

# Operating Guide

## Sintering furnace HT/ HT Speed

English



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## 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 **Sintering furnace HT/HT Speed** is a high temperature furnace intended for commercial use in dental laboratories and may only be used for sinterable ceramics and sinterable metals.



#### 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 **Sintering furnace HT/HT Speed** for the sintering of sinterable ceramics and metals 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  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  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 .
- ▶ Use of replacement parts that have not been authorized by .
- ▶ Use that does not correspond to the conformity declaration.
- ▶ Technical changes and modifications to the device, that have not been approved by .

### Observance of the Operating Guide



#### NOTE

Read this operating guide carefully before use.

For the safe operation of the **Sintering furnace HT/HT Speed**, 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

Dimensions (W x H x D)	500 x 770 x 600 mm
Combustion chamber volume	2 Basins Ø 120 mm
Max. Temperature	1650 °C
Heating rate HT HT Speed	30°C/min 99°C/min
Weight	58 kg
Minimum distance surrounding the Sintering furnace HT/HT Speed	50 mm

### Electrical connection data

Voltage supply	200 - 240 V (± 10% deviation)
Frequency	50/60 Hz
Max. power input	3.1 kW
Energy consumption/cycle	ca. 5.8 kWh
Fuse protection (customer side)	Connection to a separate electrical circuit with fuse 6 A, Type K, Z
Type of Protection	IP 20 (Protection from the penetration of foreign objects, but not from the penetration of water)

### Operating conditions

Installation area:	Only interior areas (in dry rooms)
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

- |   |                          |    |   |
|---|--------------------------|----|---|
| 1 | Heat chamber             | 7  | Rechargeable battery pack   |
| 2 | Door (with panel)        | 8  | Emergency cooling system  |
| 3 | Regulating unit          | 9  | Network filter  |
| 4 | Main power switch on/off | 10 | RS232 interface for the transmission of the measured temperature values to a PC |
| 5 | Drive module             | 11 | Fuses (2x)  |
| 6 | Ventilator               | 12 | Power supply  |

