

INSTRUCTION MANUAL

**LAFOMED COMPACT LINE AUTOCLAVE LFSS08AD WITH
PRINTER**

**LAFOMED COMPACT LINE AUTOCLAVE LFSS12AD WITH
PRINTER**

**LAFOMED COMPACT LINE AUTOCLAVE LFSS18AD WITH
PRINTER**

**LAFOMED COMPACT LINE AUTOCLAVE LFSS23AD WITH
PRINTER**



**IMPORTER
W POLSCE**

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**CE
0123**



Before using the device, the user is required to read this manual carefully. The manual is provided to inform you about the correct use of the autoclave. Use the device in accordance with all information contained in this manual to ensure proper operation of the autoclave.



The device must be operated only by qualified personnel who have the knowledge and appropriate training to operate this type of equipment. A suitable person should be designated to operate and maintain the device.

HISTORY OF CHANGES IN INSTRUCTIONS

Changed item (Chapter)	Changed content	Date of introduction Changes	Number and date of issue of instructions	Notes
All	New document	09.12.2015	English language manual (original) GC-JS-20 V1.0 Rev: 01/00 09.12.2015	
		16.04.2018	English-language manual GC-JS-20 W1/Rev.0/23.04.2018	

INFORMATION ABOUT DEVICE

Trade name:	
Serial Number (SN): (see nameplate on the device)	

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Do not use the autoclave in a manner other than that specified (intended) by the manufacturer. Use the device only in accordance with the information contained in this manual. Do not use the device using another manual. Make sure that the manual supplied with the device is the latest available version. The latest current version of the manual is available from the manufacturer or importer of the device. If you need the current manual, please contact your sales representative or the importer's service department.

SCOPE OF USE INSTRUCTIONS

This manual applies to the following models of the device: LFSS08AD, LFSS12AD, LFSS18AD, LFSS23AD.

IMPORTANT INFORMATION ON SAFETY

- Before using the device, read this manual carefully.
- Use the device in accordance with the information in this manual and its labeling.
- Keep the manual so that you can use it again.
- If you have any doubts or problems in using the device, contact the manufacturer or your dealer.
- Designate a suitably qualified person to operate the device. The autoclave should only be operated by a qualified user who has the knowledge and proper training to operate this type of equipment.

EXPLANATION OF SYMBOLS USED IN PRODUCT LABELING

	Caution, warning, important information. Information not included on the package/label.		CE mark with 4-digit number of Notified Body (symbol indicating compliance of the device with the requirements of Directive 93/43/EEC).
	Type I grounded device.		Caution: hot surface.
	Before using, read the instruction manual.		Dispose of the device in accordance with the requirements of Directive 2012/19/EC. Dispose of the used device to the treatment facilities for waste electrical and electronic equipment, in accordance with the applicable local regulations in this regard.
	Manufacturer.		Authorized representative in the European Union.
	Date of manufacture.		Serial number.
	Permissible temperature range: +5°C~ +40°C.		Store in a dry place.
	Humidity range (relative humidity ≤ 80%).		Range of storage height (stacked maximum 3 pieces).

	Do not roll.		The way to arrange the device during transport: Top, do not invert. Bottom up.
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WARNINGS AND IMPORTANT SAFETY INFORMATION

Please read the following warnings and information carefully. Ignoring or disregarding these warnings may lead to: electric shock, fire, damage to the device or damage to property.

1. Always connect the appliance to a triple grounded electrical outlet (AC 230 V $\pm$ 23 V, 10 A, 50 Hz~60 Hz). Make sure that the grounding pin outlet is properly installed each time before connecting the unit.
2. Do not place the autoclave in such a place where access to the electrical outlet will be difficult.
3. Always connect the device to the electrical voltage indicated on the device's nameplate.
4. Do not touch the outlet and plug with wet or damp hands.
5. Do not pull, alter, bend, coil or twist the power cord. Do not place any objects on the cord.
6. Do not place the autoclave on an unstable or uneven surface.
7. Do not block the autoclave's door, ventilation openings and the openings and spaces of the refrigeration elements.
8. Do not place any objects in front of or on the unit.
9. If any unpleasant odor is smelled or an unusual sound is heard (a sound different from that heard when the unit is operating), immediately disconnect the unit from the power source and contact the manufacturer or the dealer.
10. If the autoclave will not be used for a long period of time, disconnect the device from the power source and store it in a dry and cool room.
11. Use the device only for the purposes specified in this manual. The manufacturer is not responsible for damages caused by improper operation of the autoclave.
12. The manufacturer of the device is not responsible for any independent repairs, modifications, structural changes or disassembly of the device, carried out/conducted by an unauthorized person or an unqualified technician. Repairs to the device can be performed only by an employee of a company authorized by the manufacturer providing warranty and post-warranty service.



Only distilled water should be used for the autoclave. The use of other water may lead to damage to the device.

Change the water more often than 7 days! Clean the tank for clean and dirty (used) water more often than 7 days!

1. INTRODUCTION

This device is an automatic steam sterilizer intended for use only by doctors or other professionals with the knowledge or professional experience to operate this type of equipment. The autoclave is specially designed for use in hospitals, medical offices and facilities (in clinics), as well as in laboratories, etc. The autoclave is controlled by a microprocessor with an intelligent control system and a user-friendly interface, which makes the device very easy to use, safe and reliable. The parameters and conditions of the set program will be automatically shown on the digital display during the ongoing sterilization process. If any abnormal situation or malfunction occurs during the operation of the device, the device will automatically alarm by showing the corresponding error message on the display. If the temperature or pressure is too high, the autoclave will cut off the power supply to ensure the safety of its operator. Inside the autoclave there is a tank for condensing water, which ensures proper cleanliness inside the whole system and prevents steam from escaping to the outside.

CONSTRUCTION OF THE DEVICE



No.	Name of the component	No.	Name of the element
1.	Control panel.	2.	USB port.
3.	Handle for opening and closing the door.	4.	Tank for clean water (distilled water).
5.	ON/OFF button.	6.	Printer.
7.	Safety valve.	8.	Air outlet.
9.	Fuse	10.	Power socket.
11.	The nameplate.	12.	Door sensor.
13.	Bacteriological filter.	14.	Clean water tank drain valve.
15.	Drain valve of the dirty (used) water tank.		

2. SCOPE OF USE (APPLICATION DEVICE)

The autoclave is designed to sterilize invasive medical devices. The device allows to prevent cross-contamination.

The autoclave is particularly suitable for hospital departments, dentistry and ophthalmology, as well as for Biology Institutes conducting research projects. The device is designed to sterilize surgical instruments, tools

dental instruments, syringes, etc. The autoclave is designed to sterilize packaged and unpackaged, uniform, indented type A items and porous products according to the classification of materials presented in EN 13060:2004+A2:2010. The device can also be used for non-medical and veterinary applications.



The device is not designed to sterilize liquids. Do not sterilize liquids!

3. DEVICE PARAMETERS AND PROGRAMS STERILIZATION

3.1. PARAMETERS DEVICE

Conditions for using the autoclave:

- Ambient temperature: +5°C~ +40°C.
- Relative humidity: ≤80%.
- Atmospheric pressure: >70 kPa.
- Voltage and power rating: AC 230 V, 50/60 Hz, 1950 W.

