

# LAARMANN

*Innovators in Solids*

## USER'S MANUAL

### LAARMANN Drying Oven LMHAD 2500

Edition      Month      Year

2.      December      2017

## TABLE OF CONTENTS




<b>1. SAFETY INFORMATION .....</b>	<b>3</b>
1.1. WARNING SYMBOLS .....	3
1.2. SAFETY INSTRUCTIONS.....	3
<b>2. GENERAL DESCRIPTION.....</b>	<b>5</b>
<b>3. TECHNICAL FEATURES.....</b>	<b>6</b>
3.1. CONSTRUCTION.....	6
3.2. TECHNICAL DATA.....	6
<b>4. INSTALLATION .....</b>	<b>7</b>
4.1. UNPACKING .....	7
4.2. SELECTING THE RIGHT PLACE .....	7
4.3. CONNECTING THE POWER CORD .....	7
4.4. ENVIRONMENT CONDITIONS.....	8
<b>5. INSTRUCTIONS FOR USE.....</b>	<b>9</b>
5.1. OVERALL VIEW	
5.2. ASSEMBLING THE CONTROLBOX .....	9
5.3. CONTROL PANEL DESCRIPTION.....	10
<b>6. WORKING INSTRUCTIONS.....</b>	<b>15</b>
6.1. GENERAL .....	15
6.2. MAINTENANCE .....	16
6.3. WEAR.....	16
6.4. CLEANING .....	16

## 1. SAFETY INFORMATION







Before using the machine, make sure to read and understand this manual thoroughly. Keep the manual close to the machine, easily accessible to all the users. Improper operation can cause injury to persons or damage to the equipment.






### 1.1. WARNING SYMBOLS

The following are the warning symbols that are used in this manual.

	This symbol indicates a potential risk and alerts you to proceed with caution.
	This symbol indicates the presence of high voltage and warns the user to proceed with caution.
	This symbol indicates risks associated with hot surfaces.

### 1.2. SAFETY INSTRUCTIONS

	<b>Safety instructions</b> Claims for damages in any form whatsoever, for injury to persons or damage to the machine, caused through non-observance of the following safety instructions, are excluded.
	<b>Use according to the intended purpose</b> Do not make any alterations to the machine and use only approved spare parts and accessories. Otherwise the Declaration of Conformity will lose its validity and this will also lead to the loss of any guarantee claims.
	<b>Transport</b> Do not knock, shake or throw the LMHAD during transport. Otherwise the electronic and mechanical components may be damaged.
	<b>Packing material</b> Please keep the packing material for the duration of the guarantee period. In case of a complaint and return of the machine in unsuitable packing material, your guarantee claim will be lost.
	<b>Temperature variations</b> If the LMHAD is subjected to high temperature variations, protect it against condensed water. Otherwise the electronic components may be damaged.
	<b>Ambient temperature</b> If the temperature drops below +5°C or exceeds +40°C, electronic and mechanical components can be damaged. Performance can be changed to an unknown extent.

	<b>Atmospheric humidity</b> If the humidity exceeds 85%, electronic and mechanical components can be damaged. Performance can be changed to an unknown extent.
	<b>Electrical connection</b> If the values for the mains power supply on the name plate are not observed, the electrical and mechanical components may be damaged.
	<b>Materials</b> Observe the relevant regulations and directives for handling chemicals and hazardous materials.
	<b>Cleaning</b> Do not clean the LMHAD under running water. Danger to life through electric shock. Use only a soft cloth moistened with water. Cleaning agents and solvents should not be used.
	<b>Repair</b> For your own safety, repairs must be carried out only by authorized service technicians.

## 2. GENERAL DESCRIPTION

The LMHAD is a laboratory machine, which is suitable for drying.

The LAARMANN Drying Oven has been expressly designed for high through-put drying applications. High reliability and ease of operation combine to produce a Drying Oven suited for laboratory and mine-site use.

LAARMANN Drying Ovens feature digital temperature control providing accurate control of oven temperatures. LAARMANN Drying Ovens also feature over-temperature control.



### 3. TECHNICAL FEATURES

#### 3.1. CONSTRUCTION

The housing of LMHAD is made of steel plate varnished with high resistant Powder coating.

#### Protective equipment

The drying chamber of the LMHAD is enclosed by a strong covering hood.

