Sümer®

ADELA-OT

series

STEAM STERILIZERS
USER AND MAINTENANCE MANUAL

SZUTEST CE2195 ISO13485 certified TSE EN 285 HYGCEN GERMANY SFDA

AUTOCLAVES						
Product Name	Models					
Prismatic Autoclave	Flywheel Door Prismatic Autoclave Series	SM-1VK	ELENA-1VK	OT-1VK	ADELA-1VK	100 L, 125 L, 150 L, 175 L, 200 L, 225 L, 250 L, 300 L, 325 L, 400 L, 425 L, 450 L, 470 L, 490 L, 500 L, 538 L, 580 L, 600 L, 628 L, 670 L, 700 L, 718 L, 760 L, 800 L, 900 L, 1000 L, 1200 L
	Double Flywheel Door Prismatic Autoclave Series	SM-1CVK	ELENA-1CVK	OT-1CVK	ADELA-1CVK	
	Sliding Door Prismatic Autoclave Series	SM-2KK	ELENA-2KK	OT-2KK	ADELA-2KK	
	Double Sliding Door Prismatic Autoclave Series	SM-2CKK	ELENA-2CKK	OT-2CKK	ADELA-2CKK	
Laboratory Type Vertical and Horizontal Autoclave	Laboratory Type Vertical Autoclave Series	SM-3D	OT-3V	ADELA-3D	ELENA-3V	60 L, 75 L, 90 L, 115 L
	Laboratory Type Horizontal Autoclave Series	SM-3Y	OT-3Y	ADELA-3Y	ELENA-3Y	
Autoclave with Washing Function	Flywheel Door Autoclave with Washing Function Series	SM-4VK	OT-4VK	ADELA-4VK	ELENA-4VK	96 L, 125 L, 175 L, 250 L
	Sliding Door Autoclave with Washing Function Series	SM-4KK	OT-4KK	ADELA-4KK	ELENA-4KK	

Absolutely Forbidden

This Sign is a Sign That Indicates That The Process Should Not Be Done. Carelessness Can Seriously Damage Operator and Device.

Important Safety or Usage Information

This Marker has been prepared to draw attention to the Important Notes on Safety and Use of the Reader.

This manual contains important instructions for the Steam Sterilizer device during the maintenance, processing, loading stages. For this reason, it should be read carefully by the personnel in charge during the installation and processing phases. This manual should be permanently available in an environment where the steam sterilizer device is located, within easy reach. It is imperative that the safety instructions specified in these and subsequent sections are followed exactly.

It is important to keep this user manual with the device for future reference. If the device is sold or transferred, the manual must be delivered in order for the manual to be delivered to new owners or the user.

Our company; all medicinal products produced and sold; repair, maintenance, revision and calibration activities, with the personnel authorized, or with the appropriate equipment through the authorized distributors or dealers; fulfills the water, electricity and air installation in the place where it will be installed in accordance with the temperature-humidity standards. After the devices are installed, the product is operated in terms of reliability, safety and performance, and the users are certificated by providing home-use training regarding the product. All this responsibility belongs to our company.

If the user, have the device repaired by any person or company outside of SÜMER within the warranty period, the device will be out of warranty!

If maintenance-repair is made to another company other than our company, any liability for any negative situations and hazards that may arise in the final device, will not be accepted.

The usage life of our product has been determined as 10 years by the Ministry of Industry and Technology. Its safe use, determined by the PED 2014/68 / EU pressure vessels directive, is 10,000 cycles throughout its lifetime.

Our company has the right to change and improve the information in the User Manual.

INTRODUCTION

“Dear Customer,

As Sumer Inc, we produce our products to meet your requirements and expectations. Use our products, which have passed all stages of quality control, without hesitation. Our products produced in accordance with the latest technology and standards are included in MDD 93/42/EC -2007/47/EC Medical Devices Directive and PED 2014/68/EU Pressure Equipment Directive and they are audited by international organizations

We also recommend that you read this user and service manual, which is prepared for your safety in order to ensure the ease of use of our product, which are carefully produced. Before you start to use our product, we ask you to carefully read the "User and Service Manual" and keep it as a reference.

See "Problems and Solutions" on page 43 in case of any malfunction. In case of an unsolvable failure, please call our Technical Service.

