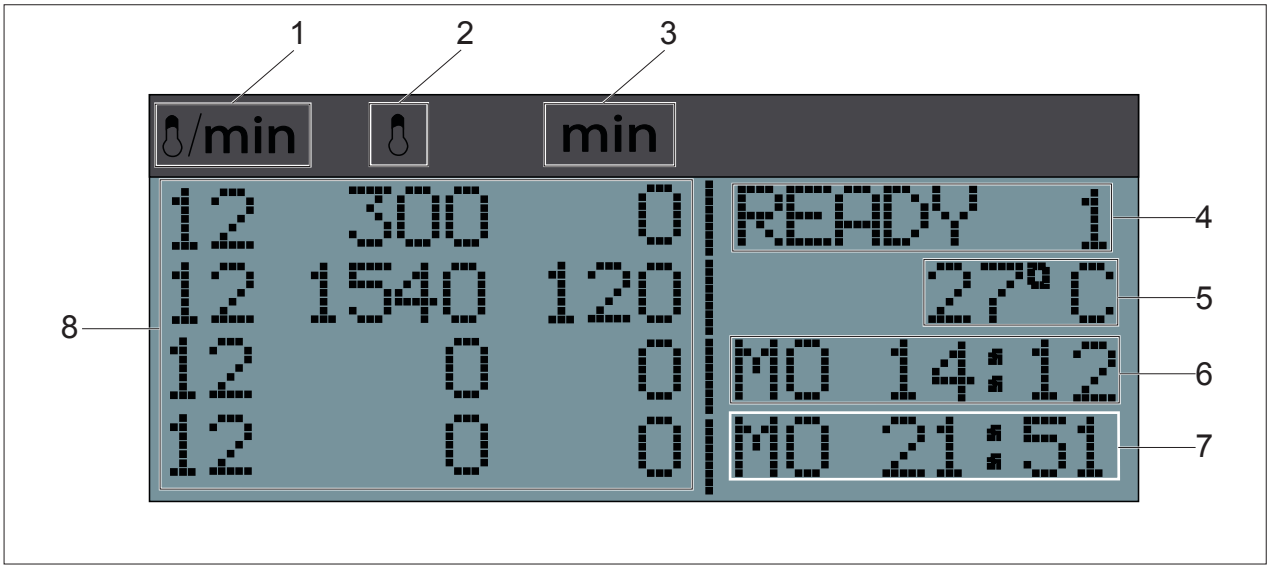

Fig. 4: Display notice

1	Heating rate (°C/Minute)	5	Chamber temperature
2	Temperature of the heat level	6	Calculated activation period (automatic program)
3	Stop time	7	Completion time (automatic program)
4	Program status	8	Heat levels (S1 - S4)

Type plate

Fig. 5: Type plate (example representation)

1	Manufacturer information	5	Frequency
2	Machine type/designation	6	Capacity
3	Serial number:	7	Year of manufacture
4	Operating voltage	8	CE Label

Function

The Laboratory furnace is used for maturing and preheating dental casting muffles.

The preheated muffle is placed in the wax basin in the Laboratory furnace . After entering the heat parameters and pressing the start key, the heating process begins.

After the heating program has completed and the Laboratory furnace has cooled down, the finished product can be removed.

Heating chamber

The heating chamber is made of high-quality ceramics, that is heated uniformly on four sides by a heat spiral. In Type KMP7, the heat spiral is pulled up to the heating muffle, in Type TLP7 they are processed in ceramics disks. The heating spirals are covered with fireclay. A ceramic insert protects the heating muffle from contamination.

Heat insulation

The heating chamber is uniformly surrounded by ceramic insulating stones. In the insulation there is an opening from the rear wall of the housing to expel exhaust fumes.

Air circulation fan (optional)

All furnace ovens (Types KMP7 to TLP7) can be optionally equipped with an air circulation fan. This improves the heat transmission to the casting muffles and thereby also the temperature distribution within the casting muffles.

The air circulation fan cannot be retrofitted and must be specified in the order.

Furnace door

The furnace door is equipped with a ceramic door stone for heat insulation. In Type KMP7 it swings open forwards, in Types TLP7 and GLP7 it opens on the side to the left. The furnace door is equipped with a safety switch, that interrupts the heat current when opening the door.

Furnace housing

The furnace housing consists of corrosion proof stainless steel sheet metal and is plastic coated on the interior and the exterior.

It then heats up during operation to a maximum 70°C.

Laboratory furnace Regulation system (control)

The Laboratory furnace regulation system is equipped with a completion time setting according to the weekday and time. The switch-on time is calculated automatically so that the heating process is concluded at the desired time and the sintered goods can be removed.

Operating parameters and heating programs are stored in a nonvolatile memory and are preserved even in the event of a loss of the power supply.

The specified target temperature is maintained with an accuracy of ± 1°C.
A temperature sensor integrated into the heating chamber records the chamber temperature in the vicinity of the product.
By means of a fail-safe thermal element, the overheating of the Laboratory furnace because of a defective temperature sensor is prevented.

Transportation, packaging, and storage

Transportation

CAUTION

Danger of injury by the weight of the furnace!

Risk of physical overload/back problems due to excessive net weight.

- ➤ Only carry/move the Laboratory furnace using at least two people.

NOTE

Transportation damages!

In order to avoid damages to people and property:

- ➤ Only transport the device in an upright position.
- ➤ Do not stack multiple devices on top of one another.
- ➤ Do not place any other objects on the device.
- ➤ Transportation must be done with as little shaking and vibration as possible to avoid damage to the device.
- ➤ Make sure that the device is secured during transportation so that it does not slide or tip over.
- ➤ The goods should be examined immediately upon reception for damage and loss and be certified as valid under the claims of the carrier on the bill of lading. There is no liability mihmvogt for damages and losses that have only been retroactively assessed.

Packaging

NOTE

The packaging protects the Laboratory furnace against transportation damages, corrosion, and other damages. Therefore only remove it shortly before the initial operation and store it for later reuse in a dry area.