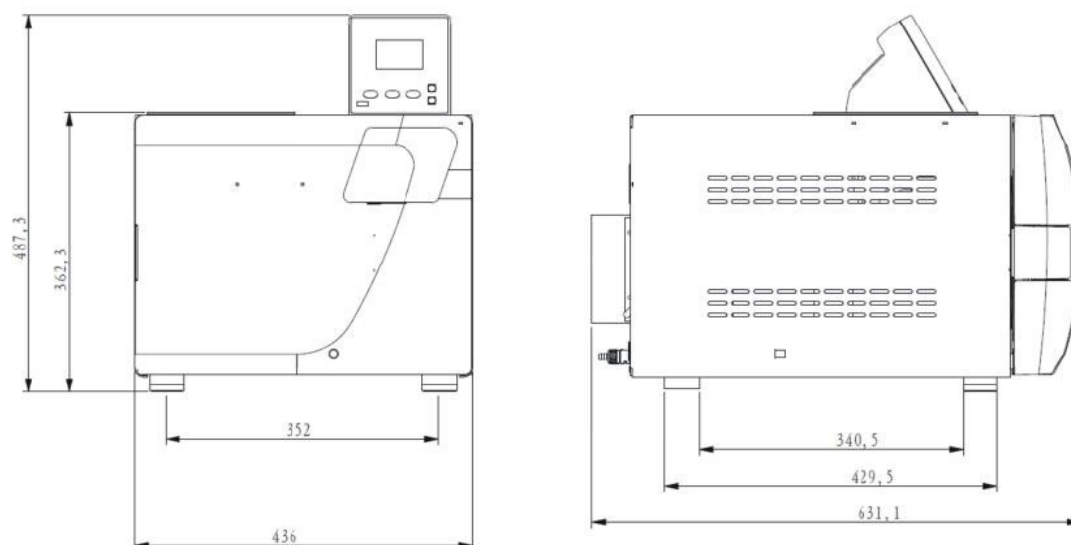
Autoclave operating conditions:

- Maximum allowable operating pressure: 0.21~ 0.24 MPa (210 kPa~ 240 kPa).
- Highest permissible operating temperature: 134°C~ 137°C.

Transportation and storage conditions:

- Ambient temperature: +5°C~ +40°C.
- Relative humidity: ≤80 % .
- Store away from the presence of corrosive gases and vapors.

Dimensions of the autoclave:



Net weight of the device	Model	Net weight
	LAFOMED COMPACT LINE AUTOCLAVE LFSS08AD WITH PRINTER	42.80 kg
	LAFOMED COMPACT LINE AUTOCLAVE LFSS12AD WITH PRINTER	47.70 kg
	LAFOMED COMPACT LINE AUTOCLAVE LFSS18AD WITH PRINTER	50.25 kg
	LAFOMED COMPACT LINE AUTOCLAVE LFSS23AD WITH PRINTER	53,50 kg

3.2. PROGRAMS STERILIZATION

Program	Times (times of generation) of vacuum	Sterilization time	Sterilization temperature	Sterilization pressure	Vacuum time	Drying time
121°C UNIFORM (121°C SOLID)	1*)	20 min*)	121°C	110 kPa	————	3 min*)
121°C POROUS	3*)	20 min*)	121°C	110 kPa	————	7 min*)
121°C CONCAVE (121°C HOLLOW)	3*)	20 min*)	121°C	110 kPa	————	10 min*)
134°C UNIFORM (134°C SOLID)	1*)	4 min*)	134°C	210 kPa	————	3 min*)
134°C POROUS	3*)	4 min*)	134°C	210 kPa	————	7 min*)
134°C CONCAVE (134°C HOLLOW)	3*)	4 min*)	134°C	210 kPa	————	10 min*)
DEFINED (USER DEFINED)	3*)	5 min*)	134°C	210 kPa	————	10 min*)
B-D TEST	3	4 min	134°C	210 kPa	————	7 min
VACUUM TEST (VACUUM TEST)	————	————	————	-80 kPa	15 min	————
CLEANING (CLEAN PROCESS)	3	5 min	105°C	20 kPa	————	10 min
PRIONY (PRIONEN)	3	19 min	135°C	210 kPa	————	10 min
*)The values marked *)can be individually set.						



B-D TEST: The display shows 4 minutes, but usually the leakage test takes about 3.5 minutes.

4. PANEL CONTROL

4.1. DISPLAY LCD

4.1.1. ■P/OFF (P/ON): DISPLAYS THE STATUS OF THE PRINTER

The user can change the status of the printer in the settings (configuration) menu for the printer:

- "ADV→ Printer: ON/OFF" ("ADV→ Printer: ON/OFF").
 - "ON" ("ON"): The printer will be on.
 - "OFF" ("OFF"): The printer will be turned off.

4.1.2. ■K/OFF: DISPLAYS THE STATUS OF THE FUNCTION

Function setting menu:

- "ZAAW→ KEEP TEMP: ON/OFF" ("ADV→ KEEP TEMP: ON/OFF").
 - "ON" ("ON"): Function on. The autoclave heats up the chamber and starts the steam generator to maintain the temperature. If the door is open, the autoclave will stop heating the chamber and running the steam generator. The longest possible temperature maintenance time is about 8 hours. This function makes it possible to reduce the execution time of the next cycle.
 - This function can be set in the menu: "ZAAW→ KEEP TEMP: ON/OFF" ("ADV→ KEEP TEMP: ON/OFF").

4.1.3. ■ ON/OFF (W/OFF): DISPLAYS THE STATUS OF THE PREHEATING FUNCTION

Function setting menu:

- "ZAAW→ PREHEAT: ON/OFF" ("ADV→ PREHEAT:ON/OFF"):
 - "ON" ("ON"): Function enabled. In this situation, even if the user starts the sterilization program, the next stage of the process will not be started until the temperature in the autoclave chamber reaches 50°C.
 - This function can be set in the menu: "ON→ PREHEAT: ON/OFF" ("ADV→ PREHEAT:ON/OFF").

NOTES: If the time of the entire sterilization cycle is to be very long, the user can use the "PREHEAT/PREHEAT" function (■W/ON). Always check and follow local regulations for the required parameters of the sterilization process, and this function can be used if necessary.

4.1.4. COUNT: COUNTER OF RUNNING PROGRAMS

Counter - allows you to count the number of running programs, for example: 00002 means that 2 programs (cycles) have been run. Not included (not counted) are: Vacuum test and B-D TEST.

4.1.5. 0 kPa (0 Kpa) - chamber pressure status.

Indicates that the chamber pressure is 0 kPa. If the autoclave door is opened, it means that the chamber pressure is the same as the local air pressure.

4.1.6. 09:37:19: TIME (TIME)

The user can set the time (hh:mm:ss) in the menu: "ZAAW→ DATA/TIME" ("ADV→ DATA/TIME").

4.1.7. 09-12-2015: DATE

User can set the date (dd-mm-yyyy) in menu: "ZAAW→ DATE/TIME" ("ADV→ DATA/TIME").

4.1.8. PROGR MENU (USER MENU) - USER PROGRAMS

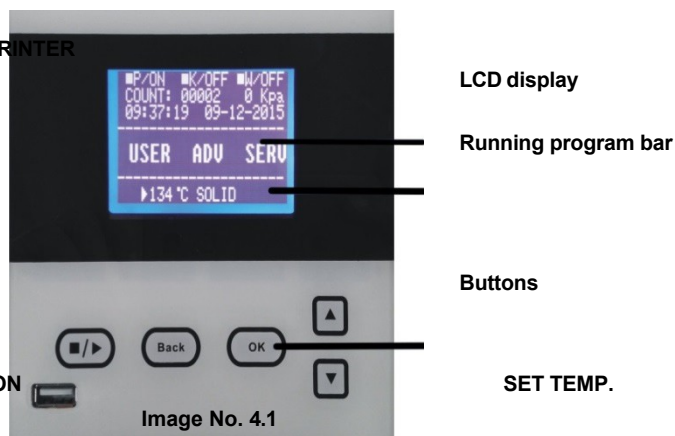
All user-operable sterilization programs are available in the menu: "PROGR MENU" ("USER MENU"). The user can select the appropriate program using this menu.

4.1.9. ZAAW (ADV) - ADVANCED MENU

Advanced menu function: "zaaw" ("ADV"), in this menu the user can change the option/function and can set the corresponding/appropriate parameter.

4.1.10. SERV (SERV) - SERVICE MENU

Service menu "SERV" ("SERV") is for service purposes only. A password is required to activate it. Only an employee of a warranty and post-warranty service company authorized by the



manufacturer may use this menu. Do not change any parameters in this menu yourself, without the approval of the professional service of the authorized service provider.

4.1.11. 134°C UNIFORM (134° SOLID) - SHORTCUT FUNCTION

This function allows the user to remember the last sterilization program. The user does not need to go to the settings in the user menu to select the same program again.