### Controls

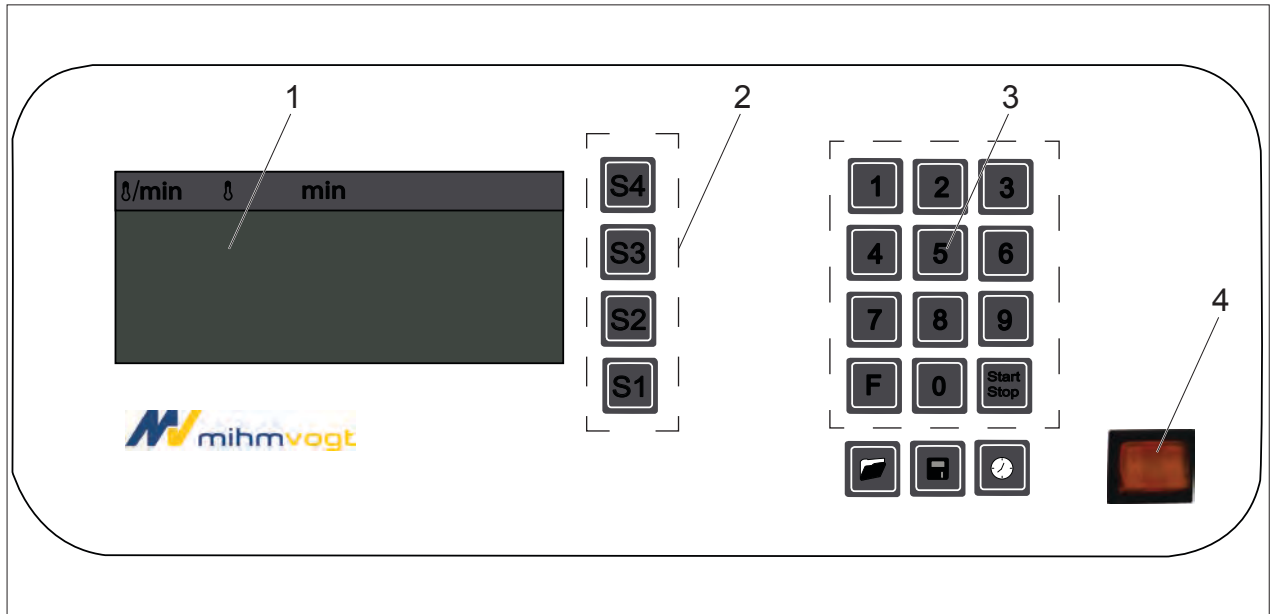


Fig. 2: Controls

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

### Display

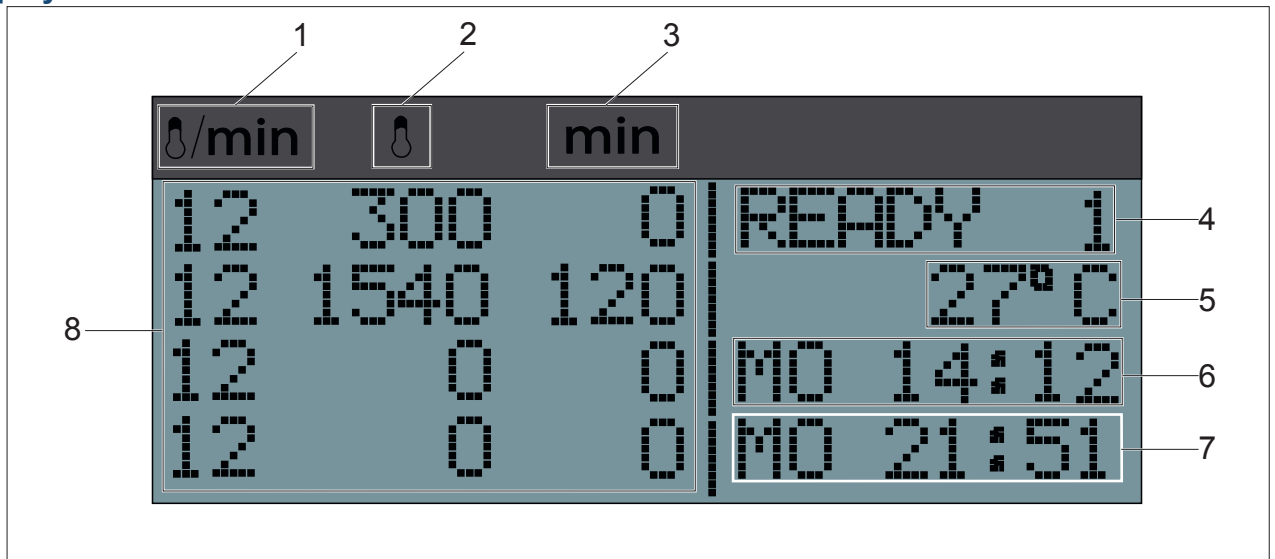


Fig. 3: Display notice

- |   |                               |   |  |
|---|-------------------------------|---|--|
| 1 | Heating rate (°C/Minute)      | 5 | Ambient 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

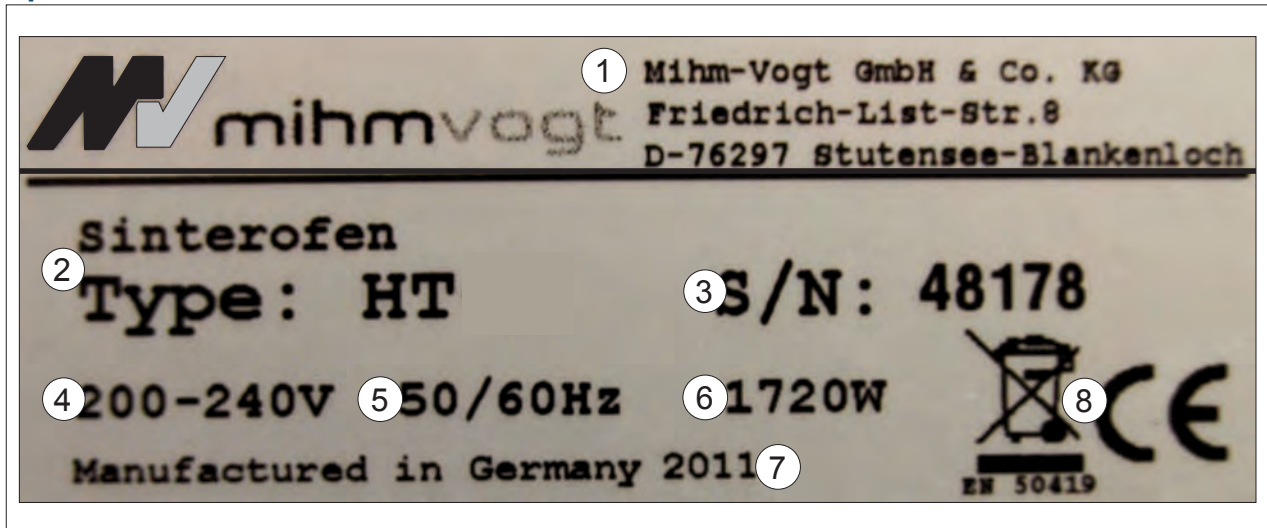


Fig. 4: Type plate (example representation)

- |   |                          |   |                     |
|---|--------------------------|---|---------------------|
| 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 **Sintering furnace HT/HT Speed** is used for the processing of sinterable ceramics and metals.

The product to be sintered is placed on the tray feature of the furnace door. After entering the heat parameters and pressing the start key, the electrically driven furnace door closes and the heating process begins.