Storage

NOTE

Damages from temperature changes!

In order to avoid damages from temperature changes:

- ➤ Store the device only in temperatures from + 5°C to + 40° C.
- ➤ Always store the device in a dry and dust-free area.
- ➤ Avoid placing in direct sunlight.
- ➤ Avoid mechanical shocks.

Installation and initial startup

Installation/initial startup

CAUTION

Danger of injury and property damage!

Incorrect installation and initial startup

- ➤ The installation and initial startup may only be done by qualified and trained specialist personnel.
- ➤ In the installation and operation of the Laboratory furnace observe country specific standards and regulations!
- ➤ Do not make changes to components or safety provisions that could impair the operational reliability of the Laboratory furnace .
- ➤ Wear protective gloves when working with sharp edged components and tools.
- ➤ Before the installation make sure there is enough room and space to move around.
- ➤ Make sure that the power supply of the Laboratory furnace is always accessible.
- ➤ Secure components and tools from falling.

NOTE

In order to avoid a buildup of vapors and gases in the set up area the Laboratory furnace should be equipped with a vapor extraction blower or catalytic converter and set up under an extraction hood.

1. Align the installation area horizontally.

CAUTION

Tipping loads!

Insufficient load capacity in the installation area.

- ➤ Make sure before the installation of the Laboratory furnace that there is sufficient load capacity in the installation area.

CAUTION

Danger of injury by the weight of the furnace!

Risk of physical overload/back problems due to excessive net weight.

- ➤ Only carry/move the Laboratory furnace using at least two people.

2. Place the Laboratory furnace in the installation area.

⚠ *Make sure that the floor surface is skid proof.*

DANGER

Electric energy!

Danger of electric shock.

- ➤ Do not grasp live electrical cables and components with damp hands.
- ➤ Observe accident prevention directives in dealing with electricity.

3. Connect the electrical plug of the Laboratory furnace to the appropriate electrical supply outlet.

⚠ *Observe the electrical voltage information on the type plate.(see „Type plate (example representation)“ on page 11).*

Installing the vapor extraction blower

1. Loosen the fastening screws (Pos. 1) from the extraction pipe.
2. Remove the extraction pipe (Pos. 2) from the rear wall of the housing.

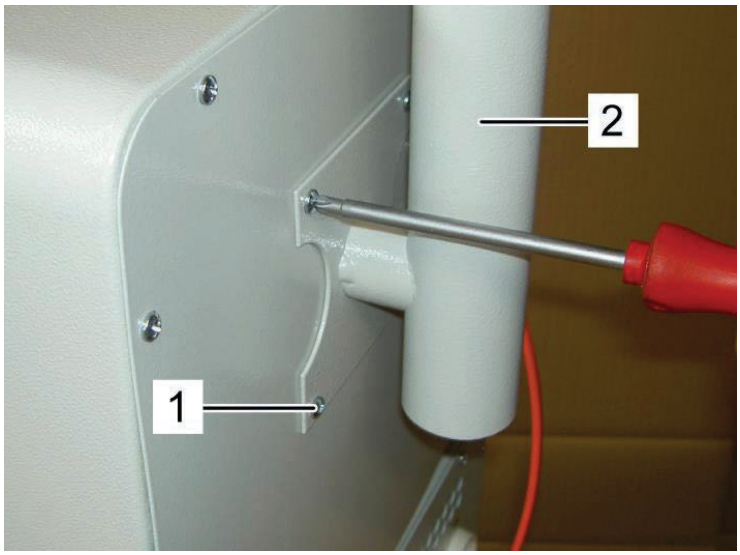

Fig. 6: Fastenings deduction

3. Vapor extraction blower (Pos. 1) on the rear wall of the housing.
4. Plug in the supply line plug of the vapor extraction blower in the plug "Blower" (on the back of the furnace).

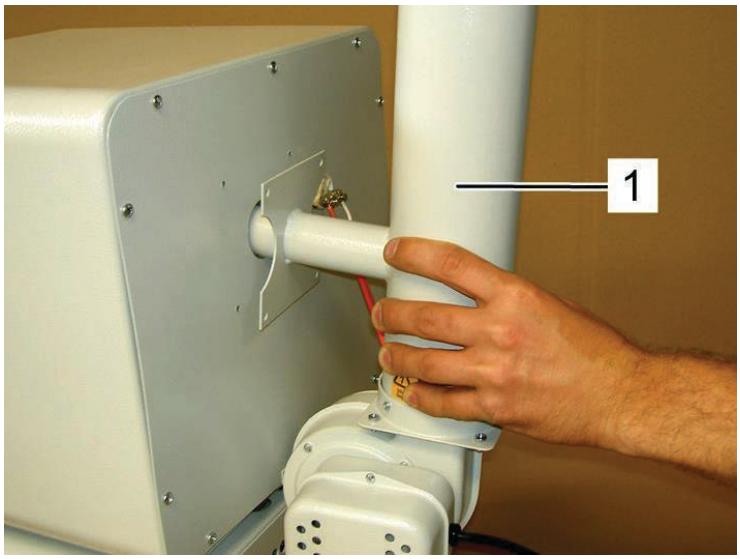

Fig. 7: Vapor extraction blower

Installing the catalytic converter[1]

WARNING

Poisoning from catalytic exhaust fumes!

Nitrogen oxides are classified as dangerous materials and in contrast to ammonia are not always perceived by smell.

➤ Make sure that the catalytic converter conveys furnace exhaust fumes out into open air.

NOTE

As a principle component, wax steam is released in the heating of investments and casting muffles in dental technology. The catalytic converter splits this mixture from different organic hydrocarbons predominantly into carbon dioxide (CO2) and steam (H2O).

Ar higher temperatures ammonia (NH3) gas can additionally emerge from many investments. The catalytic converter transforms this into different nitrogen oxides (NxOy).