4.2. INTRODUCTION TO THE USER MENU ("MENU USER")

In the user menu function "PROGR MENU" ("MENU USER"), 11 sterilization programs are available:

- 121°C - program and 134°C - program - there are no significant differences in sterilization using these programs. If the sterilization load cannot be sterilized at 134°C, select the 121°C program.
- SOLID (uniform) - with this program, you can sterilize unwrapped solid (uniform) instruments such as forceps, forceps, etc.
- POROUS - porous products can be sterilized with this program.
- HOLLOW (concave) using this program, you can sterilize indented type A and type B objects.



Image No. 4.2



Image no. 4.3

- DEFINED (USER DEFINE) - User-defined programs. All program parameters can be adjusted accordingly, i.e.: temperature, sterilization time, drying time, vacuum generation multiplication rate.
- B-D TEST - Used to evaluate the sterilization efficiency of type A hollow charges. B-D TEST and Helix test are the same type of test. The difference between the two is that for the B-D TEST a ready-made Bowie Dick type test package is used. On the other hand, for the Helix test, a "batch control test" is needed (it is evaluated using a process test instrument - PCD).
- Vacuum test (VACUUM TEST) is a leakage test.



It is recommended to perform a vacuum test every month. The autoclave cannot be used if the final result of the test performed, is displayed as an error message "FAIL."

- Cleaning program (CLEAN PROGRAM) - designed to clean the autoclave. If the display reads: NEED CLEAN, run this program.
- Prion (PRIONEN) program: program designed to inactivate prions (e.g. Creutzfeldt and Jakob disease otherwise known as mad cow disease).

4.3. MENU DESCRIPTION: ZAAW (ADV MENU)



Image 4.4



Image 4.5

➤ Cursor - sign

Using the "UP" or "DOWN" buttons, move the cursor to the height of the corresponding position and press the "OK" button to set the corresponding function parameter.

4.3.1. FUNCTION KEEP TEMP. ("KEEP TEMP")

The maintain **temp** function "**Keep temp.**" ("**KEEP TEMP**") is shown on the display as "**■K**".

- "ON" ("ON"): Function on. The appliance will start heating the chamber and steam generator to maintain the set temperature. If the door is open the temperature holding function will be stopped. The longest possible temperature hold time is about 8 hours. This function allows you to reduce the time of the next cycle.
- "OFF" ("OFF"): Off function. The machine will not start heating up the chamber and steam generator).

4.3.2. PRINTER

- "ON" ("ON"): Function on. The parameters of the ongoing sterilization process will be printed.
- "OFF" ("OFF"): Function turned off. The parameters of the conducted sterilization process will not be printed.

4.3.3. LANGUAGE

The following language versions can be set:

- ✓ ENG: English language.
- ✓ POL: Polish language.

4.3.4. CUSTOM USER MENU CONFIGURATION ("USER DEFINE")

- All available sterilization programs are available in this menu, this function allows to set the corresponding cycle parameters selected by the user. If the cursor is at the height of the "OWNER" option ("USER DEFINE"), using the "OK" button the user can select the appropriate program.
- If this function is enabled, using the buttons "UP" or "DOWN" buttons, move the cursor on the display to the corresponding description to change its parameter. Press "OK" to proceed to the next settings.

Using the "OWNER" menu, you can set the following parameters:



- Vacuum times (generation times) ("VACUUM TIMES").
This function is used to set the appropriate amount (times) of vacuum generation during the sterilization process.
 - ✓ "04": in the "OWNER" settings, the number 04: means that the user-defined program is set to produce vacuum 4 times.
 - ✓ The user can set the times (times of production) of vacuum from 1 to 10.
- "Sterilization temperature" ("STER TEMP").
This function is used to set the sterilization temperature.
 - ✓ "134°C": in "OWNER" settings, this number means that the user-defined sterilization temperature is 134°C.
 - ✓ The user can set the sterilization temperature from 105°C to 134°C.
- "Sterilization time" ("STER TIME").
This function is used to set the sterilization time.
 - ✓ "05Min": in "OWNER" settings, this number means that the user-defined sterilization time is 5 minutes.
 - ✓ The user can set the sterilization time from 4 to 60 minutes.
- "Drying time" ("DRY TIME").
This function is used to set the drying time.
 - ✓ "10Min": in "OWNER" settings, this number means that the user-defined drying time is 10 minutes.
 - ✓ The user can set the drying time from 4 to 60 minutes.

- OK.

The "OK" button allows you to save the settings and return to the previous page.

4.3.5. STERILIZATION PARAMETERS ADJUSTMENT

The parameters of the sterilization process can be adjusted accordingly in the menu: "ADJUST PARAM.STERIL." ("ADJUST STER PAR.")

- If the cursor is at the height of this menu, press the "OK" button to change the parameters of the selected program. The selected parameters can be changed accordingly for 6 programs (see Image No. 4.7).
- After selecting appropriate program, via using buttons "W UP" or "W DOWN", press "OK" to move to the next settings, e.g.: you can adjust program parameters "134°C uniform" (see Image No. 4.8). In the menu: "ADJUST STERILIZATION PARAM." ("ADJUST STER TEMP"), there will be 3 parameters, such as sterilization time, vacuum number and drying time, which can be adjusted accordingly. The corresponding parameters should be set analogously to setting the parameters in the "OWNER" program. - User-defined programs (see section 4.3.4).



Image No. 4.7



Image No. 4.8

- **DEFAULT: RETURN TO DEFAULT SETTINGS**

Move the cursor to the "DEFAULT" ("HOME") option, then press "OK" and the "UP" button to restore the default settings.

4.3.6. PASSWORD

- If the user sets a password and approves "ACTIVE: ON", ("ENABLED: ON"), the autoclave will start only when the correct password is entered. If the wrong password is entered the autoclave will not start up.
- In case of forgetting the password, contact the manufacturer or the device dealer.
- If the cursor is located at the "PASSWORD" ("USER PASSWORD") in the advanced menu option: "ZAAW" ("ADV"), press "OK" to move to the next page (see Image No. 4.9).

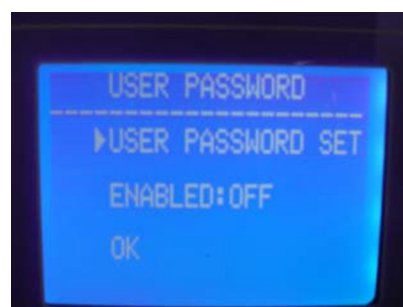


Image no. 4.9

- **SETTING THE USER PASSWORD**
If the cursor is at the height of the "SET PASSWORD" ("USER PASSWORD SET") option, press "OK" to move to the next page (see Image No. 4.10).

Using the "UP" and "DOWN" button, set the appropriate password.

- ✓ Using the "UP" button - it is possible to set the corresponding value by +1 degree (up).
- ✓ Using the "DOWN" button - it is possible to set the corresponding value by 1 degree (down).

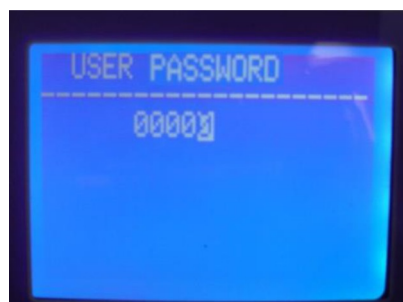


Image no. 4.10

Press the "START/STOP" button to move the cursor to the place of the next digit of the password to be changed. At the "ACTIVE" ("ENABLED") height, select:

- "ON" ("ON") to enable the password.
- "OFF" to disable the password.
- "OK" to return to the previous page.

4.3.7. DATE/TIME

If the cursor is at the height of the "DATE/TIME SET" ("DATE") option, press "OK" to move to the next page.

Set the appropriate date using the "UP" or "DOWN" buttons (see image no. 4.11):

- ✓ Using the "UP" button - it is possible to set the corresponding value by +1 degree (up).
- ✓ Using the "DOWN" button - it is possible to set the corresponding value by -1 degree (down).



Image 4.11

Press button "START/STOP", to move cursor to the place of the next changed digit of the date. Set the corresponding time in the same way.

4.3.8. SOUNDS

If the cursor is at the height of the "Sounds" option ("KEY SOUND"), press "OK" to turn the sound on or off "ON" ("ON") or "OFF" ("OFF"):

- "ON" ("ON"): Sound on.
- "OFF" ("ON"): Sound off.