#### 3.2. TECHNICAL DATA

Power supply	3x400V/50Hz
Rated power	12kW
Dimensions W x D x H	1700x1800x1960
Weight	approx. 2000kg
Noise emission	70dB(A)
Ambient temperature	+5°C - + 40°C
Atmospheric humidity	< 85% RH

## 4. INSTALLATION

### 4.1. UNPACKING

Before the installation, carefully examine the delivery for possible damage or missing parts. Check that the machine has not been visibly damaged during the transport. Please keep the packing material for the duration of the guarantee period. In case of a complaint and return of the machine in unsuitable packing material, your guarantee claim will be lost.

Check that the mains cord is compatible with the local standard.

If any kind of damage occurred during transport, immediately make a complaint to the carrier. Any incorrect delivery or missing parts should be reported to the distributor.

### 4.2. SELECTING THE RIGHT PLACE

When selecting the right place for the machine, please consider the following:

- Put the device on smooth and stable concrete floor.
- Leave enough space beyond the device.
- Leave enough space around the device, that you will easy control and maintain it.
- Don't use the device in surroundings, where there are fast temperature and humidity changes. Also avoid places exposed to direct sunlight and places nearby heating devices.
- Avoid places, where the possibility of shocks and vibrations exists.

**Note: The machine should not be placed so, that it is difficult to pull out the cord plug from mains power supply.**

### 4.3. CONNECTING THE POWER CORD

The correct voltage and frequency for the LMHAD are given on the name plate.

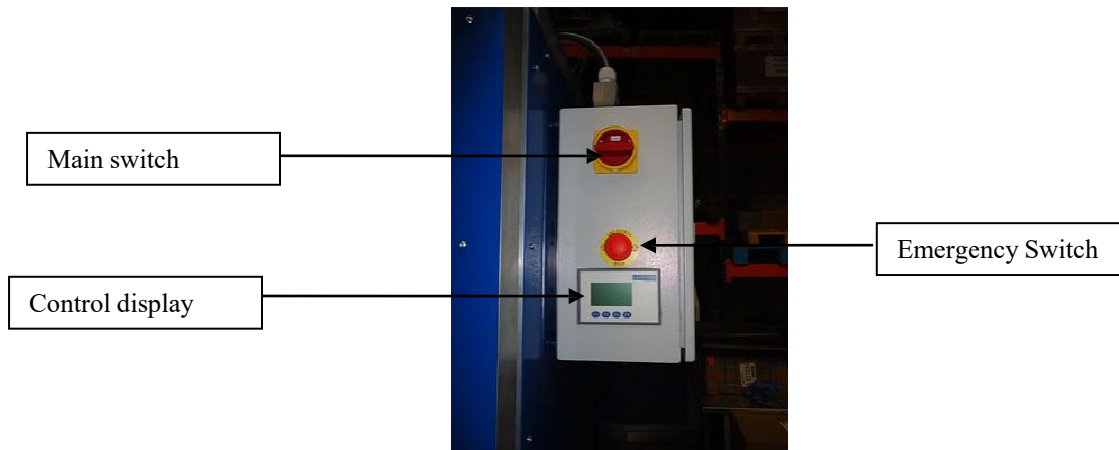
Ensure that these values correspond to the available power supply system.

Connect the power cord to a grounded wall socket.

To avoid interference from noise, surges and spikes, a dedicated line is preferred. If no such line is available, avoid lines to which powerful electric motors, refrigerators and similar devices are connected.

## USER'S MANUAL LAARMANN LMHAD

The power can be turned on and off by the Main switch , located on the top of the control panel of the machine.



### 4.4. ENVIRONMENT CONDITIONS

The machine has been built for operating in process and laboratory environment. Therefore the environmental conditions should be the following:

- Temperature from +5°C to +40°C
- Humidity up to 85% RH, non-condensing
  
- CONTROL PANEL (on the right side of LMHAD – front view)
- Main switch
- Emergency switch
- Control display