1. Loosen the fastening screws (Pos. 1) from the extraction pipe.
2. Remove the extraction pipe (Pos. 2) from the rear wall of the housing.

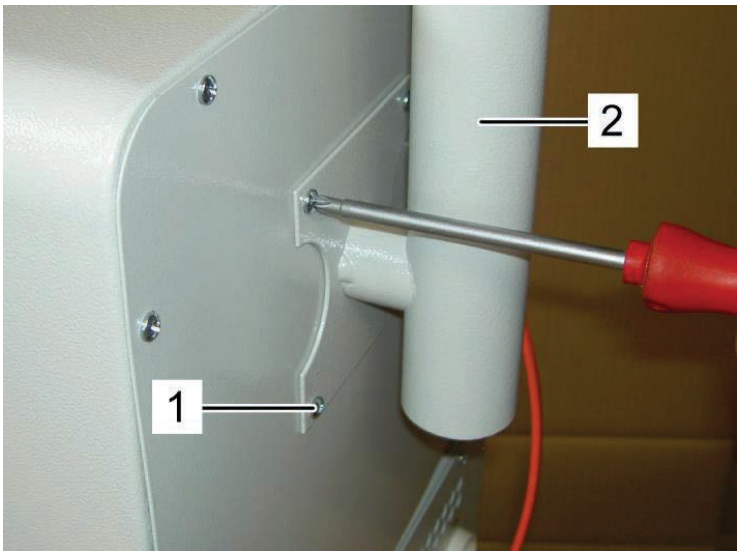

Fig. 8: Fastening deduction

1 The required operational activities are presented in the following by the example of a catalytic converter KN2. They apply in the same way for the installation of a catalytic converter KN1.

3. Position (Pos. 1) and fasten intermediate piece as shown on the rear wall of the housing.

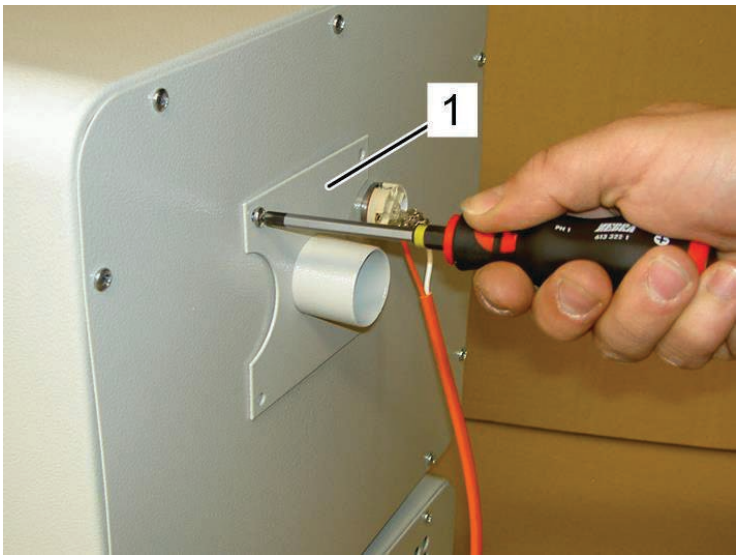

Fig. 9: Intermediate piece

4. Position (Pos. 1) catalytic converter on the intermediate piece. Simultaneously make sure that the fastening screw (Pos. 2) is sufficiently unscrewed.