4.3.9. PREHEAT

If the cursor is at the height of the option "■W" - "Preheat" ("PREHEAT"), press "OK" to enable or disable "ON" ("ON") or "OFF" ("OFF"):

- "ON" ("ON"): On function. Even if the sterilization program is enabled, the autoclave will not proceed to the next stage until the temperature in the sterilizer chamber reaches 50°C.
- "OFF" ("OFF"): Off function. When the sterilization program is enabled, the autoclave will proceed to the next stage regardless of the temperature in the chamber (the cycle will start regardless of whether the temperature in the chamber reaches 50°C).

4.3.10. AUTO START

The user can select the "delayed start" function, which will enable the autoclave to start the corresponding program automatically at a pre-set time. If the cursor is at the height of the "AUTO START" option, press "OK" to use this function.

After pressing "OK", you can set the appropriate time for the autoclave to automatically start the corresponding program. The delayed start function can be set in 2 ways (see image no. 4.12):

- ✓ "DATE/TIME" ("DATE TIME"): It is possible to set the exact time (date and time) for the autoclave to start automatically of the autoclave.
- ✓ HOURS LATER ("XX h later"/"XX HOUR LATER"): Setting the appropriate time, the so-called "delayed start", after which the device will automatically start.



Image no. 4.12

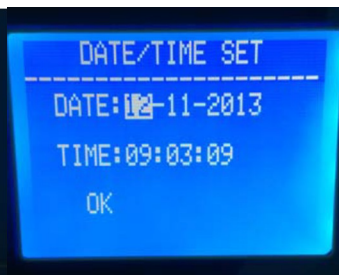


Image no. 4.13



Image no. 4.14

Press the "UP" or "DOWN" button to set the appropriate date and time (see images No. 4.13 and No. 4.14):

- ✓ Using the "UP" button - it is possible to set the corresponding value by +1 degree (up).
- ✓ Using the "DOWN" button - it is possible to set the corresponding value by -1 degree (down). Press the "OK" button to change the place of the highlighted digit.

After setting the appropriate time and date of the AUTO START function, it is necessary to select the appropriate program (see image no. 4.15), then press "OK". At this moment a countdown will be started. After the specified time, the device will automatically start the program for which the AUTO START function has been enabled (see image no. 4.16 and no. 4.17).

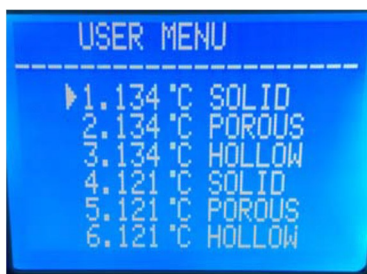


Image 4.15



Image no. 4.16



Image no. 4.17

4.3.11. DRYING

In this device you can set 3 types (degrees of drying), i.e. I-, II- or III- degree. If after the cycle, the sterilized products are wet, you can increase the type of drying and select one higher degree, i.e. II- or III- degree. The drying temperature during the implementation of II- and III-degree is higher than that of I-degree drying. When using the II- and III-drying stage, it is possible to significantly reduce the useful life/life of the machine. Press "OK" to set the appropriate drying stage.

4.4. BUTTONS

4.4.1. "UP" BUTTON

Allows you to move "up" or "left".



4.4.2. "DOWN" BUTTON

Allows you to move "down" or "right".



4.4.3. "BACK" BUTTON

Allows you to return to the previous menu.



4.4.4. "OK" BUTTON

Allows you to confirm or move to the next menu.



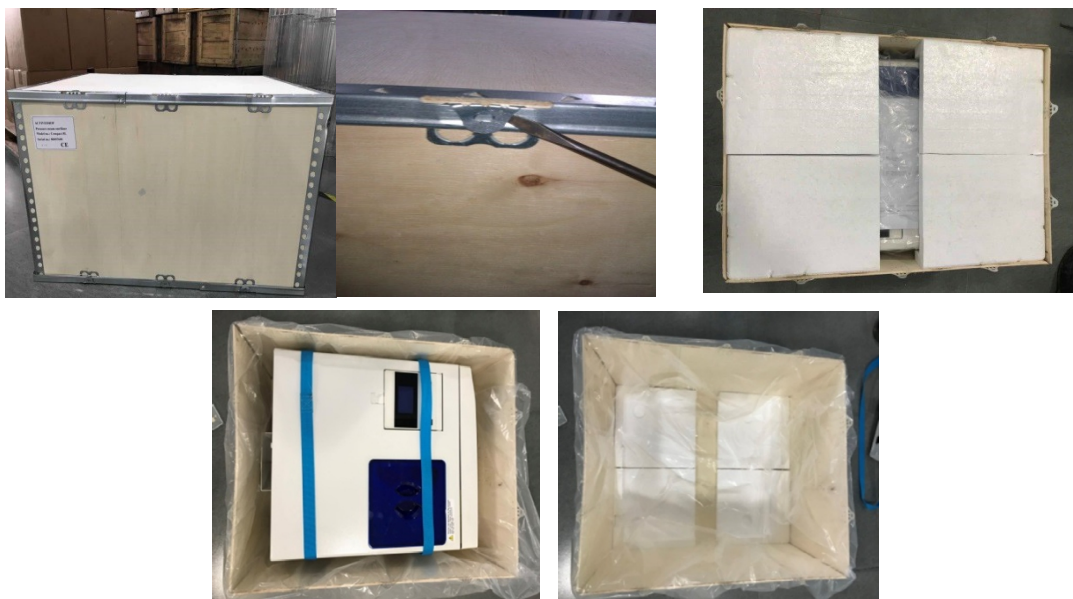
4.4.5. "START/STOP" BUTTON

When the program is approved, the display will show: "please push the start..." ("please push the start key to start..."), press the "START/STOP" button to start the program.

While the sterilization cycle is running, the user can press the "START/STOP" button and hold it for 5 seconds to stop the whole cycle running.

5. INSTALLATION DEVICE

The autoclave is packed in a wooden box. To open the lid of the box, you need a flat screwdriver. To remove the autoclave from the crate, the participation of 2 people is required, the device should be removed from the packaging with the help of blue straps. Failure to do so may result in damage to the device or property.



5.1. SETTING DEVICE

Place the autoclave on an even stable surface, e.g. on a table, in such a place where it will be possible to provide, at least 10 cm free space from the front and on the sides of the device, a also provide, at least 20 cm above and from the rear side of the device.

Place the autoclave in a well-ventilated room. Do not block and/or obstruct the cooler of the unit.



Place the autoclave in a horizontal (horizontal) position, on a level stable table. Make sure that the table intended for placing the autoclave is stable and its structure can withstand the load (weight) of the device.

5.2. SLIDING OUT THE PANEL DISPLAY

Press the button as shown in the following image (image No. 5.3) to eject the display panel. Connect the power cord to the power source, and then press the "ON/OFF" button to turn on the device.



Image No. 5.3

5.3. PRESSURE ADJUSTMENT

Since the atmospheric pressure value is different in different regions, so you need to adjust the pressure value before using the device for the first time.

How to adjust the pressure:

- ✓ Turn off the power.
- ✓ Open the door of the autoclave.
- ✓ Turn on the power, then wait for 20 seconds and turn off the power.
- ✓ The pressure in the autoclave has been automatically adjusted.



The unit may not work if the pressure is not adjusted properly.

5.4. SETTING THE DATE AND TIME

Set the date and time according to the guidelines shown in Section 4.3.7 (DATE/TIME).

6. OPERATION

Preparation before use

Connect the autoclave to the power source, then press the "ON/OFF" button. The LCD screen will start and display the main menu and the unit is ready for use. At this point, the autoclave is in the initial state and chamber heating has not yet started. Using the "OK" and "STOP/START" buttons, select and start the appropriate program.



Connect the device only to a grounded power outlet.

6.1. REFILLING WATER IN APPLIANCE

After pressing the power button, if the display shows "Refill water" ("please fill water"), it means that the water level in the clean water tank is too low. If the water level is too low, the autoclave cannot start the cycle until the water is refilled.