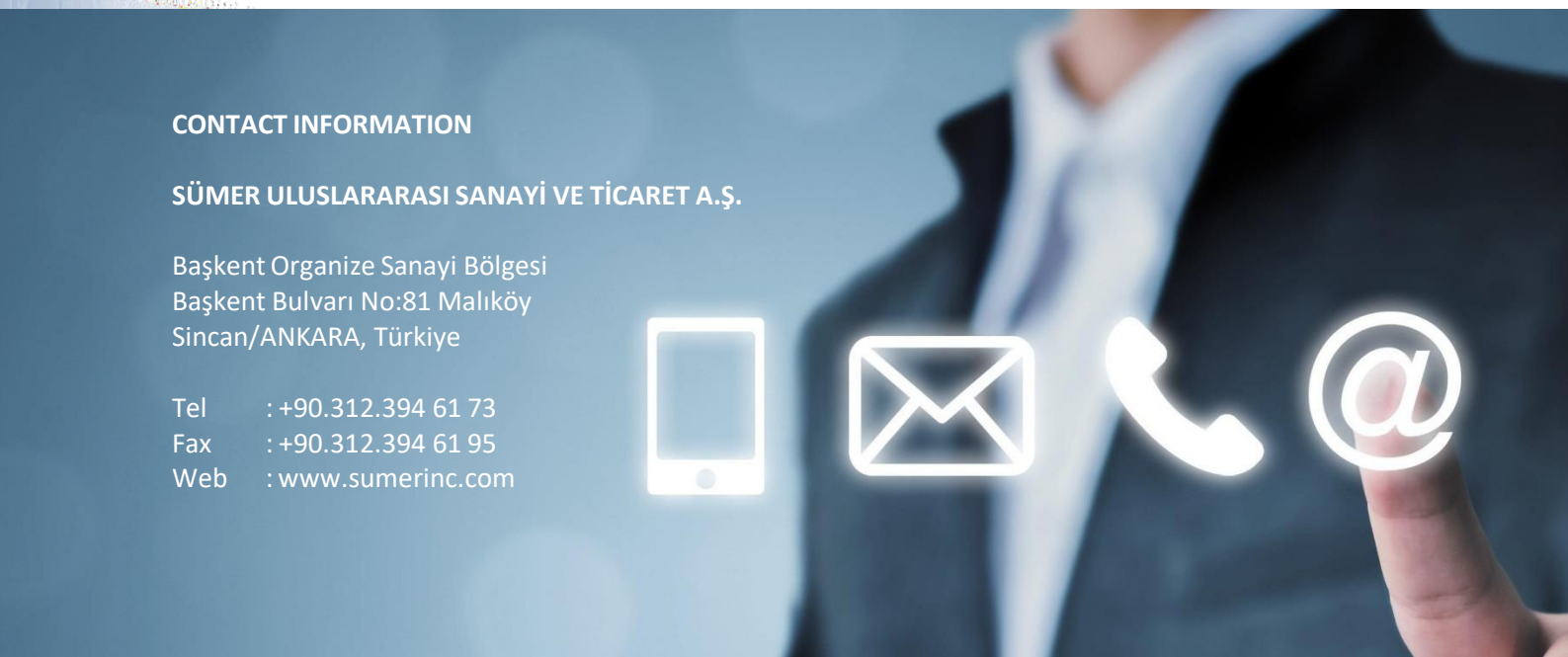
Do not interfere with anyone other than Sumer Inc and his authorized service personnel. Interventions by unauthorized persons may cause more damage to your device, and cause your device become out of warranty. This can affect the electrical safety and performance of the device in a negative way.

Sümer INC. Do not interfere with the device, except for the service personnel authorized by him. Unauthorized interventions can cause greater damage to your device, and your device will be out of warranty. This may negatively affect the electrical safety and performance of the device.

Thank you for purchasing this device.

The installation, maintenance and operation instructions given in the following pages are very important for the longevity of your device and better performance of the device, follow the instructions carefully.

Your satisfaction is the best reward for us.



CONTACT INFORMATION

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The information contained in this document may be changed without prior notice.

Warranty

SÜMER Inc. gives a warranty period of one year to start from the date of delivery to the device you purchased..

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COMPANY INFORMATION

Sümer A.Ş. It was established in Ankara in 1981 to serve the medical device industry. Since its establishment; It aims to progress by considering development, growth and adapting to today's technologies and protecting environmental conditions.