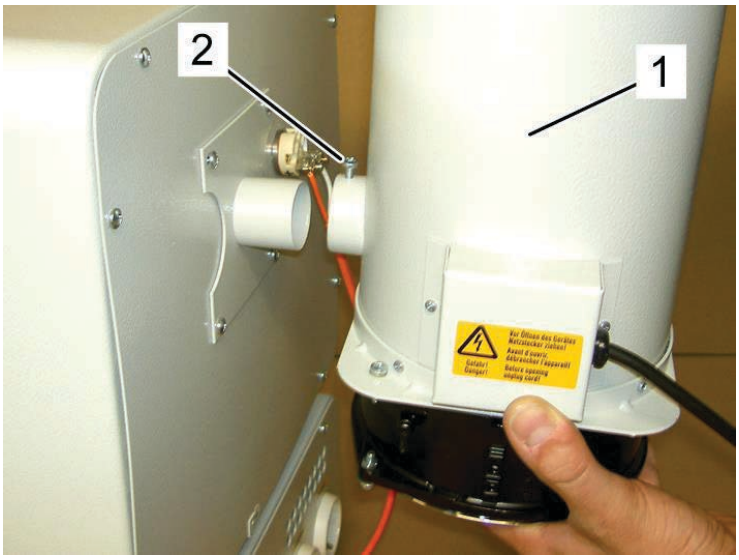

Fig. 10: Position the catalytic converter

5. Screw in the fastening screw (Pos. 1).

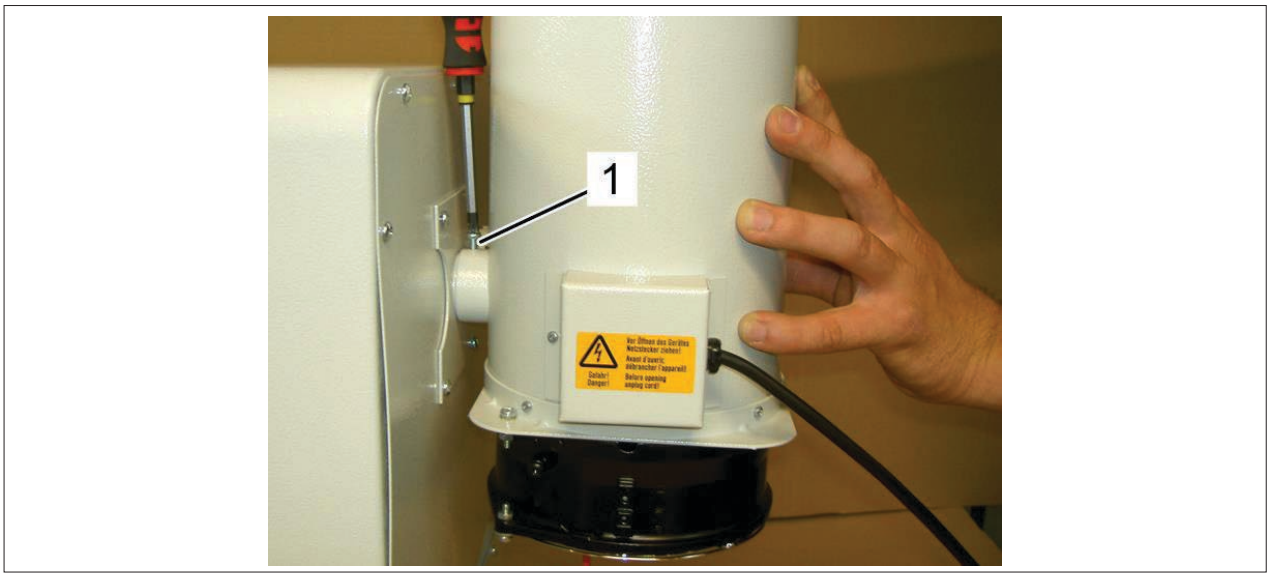

Fig. 11: Fastening screw

6. Plug in the supply cord of the catalytic converter in the outlet "Blower" (on the back of the furnace).

Burn-in/initial heating

NOTE

1. Before an initial loading of the laboratory furnace, it must be burned in so that a protecting oxide layer can form on the heat wire.

1. The Laboratory furnace heats up to 1050 °C and maintains this temperature over a period of 90 min. (see „Operation“ on page 22).

Parameter settings

NOTE

The Laboratory furnace is delivered from the factory with preset times and preprogrammed heating programs.

The Laboratory furnace does not automatically implement summer and winter time settings.

1. Turn the Laboratory furnace on with the main power switch.
2. Press the F button.

➲ The parameter menu opens.

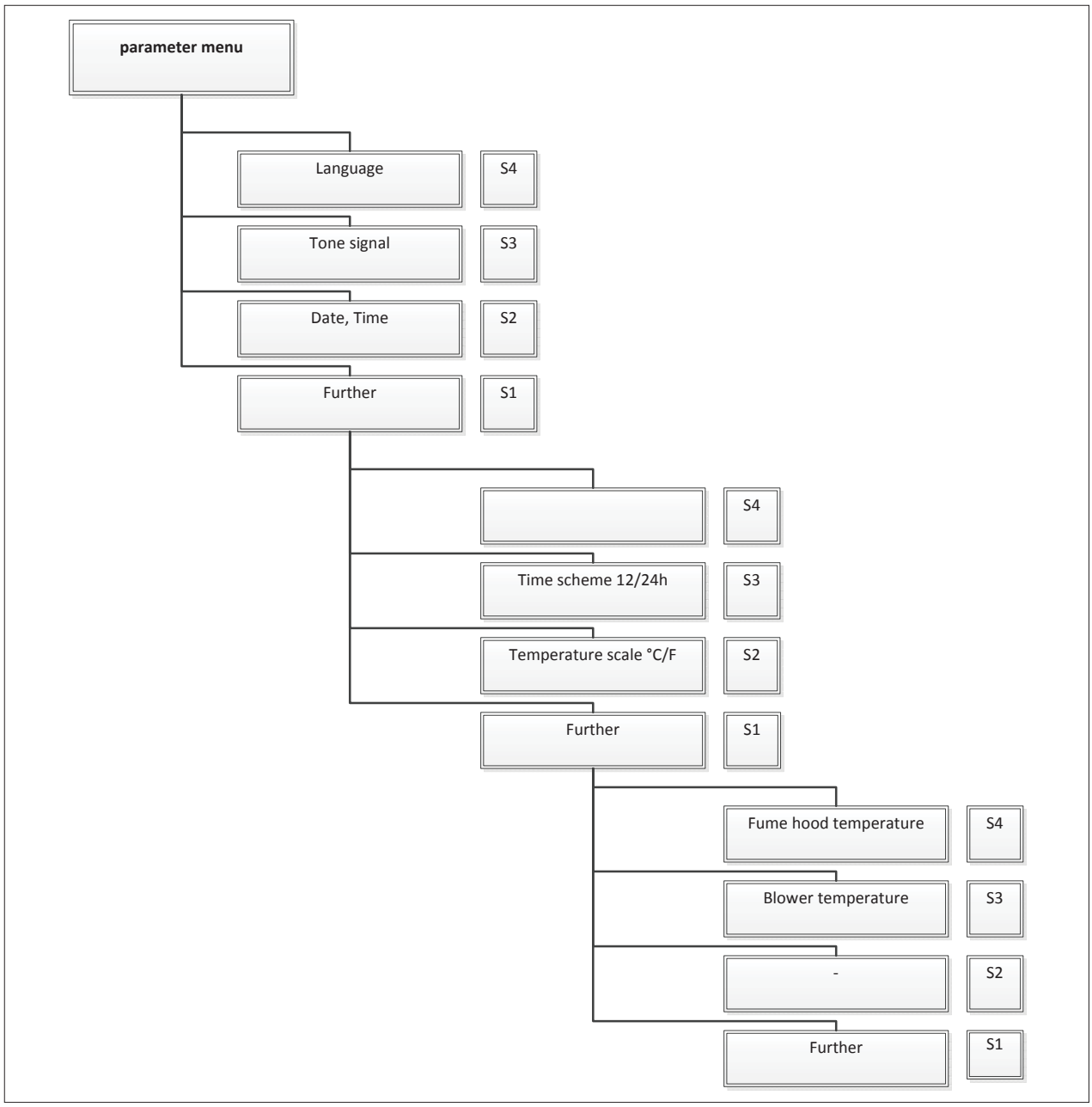

Fig. 12: Parameter menu

3. Press a button (S1-S4) to select a parameter.
4. Press the corresponding parameter button multiple times until the desired change has been achieved.