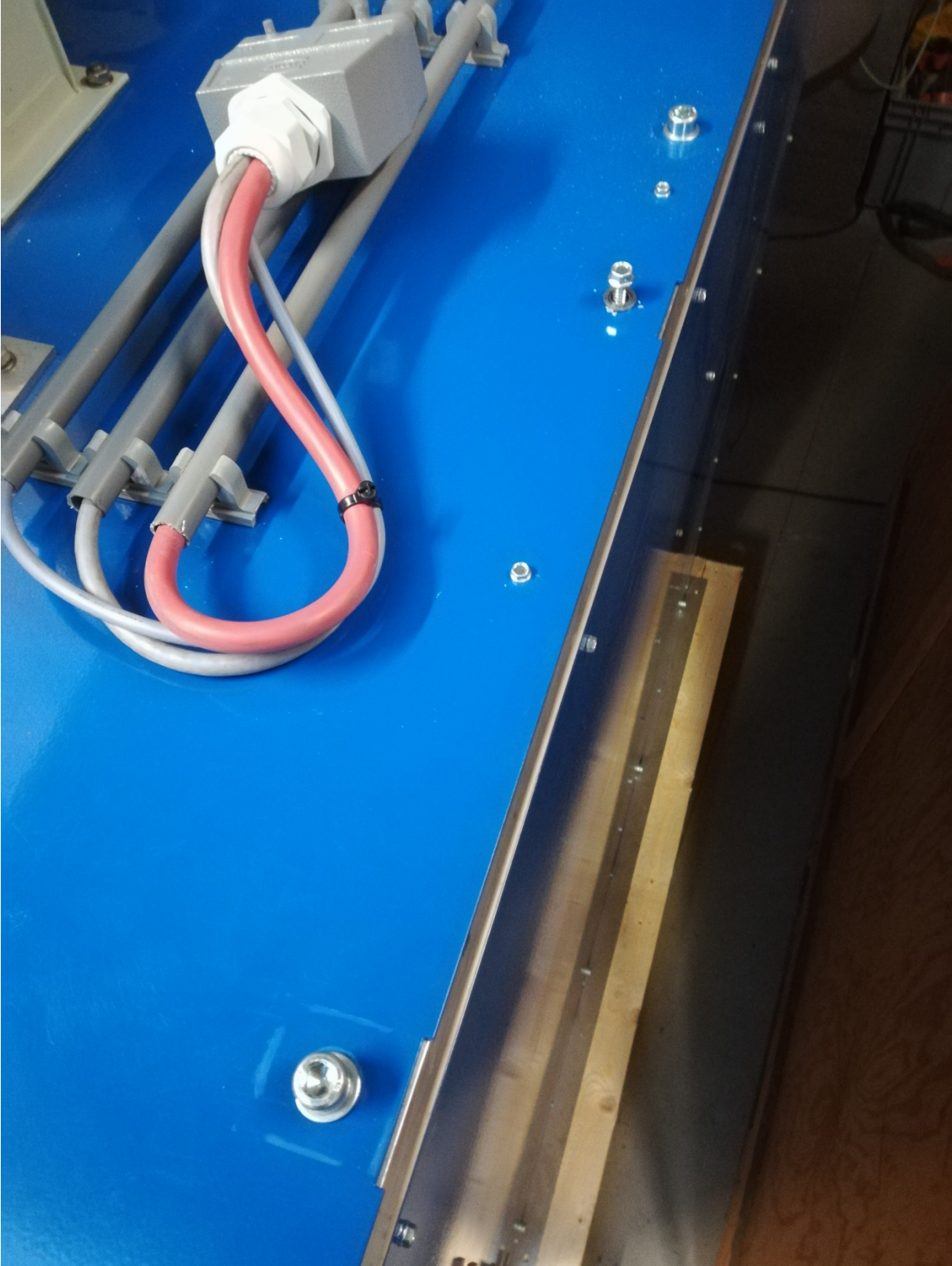


**Starting of the machine is possible only with the door closed.  
Always start and stop the machine with the main switch.**



5. Instructions for use

5.1. Assembling the controlbox







## 5.2. Workflow keypad



Emergency stop after resting the switch press F4 to reset. After 2 minutes of no key or unit activity a screen saver appears with “Laarmann” and the machine number when you press any of the 4 keys it goes back to the last menu that was in use.



Screen saver “Laarmann” appears

**USER'S MANUAL LAARMANN LMHAD**



Menu 1 choice Automatic or Hand (For navigating through the automatic menu F1 is to go forward to the next screen F2 is back to the pervious screen)



F1 Start / F” Stop  
F4 brings you back to the first menu.