The process of filling the tank with distilled water, in this series of device, is done manually (manual). The clean water tank is located in the upper part of the device (see image No. 6.1).

If the water level in the water tank is too low and exceeds the alarm level, the LCD display will show an appropriate message and a characteristic sound will be heard.

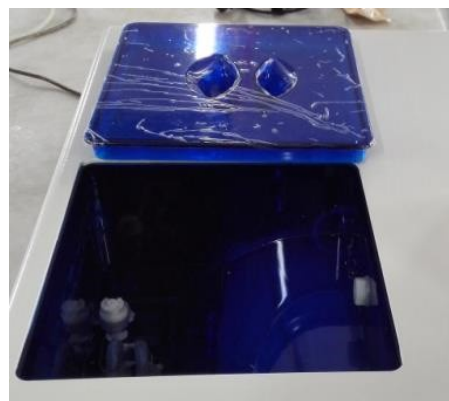


Image No. 6.1

The device has an automatic water quality control system. If the water in the clean water tank is of inadequate quality

(too contaminated), the message "the clean water's quality is poor" will be displayed, the autoclave will not start the cycle until the water is replaced. In this situation, empty the clean water tank (drain the water of inadequate quality) and refill with water of adequate quality. Use water with conductivity <30 uS/cm for the device.

Capacity of the clean and dirty (used) water tank depending on the model:

Model	Capacity of clean water tank	Capacity of the dirty (used) water tank	Minimum water level in the clean water tank required to start the cycle
LFSS08AD	2,5 l	2,5 l	500 ml
LFSS12AD	2,5 l	2,5 l	500 ml
LFSS18AD	2,5 l	2,5 l	500 ml
LFSS23AD	2,5 l	2,5 l	500 ml



1. Use only distilled water of suitable quality for the autoclave, so as not to cause clogging or problems (interference) in the operation of the steam generator and valves. The user is fully responsible for damage to the autoclave caused by the use of water other than the required water.

2. Before filling the water, turn on the autoclave and adjust its position with the feet. So that the front of the device is raised in the ratio: min. 1 cm to the rear of the device (the front should be slightly higher than the rear of the device).
3. Do not tilt, turn or move the unit if the clean and dirty water tank is full.
4. Each time you fill the clean water tank, you should also empty the dirty (used) water tank.

6.2. RECORDING RESULTS

The result of the conducted sterilization cycle can be saved on a data carrier (flash memory - a flash drive-type device). To do this, insert the data carrier into the USB port to save the results of the conducted cycle.

6.3. WORKFLOW DEVICE

If there is enough water in the clean water tank and the dirty (used) water tank is not overfilled, then the autoclave is ready for operation.

6.3.1. LOADING THE CHAMBER

Place in the chamber, the load to be sterilized according to the guidelines for loading the chamber of this autoclave series, shown in the table below:

Model	Maximum charge weight	Maximum charge capacity
LFSS08AD	3.0 kg	70%
LFSS12AD	4.5 kg	70%
LFSS18AD	6.0 kg	70%
LFSS23AD	7.5 kg	70%



Image 6.2



1. **Make s u r e** that the total volume of the inserted items is less than 70% of the chamber volume. Always observe the maximum charge weight (the charge to be placed must not exceed more than 70% of the chamber volume).
2. Maintain a distance between the load to be sterilized and the chamber surface and the chamber air outlet. Ensure a space of at least 10 mm (1 cm) between the load and the inner surface of the chamber.
3. Place the test sheet in the center of the sterilized package to ensure that a reliable result is obtained from the "B-D TEST" performed.
4. Take special care when inserting and removing the sterilized items to avoid burning. For this purpose, always use a special handle (handle) to take out the load due to its high temperature.

6.3.2. PARAMETER SETTING

Set the appropriate function parameters:

- temperature maintenance function "Keep temp."/"KEEP TEMP" (see section 4.3.1),
- Printing function "Printer"/"PRINTER" (see section 4.3.2)
- heating function "Preheat" / "Preheat" (see section 4.3.9).

6.3.3. CLOSING THE AUTOCLAVE DOOR

If the autoclave door is not closed properly, even after selecting the appropriate program and pressing the "OK" button, the autoclave will not start the cycle, in this situation the display will show the message: "Close the door"/ "Please close the door".



If the chamber is still hot and steam is coming out, it may be difficult to close the door properly. You should then quickly close the door or wait a moment (a few seconds) and only then, try to close the door again.

6.3.4. SELECT THE STERILIZATION PROGRAM AND START OPERATION

If the door is properly closed, select the correct sterilization program appropriate to the type of load in the chamber.

All available and runnable sterilization programs are located in the option: "PROGR" ("USER MENU"). Using the "UP" or "DOWN" buttons, move the cursor to the height of the option: "PROGR" ("USER MENU"), and then press "OK" to enter the menu.

Inside the menu, use the "UP" or "DOWN" buttons to select the desired sterilization program, and then press "OK" to confirm the program selection. Then the display will show the message

"Press start to start" ("please push the start key to start") and you can then press the "START/STOP" button to start the selected program.

The entire sterilization cycle is automatic, the autoclave will carry out the following stages of the process, i.e.: heating, vacuum generation (3 times), sterilization and drying. The time of the full cycle depends: on the initial temperature in the chamber, on the type of charge and on the set program.

When the cycle is complete, the "End"/"END" message will appear on the display and a triple beep will be heard. You can then open the door and remove the load from the chamber very carefully.

6.3.5. TURNING OFF THE DEVICE

When the sterilization process is complete, turn off the autoclave. If the device will not be used for a long time, also remove the power cord from the outlet.



Immediately refill the clean water tank if the low water level warning appears on the display. If the water is not refilled, an alarm will sound and the error code "E8" or "E9" will be displayed.



After the sterilization process is complete, to avoid burns, always use the special handle (handle) to remove trays with sterilized items from the chamber.

Do not open the door as long as the pressure in the chamber is "-0.5~ 0.5".



Always use sterilization indicators (sheets, strips, test strips or indicator bags), which are designed to be placed with the load inside the sterilizer chamber. These indicators will enable control of the sterilization process.

6.3.6. OVERFILLED DIRTY (USED) WATER TANK

If the message "DRAIN WATER FROM WASTER WATER TANK!" appears on the display, it is essential to empty the dirty (used) water tank because it is overflowing.



Be very careful when emptying the dirty (used) water tank, as the drained water is very hot.

7. INCORRECT SITUATIONS

If abnormal and/or abnormal situations for normal operation of the autoclave occur during operation, in this situation, to ensure the safety of the user, an alarm will automatically sound, the pressure will be lowered and the heating will be turned off. The display will show the corresponding error message (see the following tables for an explanation of error messages).

In case, when the alarm turns on, save the displayed error code and turn off power. Do not open the door. Then turn the power back on and wait for a while until the pressure returns to the level of "-0.5~ 0.5".



If an error occurs, it is recommended to restart the program to see if the error recurs.

Below is a list of error messages. If it is not possible to solve the problem by yourself according to the information shown in the table below, contact the manufacturer or your device dealer as soon as possible to solve the problem.

L.p.	Code Error code	Sound	Current state	Possible solutions
1.	E31	Long signal	The temperature in the chamber is $>150^{\circ}\text{C}$.	Check the temperature sensor in the chamber.
2.	E32	Long signal	The temperature of the steam generator heater is $>280^{\circ}\text{C}$.	Check the steam generator heater and sensor.
3.	E51	Long signal	The temperature in the chamber is $\leq 0^{\circ}\text{C}$.	Check the temperature sensor in the chamber. Check the temperature in the room where the autoclave is located, that it is not below 0°C .
4.	E52	Long signal	The temperature of the steam generator heater is $\leq 0^{\circ}\text{C}$.	Check the steam generator heater and sensor. Check the temperature in the room where the autoclave is located, whether it is below 0°C .
5.	E63	Long signal	1. The temperature of the steam generator is $\leq 0^{\circ}\text{C}$; 2. Steam generator temperature is $>230^{\circ}\text{C}$. Unstable steam temperature control system, over 230°C ; Steam generator temperature sensor is defective.	Check the steam generator and its sensor. Check the control board.
6.	E2	Long signal	The sterilization pressure is +0.4 bar more than the intended pressure (134°C program absolute pressure is more than 3.5 bar; 121°C program absolute pressure is more than 2.5 bar), the vacuum pump is defective, too much air remains in the chamber.	Check the vacuum pump. Perform the leakage test (Vacuum test).
7.	E61	Long signal	134°C program: internal temperature is $>140^{\circ}\text{C}$ or Program: 121°C internal temperature is $>127^{\circ}\text{C}$; Unstable temperature control system.	Check the temperature sensor in the chamber.