Parameter	But-ton	Function
Language	S4	Change system language (DE, EN, FR, IT, ES, DA, CZ, NL)
Tone signal	S3	Turning the tone signal on, off
Date, time	S2	Setting the weekday and time
further	S1	Jump to the next parameter menu
-	S4	-
Time scheme	S3	Time display 12/24h mode
Temperature scale	S2	Temperature unit° C/F
further	S1	Exiting the parameter menu
Fume hood temperature	S4	Fume hood temperature setting
Blower temperature	S3	Blower temperature setting
-	S2	-
further	S1	

Setting the weekday and time

1. Press the F button.
2. Press the S2 button.

➲ The ***DATE*** menu opens.

3. Set the weekday using the buttons 1-7 (1 = Mo, 2 = Tue, 3 = We, etc.)
4. Press the S2 button to change to the hours display.
5. Set the hours using the buttons 0-9.
6. Press the S2 button again to proceed to the minutes display.
7. Set the minutes using the buttons 0-9.

Carrying out the corrective program

NOTE

In calculating the program start time, the control assumes an average electrical supply voltage of 230 V. Based on local incidents, the actual electrical supply voltage value may deviate from the average. This may lead to defective time calculations of the control. The corrective program compensates for these possible deviations (from a voltage of less than 215 V).

1. Press and hold the 

button.
2. Turn the Laboratory furnace on.
3. Release the 

button.

➲ The corrective program is activated.

Operation

Safety

DANGER

Electric energy!

Danger of electric shock.

- Do not grasp live electrical cables and components with damp hands.
- Observe accident prevention directives in dealing with electricity.

DANGER

Inflammable atmosphere!

Danger of inflammation and explosion in the use of inflammatory and explosive materials in the furnace area.

- Do not operate the Laboratory furnace in the vicinity of easily ignited sources.
- Do not work with flammable material while the Laboratory furnace is in operation.

WARNING

Danger of damage to health by emitted gases and vapors during the heating operation!

In the heating of waxes and investments, wax vapors and ammonia can accumulate in the area of the laboratory furnace.

- Provide for sufficient ventilation or for expelling the exhaust air out.
- Use the vapor extraction blower DG2 or fume hood DU1 – DU3/3 with air outlet.
- Use catalytic converter KN1 or KN2.

WARNING

Carcinogenic materials!

The heat insulation of the furnace contains parts from aluminium silicate fiber. This fiber is declared as a Category 2 "carcinogenic material according to EU classification of 05.12.1997 in accordance with EU directive 97/69/EG". In the case of excessive and long-term dust exposure, diseases of the lung or the pleura in the form of fibrosis or cancer may develop according to the findings from testing on animals.
These results have not been confirmed by testing on humans. Health risks are not expected when used in compliance with the recommended use and the limit values

WARNING

Improper operation!

Improper operation can lead to severe personal injuries and property damages.

- Follow the handling instructions in accordance with the specifications in this operating guide.
- Make sure before the start of your work that all all covers and safety measures are properly installed and functioning.
- Never deactivate safety provisions during operation.

WARNING

Hot surfaces!

Serious burns possible.

- ➤ During operation do not grasp the housing or the furnace door.
- ➤ Let the Laboratory furnace first cool down before loading or removing sintered goods or use sufficiently long loading pliers.
- ➤ Wear heat-resistant, heat-insulated safety gloves when working with hot components is required.

CAUTION

Rotating parts!

The rotating fly wheel in the air circulation fan can cause injuries if interrupted.

- ➤ The fly wheel should not be accessible during operation.
  Therefore: Do not remove the protective screen during operation.
- ➤ Do not reach into the blower when it is running.

Turning on the Laboratory furnace

1. Connect the power supply (see „Installation/Erstinbetriebnahme“ on page 14).
2. Turn the Laboratory furnace on with the main power switch (see „Construction and function“ on page 9).

➲ The power control light lights up.

➲ After 3 seconds the start screen with the current furnace temperature is displayed.

Fig. 13: Laboratory furnace Control (Start screen)

Loading theLaboratory furnace

1. Turn the Laboratory furnace on.
2. Open the furnace door.
3. Place the muffle in the wax basin.
4. Close the furnace door.
5. Select a heating program and start it by pressing the Start Stop button.

P7-Control

Programming the heat levels

NOTE

The P7-Control can be used to define the warm-up period of the Laboratory furnace as a heating program in heat levels 1 - 4. Heating up or cooling down can be done in a heating program.

If no setting has been made within a minute during the programming process, the the program automatically returns to the overview of the most recently used heating program.

1. Press the S1 button.

➲ The cursor for the entry blinks in the field °C/**min**.

2. Enter the heating rate using the numbers 0-9.

NOTE

Heating rates of between 1 - 30 °C may be entered.

➲ After entering the heating rate, the cursor then proceeds to the next input field.

3. Enter the temperature value of the heat level to which the S1 should be heated by using the numbers 0-9.

NOTE

The maximum programmable temperature of the Laboratory furnace is 1150° C.

If a higher temperature is entered, the display returns to the previous value.

➲ After entering the temperature value, the cursor then proceeds to the next input field. If only a 2-3 place temperature value was entered, the cursor must be changed to the next input field by pressing the S1 button.

4. Enter the stop value of the selected temperature using the numbers 0-9.

NOTE

The maximum programmable stop times are 999 minutes (stop time in S1-S3, entries in S4 regulates the acoustic alarm for "Program end").

If the stop time is entered as "0", then the Laboratory furnace maintains the temperature until the heating program is ended by the user.

➲ After all three values have been entered, the programming of heat level 1 is finished.
To program further heat levels, press the corresponding heat level button (S2-S4) and repeat the action steps 1.- 4.

Storing the heating program

NOTE

The P7-Control can store up to 30 different heating programs.

Stored heating programs are saved even after the Laboratory furnace has been turned off.

A heating program is always saved under the program number previously used to load it.