Display shows temperature



Press F2 to Stop  
Press F3 to increase and F4 to decrease the temperature



Display shows cooling down



Adjusting of hours total time  
Display shows total time Press F3 to increase and F4 to decrease time  
Press F1 for Next



Adjusting of minutes total time

## USER'S MANUAL LAARMANN LMHAD

Display shows total time Press F3 to increase and F4 to decrease time  
Press F1 for Next



Adjusting of seconds total time  
Display shows total time. Press F3 to increase and F4 to decrease time  
Press F1 for Next



Temperature setting  
Display shows selected temperature. Press F3 to increase and F4 to decrease  
temperature. Press F1 for Next





Adjusting of cooling time

Display shows Cooling down time. Press F3 to increase and F4 to decrease Cooling down time. Press F1 for Next



Total Time selected

Press F3 to Start



Display shows remaining time in hours / minutes / seconds  
Press F4 to Stop



Display shows Oven temperature



Automatic counter shows Cooling Down time




## 6. WORKING INSTRUCTIONS

### 6.1. GENERAL

The LMHAD is a high performance product. Because of the large selection of accessories, the LMHAD is a machine with many different application possibilities in laboratories, industry and research. It is used mainly in mineralogical and agricultural applications etc.



The drying process can only be started, when the door is closed.

	Do not open the front door during the drying process.
	Do not dry flammable or explosive samples!
	Please note that the properties and therefore the dangerous nature of your sample, can change during the drying process.



## **6.2. MAINTENANCE**

LMHAD is maintenance free. When used properly, no maintenance and setting is necessary. Do not make any alterations to the machine and use only approved spare parts and accessories.