After the heating program has completed and the **Sintering furnace HT/HT Speed** has cooled down, the furnace door opens and the finished product can be removed.

#### *Heat chamber*

The product is sintered in the heating chamber. It consists of two different, ceramic insulating layers and is operated with four heat elements connected in a series. The external insulating layer is designed for temperatures up to 1200°C, the interior for temperatures up to 1700° C.

#### *Furnace door*

The furnace door consists of a two-part ceramic door panel. A security switch disrupts the heating current as soon as the furnace door is opened.

A sliding clutch used in the drive mechanism to prevent excessive contact pressure between the furnace door and the heating chamber.

#### *Furnace housing - Emergency cooling system*

The furnace housing consists of sheet metal, is plastic coated on the inside and the outside, and is cooled by an emergency cooling system.

It then heats up during operation to a maximum 60°C. An integrated rechargeable battery guarantees the emergency cooling even in the case of a loss of the power supply.

#### *Regulation system*

The regulation system is equipped with a completion time setting according to 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  $\pm 1^\circ\text{C}$ .

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, overheating of the **Sintering furnace HT/HT Speed** because of a defective temperature sensor is prevented.

The regulation system controls a completion time setting that can be programmed for weekdays and times. The switch-on time can be calculated automatically here so that the heating program is concluded at the previously set completion time and the product can be removed.

## Transportation, packaging, and storage

### Transportation



#### CAUTION

##### Danger of injury by the weight of the furnace!

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


- Only carry/move the **Sintering furnace HT/HT Speed** 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  for damages and losses that have only been retroactively assessed.

### Packaging



#### NOTE

The packaging protects the **Sintering furnace HT/HT Speed** 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

### 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.
- Disconnect the electrical supply of the **Sintering furnace HT/HT Speed** and secure it from being reconnected before installation, maintenance, cleaning and repair work.



#### DANGER

##### Risk of ignition!

Use of inflammatory and explosive materials in the furnace area.

- Do not operate the **Sintering furnace HT/HT Speed** near easily ignited sources.
- Do not install the **Sintering furnace HT/HT Speed** in easily ignitable set up areas.



#### WARNING

##### Hot surfaces!

Serious burns possible.

- During operation do not grasp the housing and the furnace door.
- First allow the **Sintering furnace HT/HT Speed** to cool down completely before performing maintenance, cleaning, and repair work.
- Wearing heat-resistant safety gloves when working with hot components is required.



#### CAUTION

##### Danger of injury and property damage!

Incorrect installation and initial startup

- The installation and initial startup may only be done by trained specialist personnel.
- 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.
- Secure components and tools from falling.



#### CAUTION

##### Danger of injury by the weight of the furnace!

The risk of physical overload/back problems exist due to the excessive net weight.

- Only carry/move the **Sintering furnace HT/HT Speed** using at least two people.



#### CAUTION

##### Tipping loads!

Insufficient load capacity in the installation area.

- Make sure before the installation of the **Sintering furnace HT/HT Speed** that there is sufficient load capacity in the installation area.

## Installation



### NOTE

The installation and initial startup of the **Sintering furnace HT/HT Speed** may only be done by trained specialist personnel.

In the installation and operation of the **Sintering furnace HT/HT Speed** observe country specific standards and regulations!

Do not make changes to components or safety provisions, that could impair the operational reliability of the **Sintering furnace HT/HT Speed**.

Make sure that the power supply of the **Sintering furnace HT/HT Speed** is always accessible.

1. Align the installation area horizontally.
2. Place the **Sintering furnace HT/HT Speed** in the installation area.
- ⚠ *Make sure that the floor surface is skid proof.*
3. Connect the electrical plug of the **Sintering furnace HT/HT Speed** to the appropriate electrical supply outlet.
- ⚠ *Observe the electrical voltage information on the type plate.*

## Initial startup

### Removal of transport safety measures

1. Turn the **Sintering furnace HT/HT Speed** on.
- ➡ The furnace door automatically moves downward.
2. Remove the transport safety measures (cardboard) from the heating chamber.

### Mounting the door panel (insulation)

1. Insert the fixing pins (Pos. 1) into the lower part of the door panel.
2. Insert the support pins (Pos. 2) into the lower part of the door panel.
3. Set the upper part of the door panel on the fixing pins (Pos. 1).
4. Insert the complete door panel into the oven door.