1. Press the button.

➲ The ***SAVE*** menu is displayed.

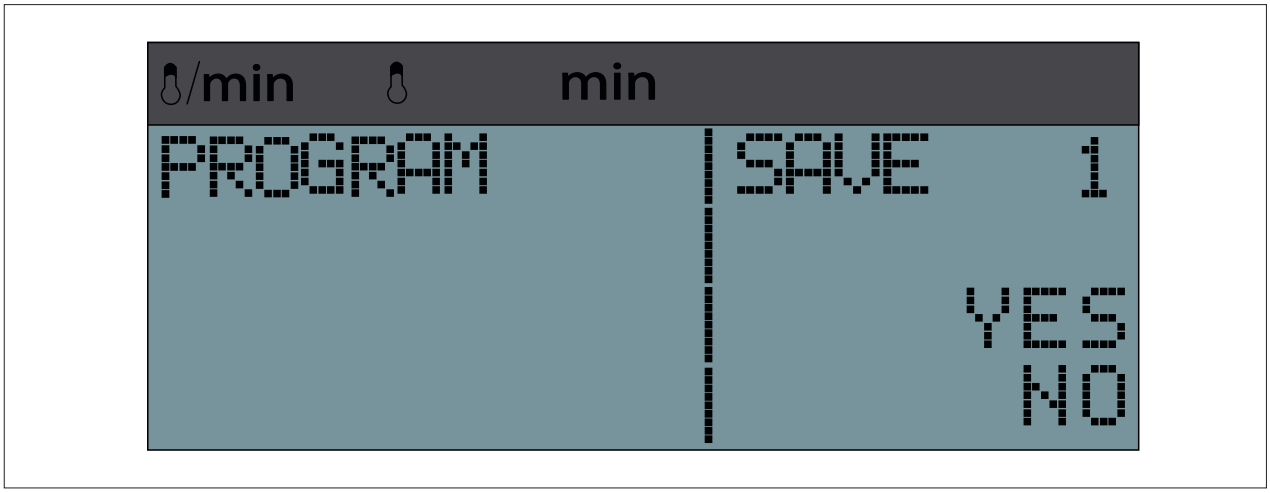

Fig. 14: Menu "Save"

2. Press the S2 button in order to store the heating program.
3. Press the S1 button to cancel the storage process.

Rename the heating program

To specifically designate a particular heating program, it can be stored with a arbitrarily chosen name.

1. Press the button.

➲ The ***SAVE*** menu is displayed.

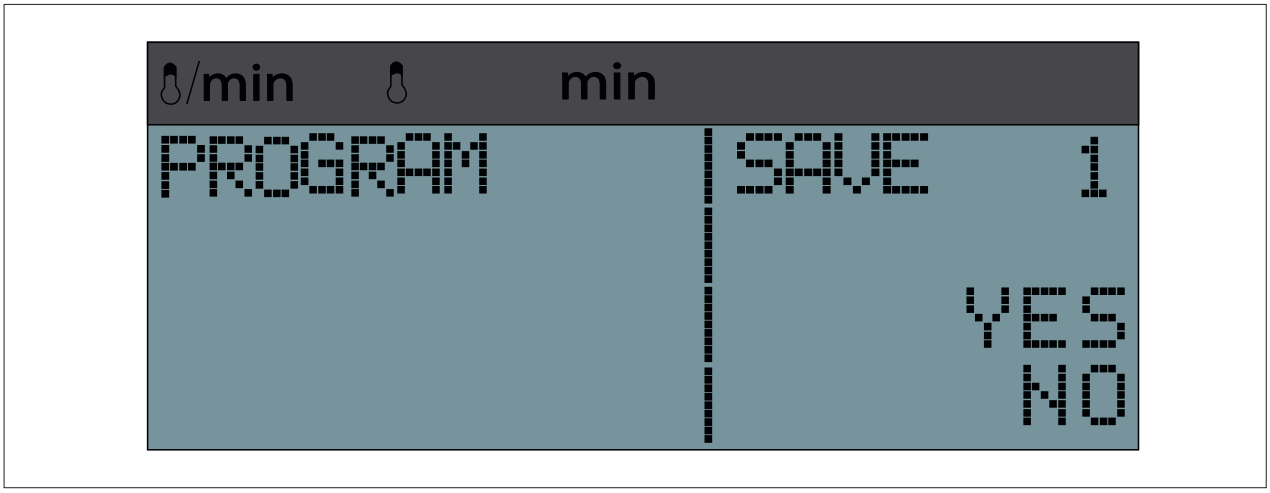

Fig. 15: Menu "Save"

2. Press the F button to change the first letter.
   By repeatedly pressing this button, the letters of the alphabet will be displayed from A to Z.
3. Press the S4 button to proceed to the next letter.
4. After the selected name has been entered, press the S2 button to store the changes.

Loading the heating program

1. Press the button.

➲ The ***LOAD PROGRAM*** menu opens.