Our company rapidly follows the innovations in the sector and in the country / abroad with its research and development unit and its engineering staff, and continues to produce high-tech devices developed in line with these innovations, and develop them in the most beneficial way to human life and Turkish medicine.

For this purpose, our company; It strictly applies the principles and rules of "Quality Management" at every stage of production, from product design to after-sales technical service. The products we manufacture and sell are listed below.

- Central Sterilization Units,
- Steam Sterilizers,
- Washing Steam Sterilizers,
- Laboratory Type Vertical and Horizontal Autoclave,
- Tabletop Autoclave,
- Washer and Disinfector Devices,
- Dental Washer and Disinfector Devices,
- Operating Tables and orthopedic traction sets,
- Blood Storage Cabinet,
- Warming Cabinets,
- Injector Heating Device,
- Baby Bottle Warmer,
- Breast Milk Storage Cabinet,
- Breast Milk Ice Cream Cabinet,
- Breast Milk Storage and Ice Cream Cabinets,
- Hospital Sterilization Stainless Equipment is among our products.

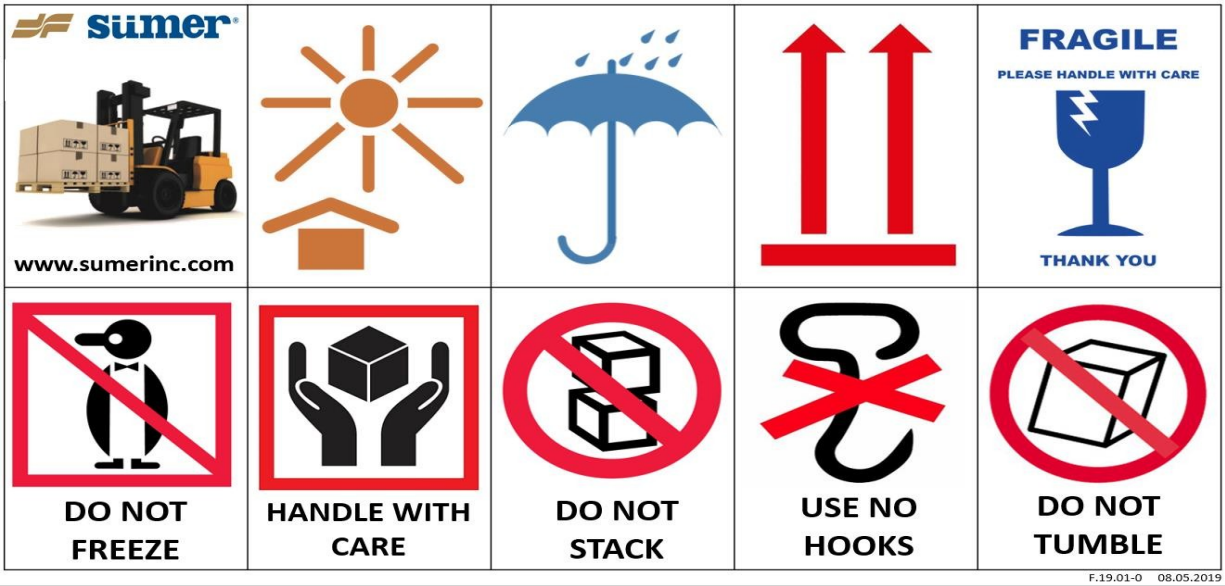
Our company has been in the production of medical devices since 1981; has targeted advanced technology and quality.

GRAPHIC SYMBOLS

	These symbols indicate that the material is part of the process of recycling / recycling.
	This symbol indicates that the device must be kept away from sunlight.
	This symbol indicates that the device may get broken and must be moved carefully.
	This symbol indicates the temperature limitation for operation, transport and storage.
	This symbol indicates humidity limit for operation, transport and storage.
	This symbol indicates that there is atmospheric pressure limitation for operation, transport and storage.
	This symbol indicates that the device should be kept dry.
	Medical Devices
	This symbol indicates the manufacturer.
	This symbol indicates the date of production.
	This symbol indicates that the device should not be disposed of with untreated municipal waste. (For EU only).
	This symbol indicates the manufacturer's catalog number of the device.
	This symbol indicates the serial number of the device.
	Read the User And Maintenance Manual
	Type B
	This symbol indicates protection against hard objects> 12.5 mm in diameter.
	Class I
	Non Sterile
	This device demonstrates compliance with the essential requirements of the EU Council Directive 93/42 / EEC on Medical Devices and 2014/68/EU on Pressure Equipment.