8.	E62	Long signal	Heater temperature is >155°C; Unstable temperature control system; Control board is defective.	Check the temperature sensor. Check the heater and steam generator sensor. Check the control board.
9.	E41	Long signal	After 8 minutes of heating, the heater temperature is <100°C; the heater circuit is defective.	Check the heater.
10.	E42	Long signal	After 8 minutes of heating, the steam generator temperature is <110°C; The heater (heating rod) is defective.	Check the heating rod.
11.	E5	Long signal	At the end of the sterilization process, after 10 minutes of pressure release, the pressure in the chamber is still at a level higher than 0.5 bar; Improper air discharge Air/Damaged air output valve.	Check the water drain valve.
L.p.	Code Error	Sound	Current condition	Possible solutions
12.	E6	Long signal	Door is open while the unit is running; Sensor Door sensor is defective.	Check the door sensor.
13.	E7	Long signal	Local air pressure is <70kPa	Local pressure is inappropriate for the operation of the device, the device cannot be used under these conditions. Adjust the pressure (see section 5.2).
14.	E8	Long signal	During vacuum generation, the temperature increases by <3°C, every 5 min. Temperature rise too fast.	Check the water pump. Check the heating rod. Check the control board. Check the water level in the tank.
15.	E9	Long signal	During sterilization, the pressure is -0.3 bar lower than the intended pressure.	No water in the tank. Check the water level in the tank.
16.	E10	Long signal	Electromagnet in the wrong position (with power on - solenoid in closed position; during the start of the process - solenoid in open position; after the process is completed - solenoid in closed position).	Check the electromagnet. Check the control board.
17.	E11	Long signal	The electromagnet is in the open position during operation of the unit, the electromagnet control port on the control board is defective.	Check the control board.
18.	E12	Long signal	During running program, vacuum does not reach -70kPa; 2-fold vacuum generation instead of the required 3 times.	Check the vacuum pump.
19.	E15	Long signal	Improper operation of water quality control system.	Check water quality control system sensor and PCB PCB control board.
20.	E99	Long signal	Communication error (incorrect communication) Between the CPU module.	Check the motherboard. Check the CPU/installation

processor.

8. MAINTENANCE

The following parts must be checked and replaced regularly:

- Bacteriological filter (see section 8.5).
- Door seal (see sections 8.7 and 8.8).
- Safety valve (see section 8.9).

List of parts to be checked:

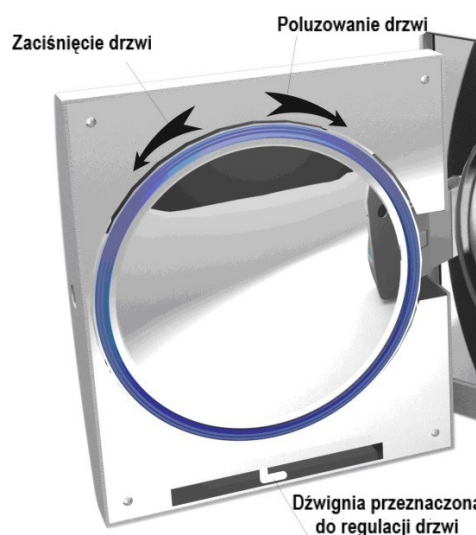
Element:	Realized by:	Period:	Method Maintenance:
Door	Employee of the company providing service Warranty and post-warranty.	Every 2 years.	See section 8.1.
Door seal	User.	Every 1 year.	See section 8.5.
Element:	Realized by:	Period:	Method Maintenance:
Fuse	Employee of the company providing warranty and post-warranty service.	Immediately, If the fuse is damaged.	See section 8.6.
Printer paper	User.	Right away, if you run out of run out of paper.	See section 8.2.
Valve safety	An employee of the company providing service Warranty and post-warranty service.	Every 1 year.	See section 8.9.

8.1. ADJUSTING AND CHECKING THE TIGHTNESS OF THE DOOR

Pull the lever and turn the door to adjust its tightness. First, pull the lever downward. Then turn the door counterclockwise (counterclockwise) to reduce the distance between the door and the chamber, i.e. "clamp the door" closer to the chamber. On the other hand, to increase the distance - "loosen the door", turn the door to the right (clockwise).

Detailed description of the steps of adjustment:

1. Press the lever slightly downward.
2. Turn the door in the specified direction at the correct angle.
3. Release the lever.
4. Stop the rotation of the door at the point where any movement of the door is no longer possible.



1. Always perform a leakage test (vacuum test) after adjusting the door. If the unit is leaking, adjust the door correctly once again.
2. The seal may break (explode) if the door is too loose! Be careful when adjusting the door, and make sure the door is properly and well adjusted!

8.2. REPLACING PAPER IN PRINTER

Replacing the paper roll in the printer:

Press the "Open/Open" button to open the printer door cover and replace the paper roll (see image No. 8.2).
Close the door and put the paper sheet on the door (see Image No. 8.3).



Image No. 8.2

Checking if the paper is correctly placed on the feeder:

Press the "LF" indicator so that the printer can retrieve paper from the feeder. If there is any problem, replace the paper roll again. If the printer works properly, but no information appears on the printout, remove the paper roll and place it correctly (in this situation, turn the roll over to the other side).



Image No. 8.3



Only one-sided printing is possible.

8.3. CLEANING THE WATER TANK

Change the water and clean the tank regularly, at least once a week or more often if necessary.

8.4. CLEANING THE CHAMBER AND ACCESSORIES

Once a week, or more often if necessary, clean the chamber, the autoclave housing and the accessories attached to the unit (rack, trays, tray removal handle, etc.) with a clean, soft and dust-free cloth.



Do not use a wire brush, steel, wool or abrasive materials, or agents containing chlorine compounds to clean the door, its seal and chamber. Do not use chemicals not intended for cleaning this type of equipment for cleaning.

8.5. REPLACEMENT OF BACTERIOLOGICAL FILTER

Replace the bacteriological filter regularly (after 150 cycles performed).

8.6. CLEANING THE DOOR SEAL

Clean the gasket regularly with distilled water. If the unit is leaking after cleaning the gasket, immediately replace the gasket with a new one.

8.7. REPLACING GASKET

To replace the gasket, you will need a flat blunt-ended screwdriver.

1. Hold the gasket with one hand, while with the other hand place the screwdriver in the gap between the door and the gasket. Carefully separate a certain part of the gasket from the door and only then carefully remove the entire gasket.
2. Then thoroughly clean the gasket and check it for damage. If it is damaged, immediately replace the gasket with a new one.
3. After cleaning, the undamaged and clean gasket should be gently inserted into its place.
4. Note: If it is very difficult to put the gasket in its place, in this situation you can use a screwdriver. Carefully and very gently press the gasket with the screwdriver until it returns to its place.



Image No. 8.4



Image No. 8.5

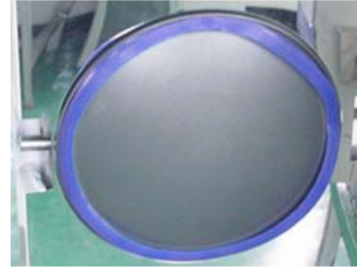


Image No. 8.6



1. For cleaning and maintenance of the device, appoint a properly trained person.
2. Proper maintenance and upkeep of the device is ensured only by operating the autoclave by a properly trained person.

8.8. CHECK THE VALVE SAFETY VALVE

The safety valve should be checked regularly. If the valve is damaged, replace it with a new one immediately.