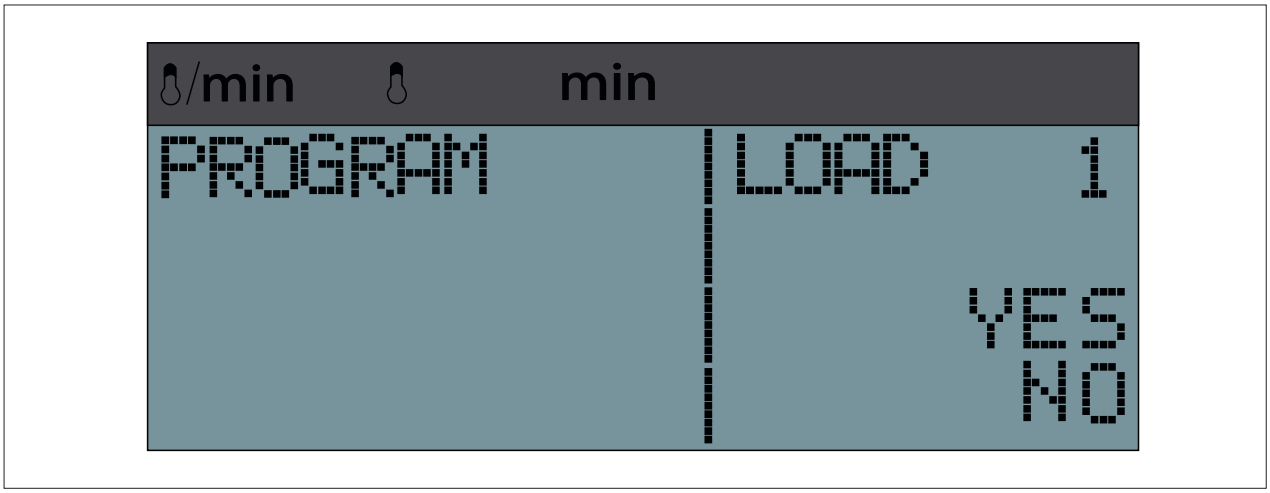

Fig. 16: "Load program" menu

2. Press the S4 button as many times as necessary to reach the desired heating program.
   The desired heating program can also be optionally entered using the numeric button pad (two-digit input required, for example "02").
3. Press the S2 button to confirm the loading.

➲ The loaded heating program is displayed.

4. Press the S1 button to cancel the loading.

➲ The previously loaded heating program is displayed.

Start/stop heating program

Prerequisites

- ***Laboratory furnace*** is loaded
- Heating program is loaded

1. Press the Start Stop button.

➲ The heating program starts.

➲ The status display changes from ***READY*** to ***IN PROCESS***.

The process status of the heating program is additionally displayed in a level diagram:

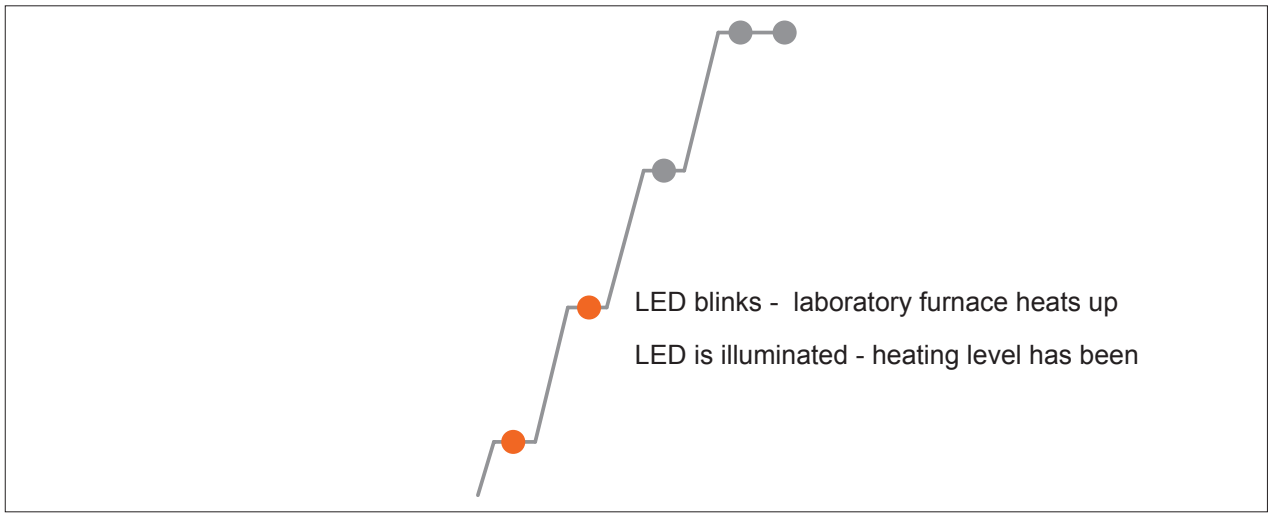

Fig. 17: Level diagram process status

2. Press the Start Stop button again.

➲ The heating program is stopped.

➲ The status display changes from ***IN PROCESS*** to ***READY***.

3. Press the Start Stop button again to continue the loading.

Automatically starting the heating program

The Laboratory furnace can be programmed using an integrated timer so that it ends the currently loaded heating program at a previously entered completion time.
With the integrated timer, the completion time is determined by weekday and time.

1. Select a heating program (see „Loading the heating program“ on page 26).
2. Press the  button.

➲ The ***AUTOMATIC START*** program opens.

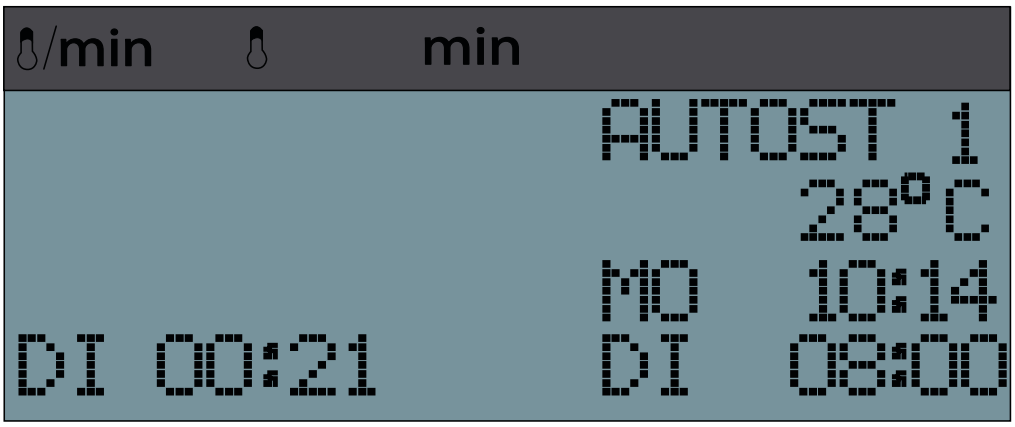

Fig. 18: "Automatic start" menu

3. Press the  button to enter the weekday.
   Set the weekday using the buttons 1-7 (1 = Mo, 2 = Tue, 3 = We, etc.).
4. Press the  button again to proceed to the time entry.
5. Set the hours using the buttons 0-9.
6. Press the  button again to proceed to the minutes display.
7. Set the minutes using the buttons 0-9.