Device Warning Labels: The following warning labels are hit on the device for the safety of the user.

Packaging Labels: For the safety of the user, the following warning labels are hit on the packaging.



These Marks are for the user and should never be scratched or removed.

SAFETY INFORMATION

- Carefully read the “Operation and Maintenance Manual” before operating the device. This book contains important information regarding the installation, configuration, use and maintenance of the device.
- Producer; is not responsible for the consequences arising from the disregard of the instructions written below.
- This device; Heat resistant medical devices and instruments are produced for the purpose of sterilization by saturated steam method, do not use other than their intended purpose.
- If the new machine appears damaged, contact your dealer before operating it.
- Any changes to the electrical and hydraulic systems required to install the device must be made by qualified and authorized personnel.
- This device must be used by specially trained people who are provided by our company after installation or by special request. To be careful against door jams, keep yourself away from the device when closing the doors.
- When the device is not used, mains electricity connection should be disconnected from the main panel to which the device is connected when cleaning the device or in case of malfunction. Do not do this to unauthorized persons.
- It is forbidden to use the device in any way other than its intended use.
- The user is prohibited from doing any work or repairs on the machine.
- Technical Assistance for our Steam Sterilizer device should only be done by qualified and authorized operators.
- Equipment should only be installed by authorized people.
- Do not install the device in rooms where there is a risk of explosion.
- Do not expose the equipment to extreme cold.
- The electrical safety of our Steam Sterilizer device is guaranteed only when it is connected to an efficient grounding system.
- Do not lean on the door and use it as a step.
- The device reaches 134°C during the operating cycle: Be very careful to avoid burns. Use protective equipment to avoid being affected by heat.
- Do not wash the device with high pressure water jets.
- Always disconnect the machine from the mains before any service.
- Our Technical Service personnel will make the connection and installation of the device according to the installation instructions.
- Do not block or block the drain holes of the device.
- Check that the connection values stated on the electrical panel and on the type plate to which the device will be connected are compatible with each other.

- Safety related to the electrical connection of the device is provided only if the institution's ground line is properly made and in accordance with the regulations.
- Repairs to be performed on electrical devices should only be carried out by authorized, expert persons.
- The water used in the device should be taken from the Reverse Osmos device line. When the device is not used, mains electricity connection should be disconnected from the main panel to which the device is connected when cleaning the device or in case of malfunction.
- Stainless care products and acid-free cleaning products can be used in the device.
- Cleaning should not be done while the device is hot.
- When loading and especially unloading the device, it should be remembered that the baskets and trolleys will be at a temperature of 100 ^{0}C. Protective equipment must be used.
- In the event of malfunctions or potential hazards, user operators must inform the authorities immediately.
- The periphery of the device should be kept clean and dry in case of possible electrical leakage.
- Liquid that will cause corrosion should not be spilled on the device and general cleaning should not be done with these liquids.
- The device must not be exposed to impact or any mechanical vibration.
- There is a risk of burning from steam released after sterilization and drying. For this reason, the door should not be stopped while opening the door.
- Devices are designed and designed to minimize the expected environmental effects (Magnetic fields etc.). EMC tests are within limits. In case of unexpected environmental effects, the main supply line of the device should be cut.
- The device does not emit any radiation that affects the environment and living things.
- The labels on the device must never be removed and mechanical cleaning must not be performed.
- Filter changes should be done according to periodic maintenance rules.
- Do not interrupt the cycle, as the device runs, as it compromises sterilization unless it is mandatory.
- Use only original accessories.

If the above rules are not followed
SÜMER INC.,
will not be responsible for problems caused by personal injury or material damage.
Failure to comply with these rules ensures that the warranty is canceled completely and immediately.

REPORTING AN ACCIDENT OR EVENT

If an accident or incident occurs about the device, a report should be written about the reason for the accident or incident and the current situation and should be reported to SÜMER INC. urgently.

Sümer INC.; In the following cases, in accordance with the Medical Devices Directive, it must notify this to the "Notified Body" and the " Competent Authority " of the country in which the incident occurred.