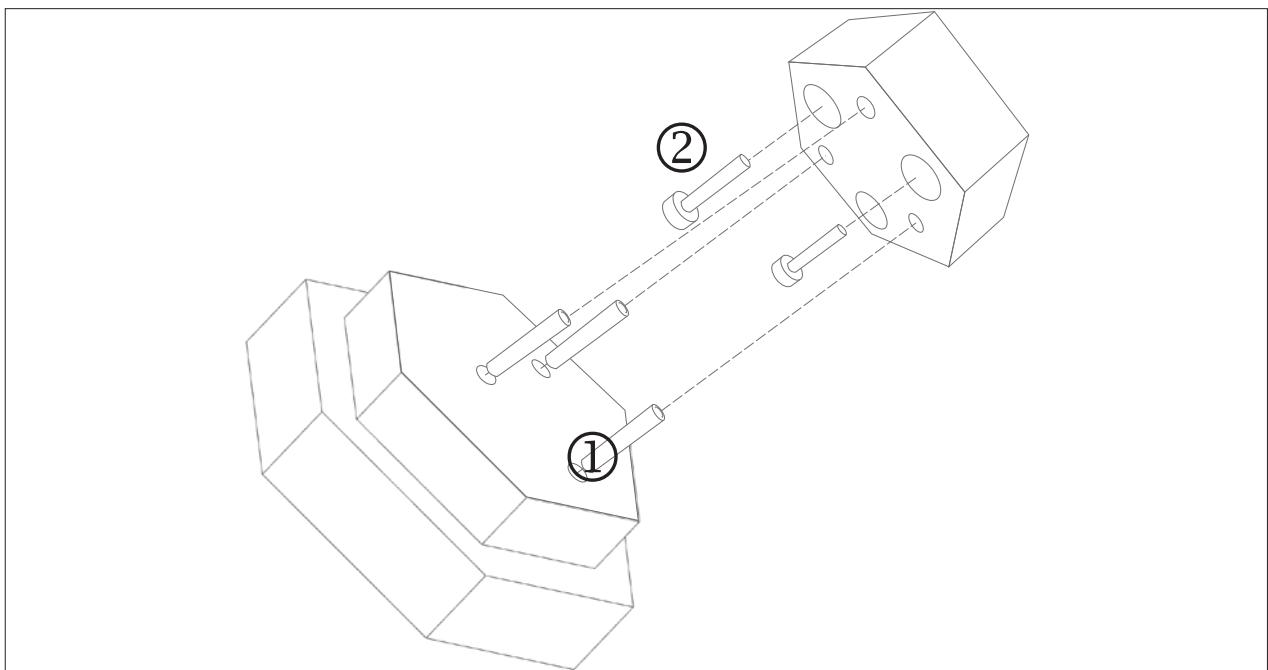


Fig. 5: Mounting the door panel

Parameter settings



**NOTE**

The **Sintering furnace HT/HT Speed** is delivered from the factory with preset times and preprogrammed heating programs.

The **Sintering furnace HT/HT Speed** does not automatically implement summer and winter time settings.

1. Turn the **Sintering furnace HT/HT Speed** on with the main power switch.
2. Press the **F** button.
- ↻ The parameter menu is opened.