How to replace the safety valve:

1. Remove the side wall of the device housing. Remove the 1 part shown in image No. 8.7 with the number 1.
2. Then remove the pipe that connects the safety valve. Remove the screw shown in image No. 8.7 with the number 2.
3. Replace the old (worn out) safety valve with a new one.



Image No. 8.7



1. The new safety valve must be the same (model, manufacturer, etc.) as the worn safety valve. If necessary, contact the manufacturer or seller of the device.
2. Replacement of the safety valve can be performed only by an employee of the company providing warranty and post-warranty service.

9. TRANSPORT AND STORAGE CONDITIONS

9.1. PREPARATION DEVICE

Allow the device to cool completely, then remove the power cord from the outlet.

9.2. EMPTYING TANKS

Empty all tanks by connecting the hose (tube) directly to the drain valve.

On the left is the drain valve of the dirty (used) water tank, while on the right is the drain valve of the clean water tank.

9.3. CONDITIONS TRANSPORT

Refer to the conditions in the sales contract.

9.4. CONDITIONS STORAGE

Store the autoclave in a clean, dry and well-ventilated room. Store at a temperature between +5°C and +40°C and a relative humidity of no more than 80%. Do not use or store the device in the presence of gases, explosives, open sources of heat or flammable substances.



Take special care not to damage the device during transportation.

10. SERVICING OF THE DEVICE BY AUTHORIZED TECHNICIANS

Servicing is necessary for the unit to operate properly. An annual (every 12 months) inspection of the unit is required. Service may be performed only by qualified personnel of the warranty and post-warranty service company designated by the manufacturer.

Warranty conditions are presented in the warranty card.

11. ACCESSORIES

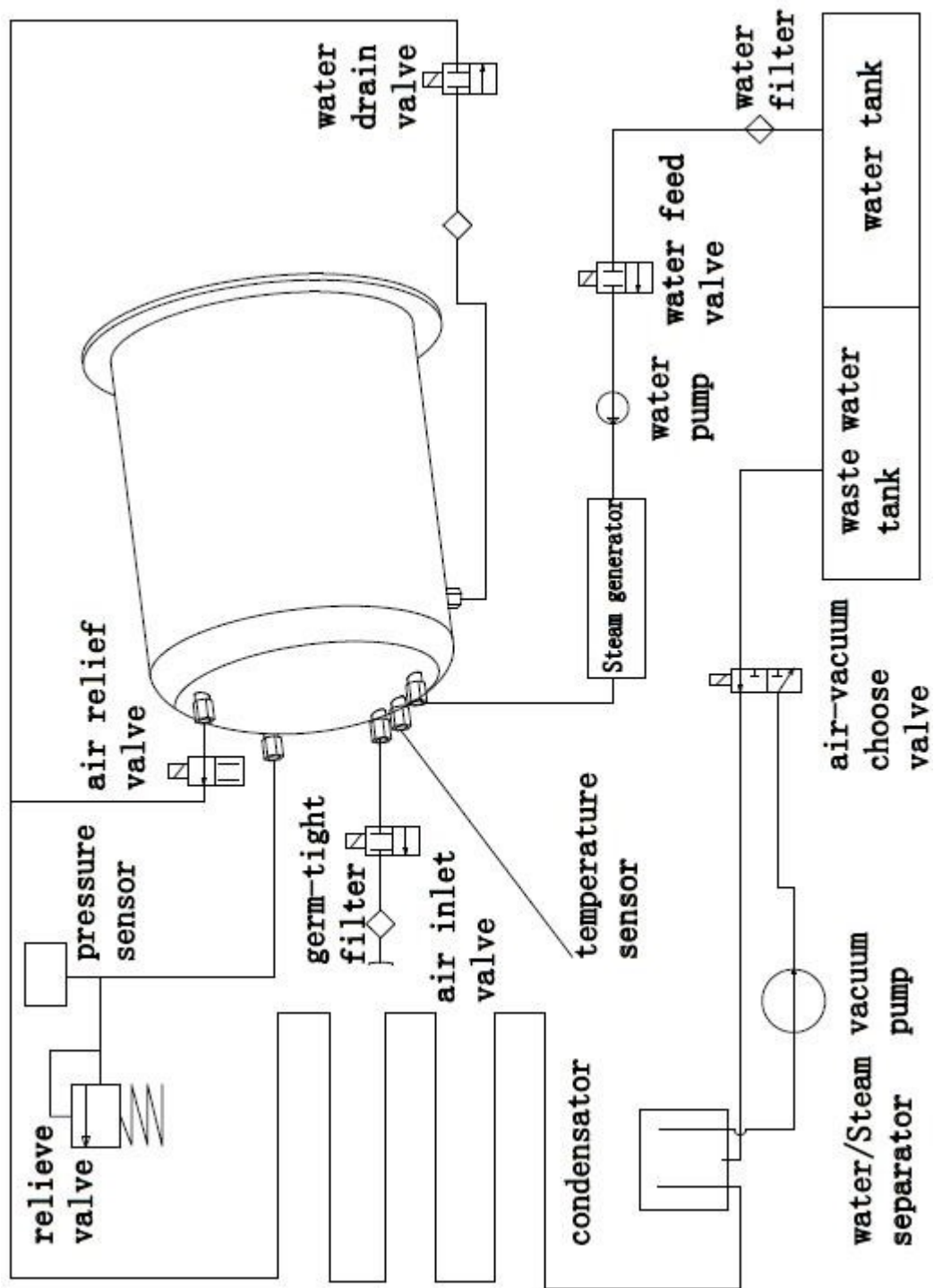
No.	Item name (designation)	Quantity (pcs.)
1.	Drain cable (LF-9-10-1).	1
2.	Trays	3
3.	Power cord (LF-9-12-2).	1
4.	Tray rack (see table 11.2).	1
5.	Tray removal handle (LF-9-12-4).	1
6.	Operating instructions.	1