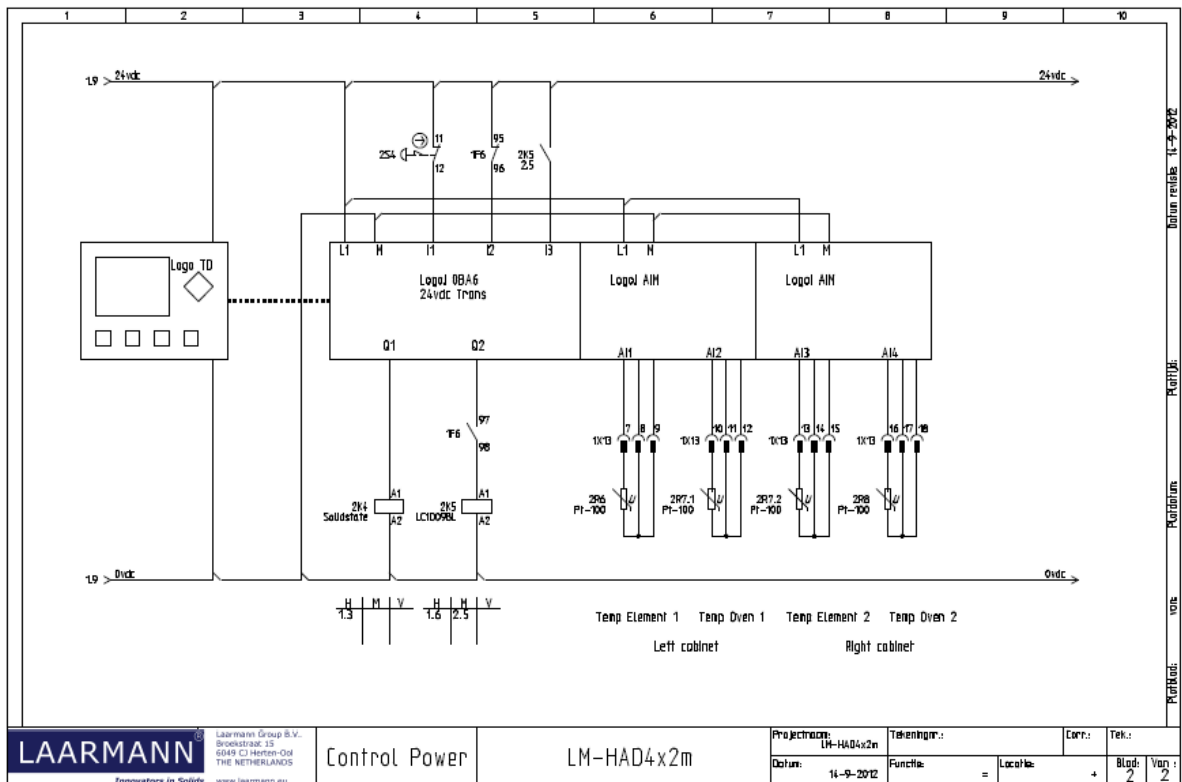
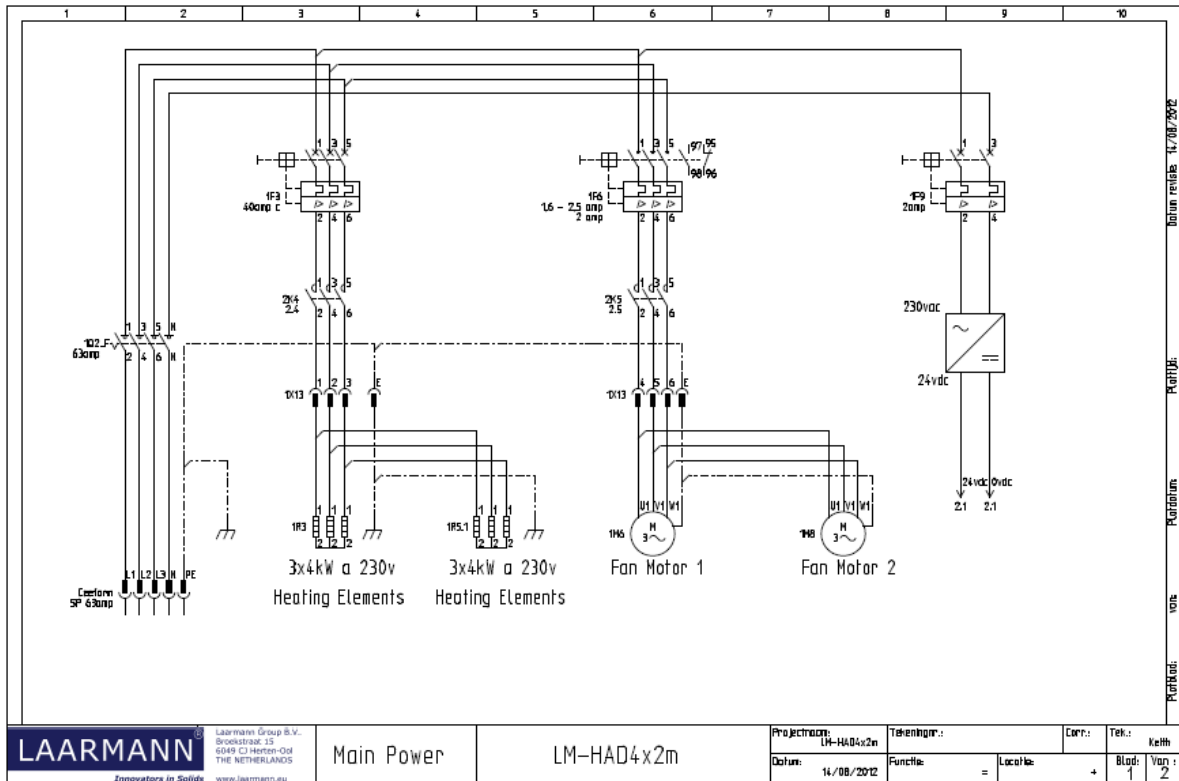
## **6.3. WEAR**

All wearing parts such as wheels, handles, sample storage container should be regularly checked for wear and replaced, if necessary.

## **6.4. CLEANING**

	Before cleaning the machine, unplug the mains cord from wall socket. Use only a soft cloth moistened with water. Cleaning agents and solvents should not be used.
	Do not clean the LMHAD under running water. Danger to life through electric shock.

Electrical Diagramm



Note: Subject to technical modifications.

***Copyright: Distributing this documentation, utilizing or distributing the contents is permitted only with the express consent of LAARMANN Group B.V.***

Contact details:



Laarmann Group B.V.

*Op het Schoor 6  
6041 AV Roermond  
THE NETHERLANDS*

*Tel +31 475 470 217  
Fax +31 472 470 242*

E-Mail [info@laarmann.eu](mailto:info@laarmann.eu)