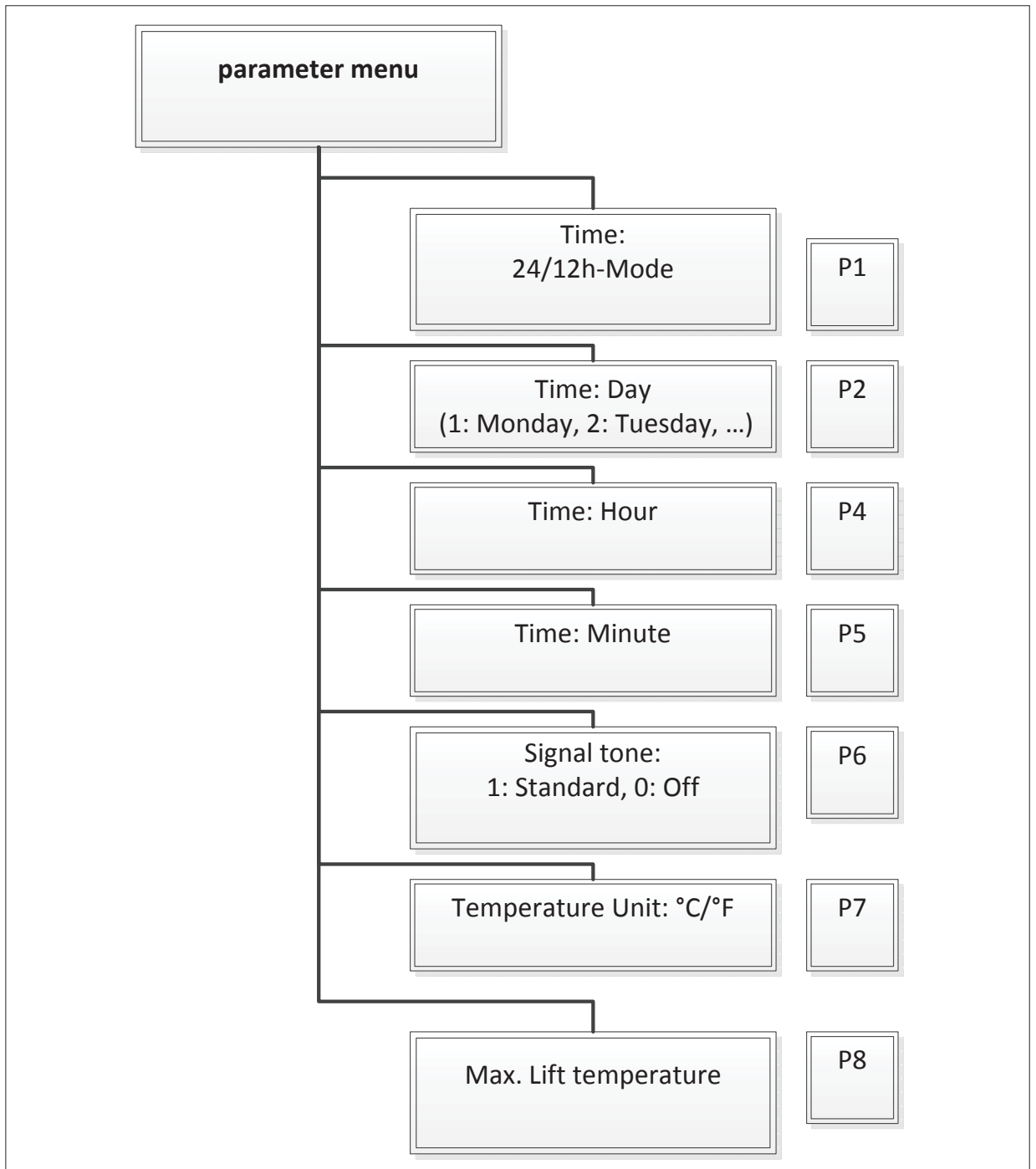













Fig. 6: Parameter menu






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		Change system language (DE, EN, FR, IT, ES, DA, CZ, NL)
Tone signal		Turn tone signal on, off
Date		Set weekday and time
further		Jump to the next parameter menu
max. adjustable lift opening temperature		Serves the second security. The lift opening temperature is set in S4.
Time scheme		Time display 12/24h mode
Temperature scale		Temperature unit° C/F
further		Exit parameter menu

## Set weekday and time

1. Press the  button.
2. Press the  button.
- The **DATE** menu opens.
3. Set the weekday using the buttons 1-7 (1 = Mo, 2 = Tue, 3 = We, etc.)
4. Press the  button to change to the hours display.
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.

## Set lift temperature



1. Press the  button.
2. Press the  button.
- The second parameter menu opens.
3. Press the  button.
- The **LIFT TEMPERATURE** menu opens.
4. Set the lift temperature 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 HT 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 Sintering furnace HT/HT Speed 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.
- Disconnect the electrical supply of the **Sintering furnace HT/HT Speed** and secure it from being reconnected before installation, maintenance, cleaning and repair work.



#### DANGER

##### Risk of ignition!

Use of inflammatory and explosive materials in the furnace area.

- Do not operate the **Sintering furnace HT/HT Speed** near easily ignited sources.
- Do not install the **Sintering furnace HT/HT Speed** in easily ignitable set up areas.



#### WARNING

##### Hot surfaces!

Serious burns possible.

- During operation do not grasp the housing and the furnace door.
- Do not reach into the heat chamber. High residual heat can still exist from a previous heating process.
- Allow the **Sintering furnace HT/HT Speed** to completely cool down first before performing maintenance, cleaning, and repair work.
- Wear heat-resistant safety gloves if working with hot components is required.
- Use sufficiently long loading pliers for placing and removing sintered goods.

### Turning on the Sintering furnace HT/HT Speed

1. Place the power supply here (see „Installation and initial startup“ on page 14).
  2. Turn the **Sintering furnace HT/HT Speed** on with the main power switch (see „Construction and function“ on page 9).
- The power control light lights up.
  - After 3 seconds the heating program selected previous to the last shutdown is displayed.

⌚/min	⌚	min		
12	300	0	READY	1
12	1540	120		27°C
12	0	0	MO	14:12
12	0	0	MO	21:51

Fig. 7: Heating program - example display

## Loading the Sintering furnace HT/HT Speed




### CAUTION

#### Damaged door panel!

The ceramic door panel is extremely porous and sensitive to scratch and force.

- Handle the door panel carefully.
- Do not grasp the door panel with the loading pliers.


1. Turn the **Sintering furnace HT/HT Speed** on.
- ➔ The furnace door opens automatically.
2. Fill the basin included in the delivery one-third full with filler beads, place the goods to be sintered inside and then close the basin with the accompanying cover.
3. Place the loaded basin on the receptacle.
4. Select a heating program and start it by pressing the  button.
- ➔ The furnace door closes automatically.