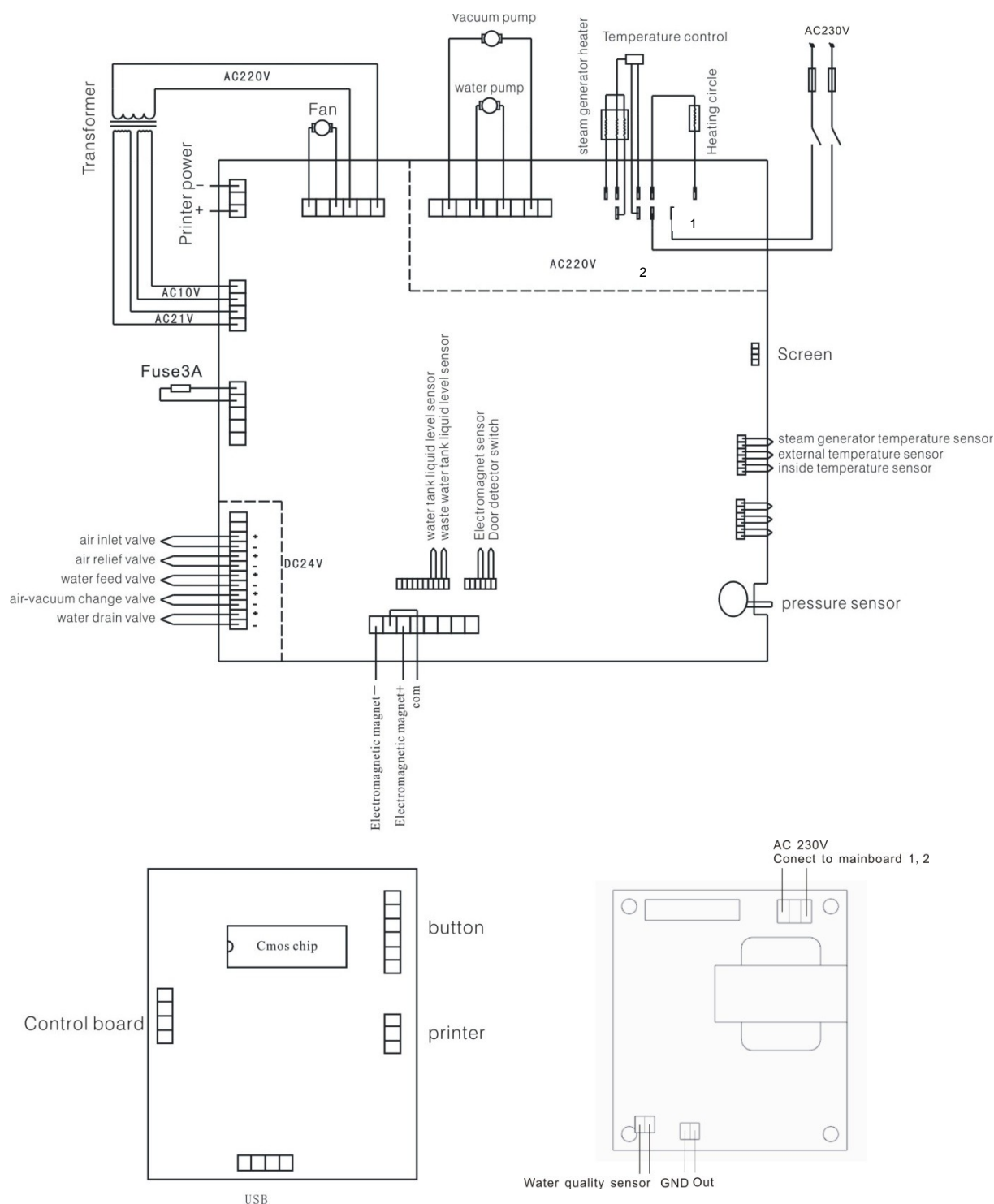
Image 11.1

12. APPENDICES

12.1. APPENDIX NO. 1: SCHEMATIC OF CONSTRUCTION



12.2. APPENDIX NO. 2: CIRCUIT DIAGRAM ELECTRICAL CIRCUIT



12.3. ANNEX NO. 3: COMPLIANCE GUIDELINES ELECTROMAGNETIC

MANUFACTURER'S INFORMATION AND DECLARATION - ELECTROMAGNETIC EMISSION

LAFOMED AUTOCLAW COMPACT LINE LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER is designed for work in the electromagnetic environment described below. The purchaser or user of the device should make sure that the device is used in just such an environment.

Emissivity test	Level Compliance	Electromagnetic environment - guidelines			
RF emission CISPR 11	Group 1	LAFOMED LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER	AUTOCLAW uses RF energy (frequencies RF) only for its internal functions. Therefore, its emission RF is very low and there is no possibility of causing interference in electronic devices in the vicinity.	COMPACT	LINE
	Class B	LAFOMED LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER	is suitable for operation in any establishments, including premises residential and premises	COMPACT	LINE
Harmonic emission IEC 61000-3-2	Class A	Directly connected to the low-voltage grid that powers the buildings residential.			
Emission - voltage fluctuations and light flicker IEC 61000-3-3	Meets requirements				

MANUFACTURER'S INFORMATION AND DECLARATION - ELECTROMAGNETIC IMMUNITY

LAFOMED AUTOCLAW COMPACT LINE LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER is designed for operation in electromagnetic environment as described below. The purchaser or user of the device should make sure that the device is used in just such an environment.

Immunity test	Test level IEC 60601	Compliance level	Electromagnetic environment - guidelines
Electrostatic discharge (ESD) in accordance with IEC 61000-4-2	±6 kV (contact) ±8 kV (through air)	±6 kV (contact) ±8 kV (through air)	Floors should be wood, concrete or ceramic tile. If the floors are covered with synthetic material, the relative humidity in the room must be at least 30%.
Rapid electrical transients in accordance According to IEC 61000-4-4	±2 kV (for supply lines) ±1 kV (for lines input/output)	±2 kV (for power supply lines) ±1 kV (for input/output lines input/output)	The mains power supply must meet the standard conditions in hospital or commercial facilities.
Surge immunity tests in accordance with IEC 61000-4-5	±1 kV line(s) to line ±2 kV line(s) to ground	±1 kV line(s) to line ±2 kV line (lines) to ground	The mains power supply must meet the conditions normally found in hospital or commercial facilities.
Testing for resistance to voltage drops, short interruptions (interruptions) and voltage fluctuations according to According to IEC 61000-4-11	<5% U_T (>95% U_T drop) For 0.5 cycles 40% U_T (60% U_T drop) for 5 cycles 70% U_T (30% U_T decline) for 25 cycles <5% U_T (>95% U_T decline) for 5 s	<5% U_T (>95% U_T decline) for 0.5 cycle 40% U_T (60% U_T decline) for 5 cycles 70% U_T (30% U_T decline) for 25 cycles <5% U_T (>95% U_T drop) for 5 s	The mains power supply must correspond to the standard conditions in hospital or commercial facilities. If the user needs to ensure continuous operation of the device during power outages, it is recommended to power the device at with the help of emergency power supply or battery.
Electromagnetic interference immunity test in accordance according to IEC 61000-4-8	3 A/m	3 A/m	The intensity of magnetic fields at the mains frequency must correspond to the level appropriate to the conditions normally found in hospital or commercial facilities.

Note: U_T is the alternating current (AC) supply before the test level is applied.

MANUFACTURER'S INFORMATION AND DECLARATION - ELECTROMAGNETIC IMMUNITY

LAFOMED AUTOCLAW COMPACT LINE LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER is designed to work in the electromagnetic environment as described below. The purchaser or user of the device should make sure that the device is used in just such an environment.

Testing immunity	Test level IEC 60601	Level Compliance	Electromagnetic environment - guidelines
			Portable devices using radio waves must not be used closer to any components of the device, including its wiring, than the recommended distance calculated based on the formula applicable for the frequency of the transmitter in question.
Conducted radio interference IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Recommended clearance $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P}$ 80 MHz to 800 MHz $d = 2,3\sqrt{P}$ 800 MHz to 2.5 GHz , where P is the maximum rated output power of the transmitter expressed in watts (W) according to the transmitter manufacturer's data, while d is the recommended spacing in meters (m). The field strength of installed RF transmitters, according to the electromagnetic control of the location ^{a)} , should not exceed the compliance level in each frequency range. ^{b)} Interference may occur in the vicinity of equipment marked with the following symbol:
Radiated interference IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. The propagation of electromagnetic waves is affected by their absorption and reflection by buildings, objects and people.

^{a)}The field strengths of stationary transmitters, such as base stations for cellular/wireless phones and terrestrial portable radio transmitters, amateur radios, AM and FM broadcasting stations, and television stations, cannot theoretically be predicted with sufficient accuracy. In order to evaluate the electromagnetic conditions associated with stationary radio transmitters, an electromagnetic inspection can be conducted on site. If the field strength measurement at the autoclave's target site shows that the relevant standards indicated above are exceeded, the autoclave should first be checked for proper operation. If abnormalities are noted, it may be necessary to take additional measures such as turning or repositioning the unit.

^{b)} In the frequency range from 150 kHz to 80 MHz, the field strength should not exceed 3 V/m.

RECOMMENDED SPACING BETWEEN PORTABLE AND MOBILE DEVICES USING RADIO WAVES, A LAFOMED COMPACT LINE AUTOCLAVE LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER

LAFOMED AUTOCLAW COMPACT LINE LFSS08AD/LFSS12AD/LFSS18AD/LFSS23AD WITH PRINTER is designed for use in an electromagnetic environment where radiated radio interference remains under control. The purchaser or user of the autoclave can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile radio communication devices (transmitters), according to the following recommendations, depending on the maximum rated output power of the communication device in question.

Maximum rated output power of the transmitter W	Spacing depending on transmitter frequency in meters		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	80 MHz to 800 MHz $d = 1,2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2,3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

The recommended spacing d in meters (m) for transmitters whose maximum rated output power is not given above can be determined using a formula specific to the frequency of the transmitter, where P is the maximum rated output power expressed in watts (W), according to the specifications given by its manufacturer.

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. The propagation of electromagnetic waves is affected by their absorption and reflection by buildings, objects and people.

13. CONTACT INFORMATION

**MANUFACTURER****NINGBO HAISHU LIFE MEDICAL TECHNOLOGY CO., LTD.**

No.1, Jinghui Road, Hengjie Town

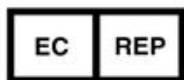
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