➲ The timer is activated.

➲ The completion time and the calculated activation time are shown in the display.

Malfunctions

Safety

DANGER

Electric energy!

Danger of electric shock.

- ➤ Work on electrical equipment may only be carried out by electricians.
- ➤ Disconnect the electrical supply of the Laboratory furnace and secure it from being reconnected before installation, maintenance, cleaning and repair work.
- ➤ Do not grasp live electrical cables and components with damp hands.
- ➤ Observe accident prevention directives in dealing with electricity.

WARNING

Hot surfaces!

Danger of severe burns to the extremities.

- ➤ During operation do not grasp the housing and the furnace door.
- ➤ First allow the Laboratory furnace to completely cool down before maintenance, cleaning, and repair work.
- ➤ Wear heat-resistant, heat insulated safety gloves when working with hot components is required.

NOTE

There is a danger of damage to property due to deficient repairs of electrical lines!

Malfunctions and defective electrical components may be possible.

- ➤ Do not repair defective cables and connectors.

Error table

Error	Possible cause	Error resolution	Reference
Incorrect time	Time stored in the regulator is incorrect	Set the correct time (see „Setting the weekday and time“ on page 20).	Operator
Furnace does not start automatically	Loss of power/ interruption of the power supply	Review network connection for interruption errors. Notify electricians, as appropriate.	
No notice in the display, network control light illuminated, at start up the level LEDs do not illuminate	Defective protection fuse	Turn off furnace, wait 10 seconds, turn it on again. For repeated malfunctioning, notify service.	
No display Network control light does not illuminate	No power supply available	Check the on-site fuses, check the connection line. Notify electricians, as appropriate.	
Display: "Safety shutdown"	Furnace temperature is over 1200 °C	Turn off furnace and and allow to cool down. If the error reoccurs notify service.	
Pieces from the door stone have fallen out, other damage to the door stone	Improper handling of the door stone	Replace the door stone.	
Display: „Sensor + <-> -“	Furnace interior is considerably colder than room temperature	Open the furnace door to allow the chamber interior to reach room temperature.	
	Thermal element incorrectly connected/polarity-reversed	Change thermal element.	Electricians Service department mihmvogt
Display: "Sensor breach"	defective thermal element	Replace thermal element.	
	loose thermal element connections	Tighten thermal element connections.	
Air circulation fan is not working or is making strange noises	Blower motor or shaft bearings defective	Replace the air circulation fan	
Heating programs and time are not permanently stored	defective regulator	Replace the regulator.	
No display, network control light illuminates, at start up the levels LEDs are briefly illuminated	defective display	Replace the regulator.	Electricians Service department mihmvogt
LED level blinks, but furnace does not heat	defective heating	Check the heating for consistency. Replace the heating chamber.	
	defective power element (in Type GLP6 115 V)	Replace power element.	Service department mihmvogt
Display: "Door open" although the furnace door is closed	Door limit switch is sticking or is defective	Visually check the door switch. Notify service.	

Shutdown

Shutdown can occur for two reasons:

- For the purpose of reassembly in another location.
- For the purpose of final disposal.

NOTE

If the Laboratory furnace is to be reconstructed in another location, then the shutdown must be carefully planned. All components and fastenings must be carefully dismantled, marked, and, if necessary, packed for transportation. The correct reassembly is then guaranteed and all parts are appropriately assigned and can be reassembled in the proper location.

1. Turn it Laboratory furnace off.
2. Unplug it Laboratory furnace from the electrical power supply.
3. Separate all connections from the Laboratory furnace.

Disposal

Safety

WARNING

Improper disposal causes contamination of the environment and ground water!

➤ In the disposal of equipment parts and operating material, the directions and guidelines of the legislation in the country of operation must be complied with.

Disposal

1. Separate the components of the Laboratory furnace according to recyclable materials, dangerous materials, and operating material.
2. Dispose of the components of the Laboratory furnace or send it to be recycled.

Conformity declaration

EG-Konformitätserklärung für elektrische Geräte

Nach den EG-Richtlinien:	2004/108/EG (EMV-Richtlinie) 2006/95/EG (Niederspannungsrichtlinie)
Name des Herstellers:	MIHM-VOGT GmbH & Co. KG Friedrich-List-Str. 8 76297 Stutensee – Blankenloch

Wir erklären hiermit, dass die Produkte

Artikelbezeichnung und Typ:	Laboröfen: KM1, KM3, KMP6, SLM1, SLM3, SLP6, GLM1, GLM3, GLP6, BLM1, BLM3, BLP6, TLM1, TLM3, TLP6, KM3-U, SLM3-U, GLM3-U, BLM3-U, TLM3-U, KMP6-U, SLP6-U, GLP6-U, BLP6-U, TLP6-U, XLM1, XLM3, XLP6, XLM3-U, XLP6-U, HT, HT-S, HT Speed, HT-S Speed Dunstabzugshauben: DU1, DU2, DU3/2, DU3/3
Seriennummern:	ab 37 006
	galvanische Geräte: EG, EG1, EG2, GBH,GABH
Seriennummern:	ab 3329
	Katalysatoren: KN1, KN2 Dampfabzugsgebläse: DG2
Seriennummern:	ab 1417

mit den Schutzanforderungen übereinstimmen, die in den obengenannten EG-Richtlinien festgelegt sind.

Diese Erklärung gilt für alle Exemplare und verliert ihre Gültigkeit bei nicht mit uns abgestimmten Änderungen an diesen Produkten.

Stutensee, den 26.02.2013

Dietmar Gräbe

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