### CAUTION

#### Danger of crushing of extremities!

The furnace door closes automatically.

- Only press the  button after the goods to be sintered have been placed.
- Make sure that no one places a limb or any object between the furnace door and the heating chamber while the furnace door is closing.


## Programming the heat levels



### NOTE

The control can be used to define the warm-up period of the sintering 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  button.
- ➔ The cursor for the entry blinks in the field  $\text{0/min}$ .
2. Enter the heating rate using the numbers 0-9.




### NOTE

If the heating rate is specified with "0", then the **Sintering furnace HT/HT Speed** heats up to the maximum heating rate of 30°C (Model HT) rather 99°C (Model HT Speed).

Heating rates of between 1 - 30°C (Model HT) rather 1 - 99°C (Model HT Speed) 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  should be heated by using the numbers 0-9.



**NOTE**

The maximum programmable temperature of the **Sintering furnace HT/HT Speed** is 1650° 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  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 **Sintering furnace HT/HT Speed** 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.



**NOTE**

If not all 4 heat levels are required, make sure that they are set to "0".

The levels  regulate the door opening temperature and must be entered.

## Storing the heating program



### NOTE

The *Sintering furnace HT/HT Speed* can store up to 30 different heating programs.

Stored heating programs are saved even after the *Sintering furnace HT/HT Speed* 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.

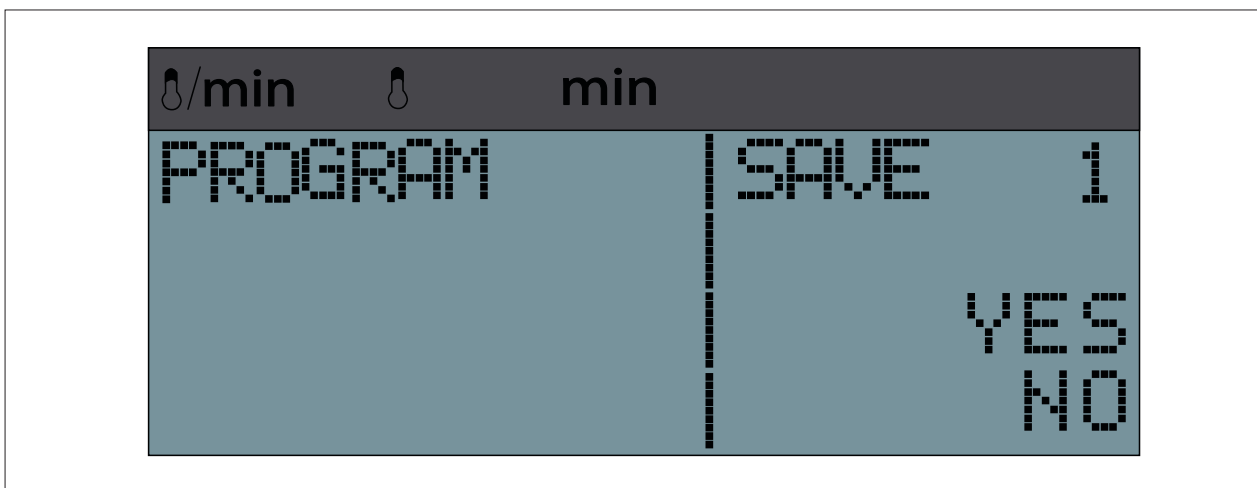




Fig. 8: Menu "Save"

2. Press the  button in order to store the heating program.
3. Press the  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 menu **STORAGE** is displayed.

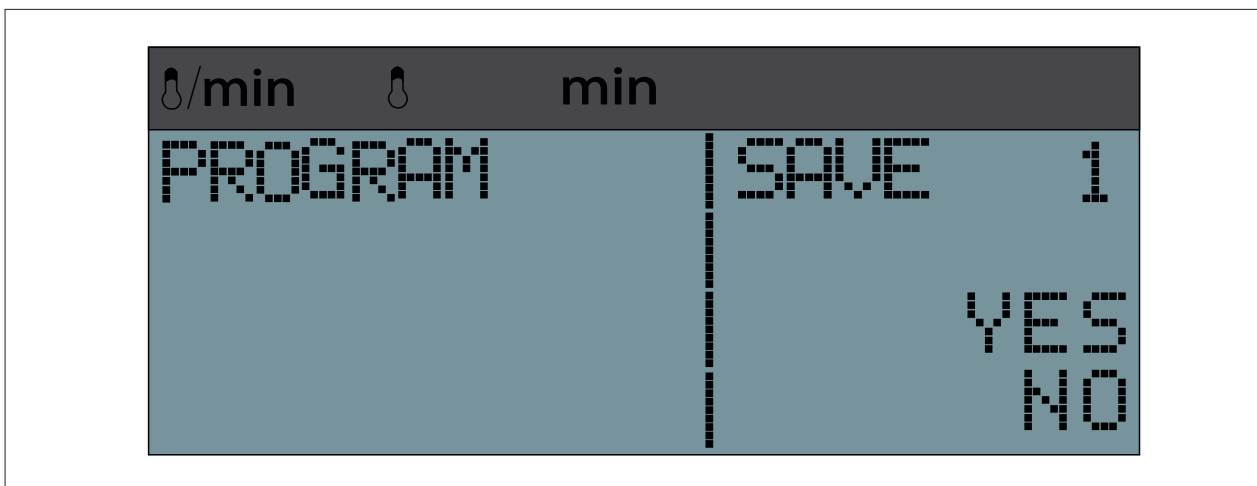





Fig. 9: Menu "Save"

2. Press the  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  button to proceed to the next letter.
4. After the selected name has been entered, press the  button to store the changes.

### Loading the heating program

1. Press the  button.
- ➔ The **LOAD PROGRAM** menu opens.

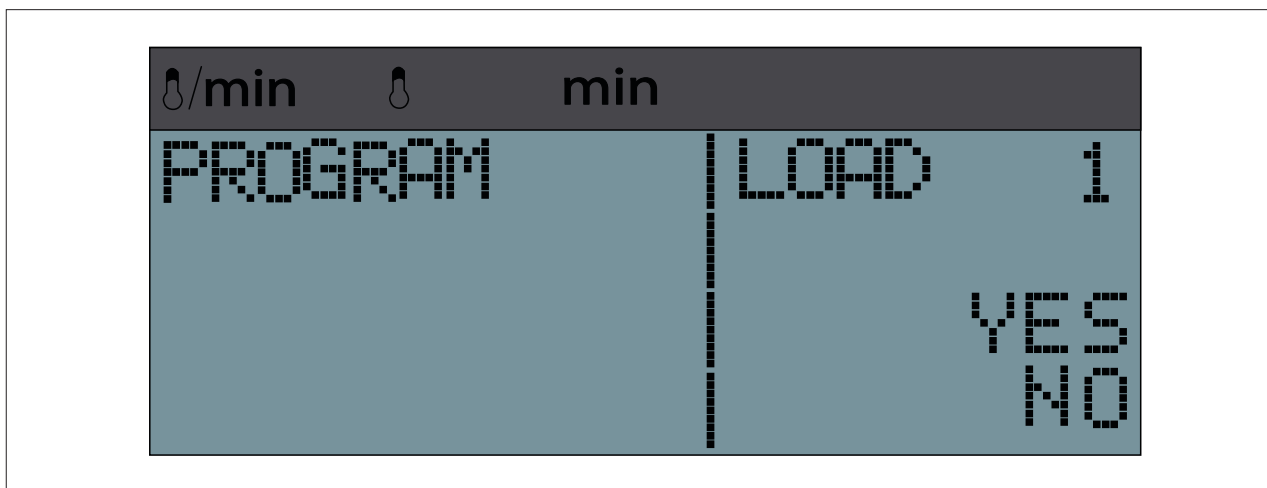






Fig. 10: "Load program" menu

2. Press the  button for as long 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  button to confirm the loading.
- ➔ The loaded heating program is displayed.
4. Press the  button to cancel the loading.
- ➔ The previously loaded heating program is displayed.

## Start/stop heating program

### Prerequisites

- **Sintering furnace HT/HT Speed** is loaded
- Heating program is loaded

1. Press the  button.
  - ➔ The heating program starts.
  - ➔ The furnace door closes automatically.
  - ➔ The status display changes from **READY** to **IN PROCESS**.

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

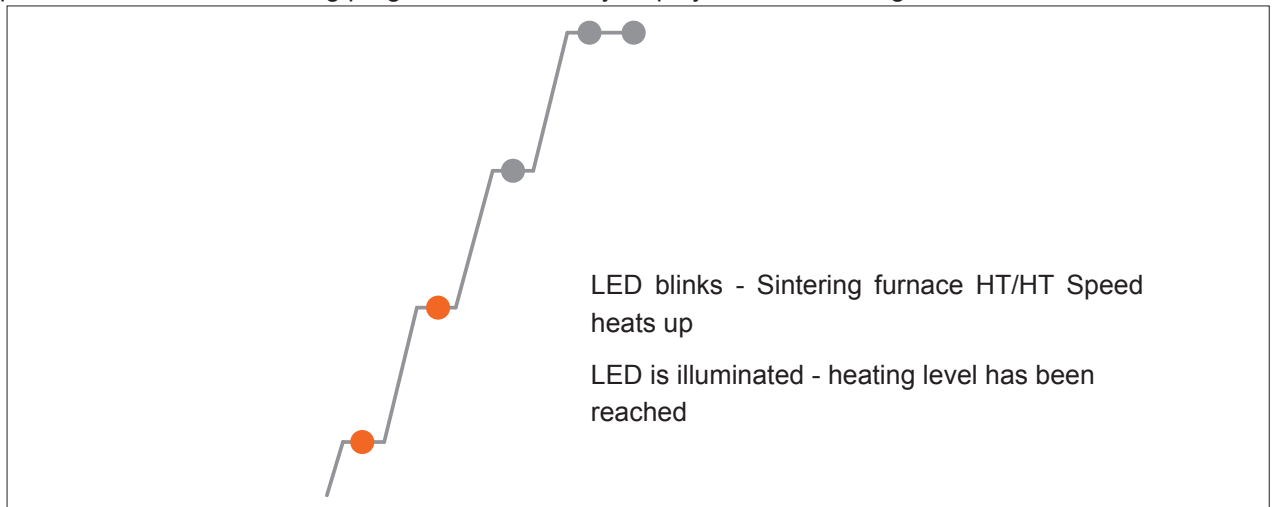




Fig. 11: Level diagram process status

2. Press the  button again.
  - ➔ The heating program is stopped.
  - ➔ The status display changes from **IN PROCESS** to **READY**.
3. Press the  button again to continue the loading.



## Automatically starting the heating program

The **Sintering furnace HT/HT Speed** 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 23).

2. Press the  button.

- ➔ The **AUTOMATIC START** program opens.



Fig. 12: "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.

### Sintering with ventilation



#### NOTE

With an additional function in the sintering process the combustion chamber is additionally ventilated, which has a positive affect on the oxidation process.

This function is only possible on program positions 23 - 24.

🔧/min	🔧	min		
12	300	0	READY	1
12	1470	120		27° C
12	0	0	MO	14:12
12	1300	0	MO	21:51

Fig. 13: "Sintering with ventilation" menu

Level 1	Warm-up to the drying temperature. The door stays 5mm open. At the end of the first step (max. 999 min) the door closes. <b>Adjustable maximum value: 1650°C.</b>
Level 2	Warm-up to a intermediate temperature with a stop time.
Level 3	Warm-up to the sintering temperature with a stop time.
Level 4	Door opening temperature (here as an example 300° C). <b>Adjustable maximum value: 300°C.</b>

## 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 **Sintering furnace HT/HT Speed** 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 **Sintering furnace HT/HT Speed** 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 „Parametereinstellungen“ on page 16)	
<b>Sintering furnace</b> does not start automatically	Loss of power/ interruption of the power supply	Check the voltage supply for continuity, notify the electrician, as appropriate.	
No notice in the display, network control light illuminated, at start up the LED levels are not illuminated	Defective protection fuse	Turn off <b>Sintering furnace</b> wait 10 seconds, turn it on again.  For repeated malfunctioning, notify service.	Operator
No notice in the display, network control light does not illuminate	No power supply available	Check the on-site fuses.  Check the connection line, as appropriate. Notify electrician.	
Display: "Safety shut-down"	Furnace temperature is over 1650 °C	Turn off furnace and allow to cool down. If the error reoccurs notify service.	
Pieces from the door panel have fallen out, other damages to the door panel	Improper handling of the door panel	Replace the door panel.	Operator
"Power failure" display	Power failure during the sintering process of more than 10s	Confirm with Start/ Stop button	Operator
Display: „Sensor + <-> -“	Furnace interior is considerably colder than room temperature	Open furnace to allow the chamber interior to reach room temperature.	-
	Thermal element incorrectly connected/polarity-reversed	Change thermal element.	Electricians, service department 
Display: "Sensor defective"	defective thermal element	Replace thermal element.	Service department 
	loose thermal element connections	Tighten thermal element connections.	Electricians, service department 
No notice in the display, network control light illuminated, at start up the LED levels are briefly illuminated	defective display	Replace the regulator.	Electricians, service department 
LED level blinks, but furnace does not heat	defective heating	Check the heating for consistency.	Electricians, service department 

## Shutdown

Shutdown can occur for two reasons:

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

### NOTE

If the **Sintering furnace HT/HT Speed** 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 **Sintering furnace HT/HT Speed** off.
2. Unplug it **Sintering furnace HT/HT Speed** from the electrical power supply.
3. Unplug all connections (for example the PC interface cable, etc.) from Sintering furnace HT/HT Speed.

## 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 **Sintering furnace HT/HT Speed** according to recyclable materials, dangerous materials, and operating material.
2. Dispose of the components of the **Sintering furnace HT/HT Speed** 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

Seriennummern: Dunstabzugshauben: DU1, DU2, DU3/2, DU3/3  
ab 37 006

Seriennummern: galvanische Geräte: EG, EG1, EG2, GBH,GABH  
ab 3329

Seriennummern: Katalysatoren: KN1, KN2  
Dampfzugsgebläse: DG2  
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



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(Geschäftsführer)

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