1. Situations that cause the death of a patient, user, or someone,
2. Conditions that cause serious deterioration in a patient's health,

In this direction, our company is obliged to investigate and investigate the cause of the accident and to make improvements as a result.

PRODUCT USAGE PURPOSE

Intended Use - Patient Population - Target User - Indication - Contraindication

A) Product Usage Purpose: Our product; It is produced to be used for sterilization of 134ºC heat resistant medical products by steam method in health institutions.

B) Patient Population: Our product is not a device for the patient directly. Therefore, there is no specified patient population in our product.

C) Targeted User: It should be used by expert technical personnel who are experienced in sterilization and disinfection, assigned to this subject and who have completed the necessary trainings by our Technical Service Personnel.

D) Indication: It is the path to be followed for the proper use of the product, taking into account the user manual and necessary warnings, it is the safe and desired performance of the device.

E) Contraindication: It is inappropriate use. Regarding this subject, warnings were made for the user in the warning labels on the manual, product and packaging.

Our company will not be responsible for any injuries and malfunctions that may occur due to using the device, except for its intended use.

It is the duty of the Authority to purchase the product to check whether the degree of staff training is suitable for the assigned tasks. The institution is obliged to determine the competent personnel to use the device.

WORKING CONDITIONS

- Temperature: -5°C / 50°C

- Moisture: Must be between 20% / 90%.

- Pressure: Atmospheric Pressure
- Lighting: Min 500 Lux
- Ventilation: No air exchange required

AVERAGE SOUND PRESSURE LEVEL: <70 dB (A)

The value given is a value measured with a device at a height of 1.5 m at a distance of 1 m.

STEAM STERILIZERS

Our Steam Sterilizer Device; It is a device that provides sterilization of medical products by steam method. Our Steam Sterilizer Devices; It is divided into two as sliding and flywheel covers. These devices are also divided into two as single cover and double cover.

STEAM STERILIZATION PROCESS

When water vapor meets a cooler object, it concentrates on the material and transfers the energy it carries to this object. It is this energy transfer that provides sterilization. The high energy carried by the pressurized water vapor provides the sterilization by transferring it to the objects in the required time at constant temperature and pressure. Sterilization does not occur unless energy transfer occurs. If there is very little air left in the cabin, this energy is transferred to the air and the air is heated. Since air does not have an energy transfer power, sterilization does not take place at standard times. With this method, the death of microorganism cells causes the clotting of the protein and reproduction stops. After sterilization, steam is expelled and drying is activated. Drying time may increase in proportion to the material load.

ADVANTAGES

Steam sterilization is the oldest and most used method, because;

- It is safe, fast and inexpensive. It is a cheap equipment and cheap operating cost sterilization method.
- It is a suitable sterilization method for all materials except heat sensitive materials.
- Long and narrow lumen is a feasible sterilization method for closed materials.
- It is not toxic.

GENERAL WARNINGS

The Sterilization Devices can be stopped by pressing the emergency stop button in any emergency.

The Sterilization Devices must be used by trained personnel and this user must be the only person responsible for the device.

If the program is canceled or an emergency stop is performed during the operation of the device, the material loaded on the device must be re-prepared for sterilization process must be repeated.

When the Steam Sterilizer Device is not in use, nothing should be left or stored inside. At least one door of the device must be open.

Sterilized finished materials are hot, gloves should be worn during evacuation of materials from the autoclave chamber to prevent user injuries.

The steam circulation can not be fully realized if the chamber too much filled. This directly affects sterilization quality. 5 cm space must be left between the chamber wall.

As the chamber is hot after the operation, remove the sterilized material with gloves.

If any liquid is spilled into the chamber, clean it immediately.

The details of the automatic control device can be output as a report at the end of sterilization, as well as the time for all stages of sterilization cycle such as pressure and temperature.

REMAINDER RISKS

The device includes a set of fixed guards to prevent access to dangerous internal parts or areas. However, the autoclave is thought to contain some residual risks. The precautions to be taken at each stage or for important business interventions are:

	BASKET LOADING AND UNLOADING
RISK	Falling during basket loading - unloading, crushing from this, injuries that may occur due to sharp corners.
MEASURE	Trained competent personnel and the use of Protective equipment.
RISK	When the sterilization program is over, the door of the sterilizer is opened to pick up the items and the inside of the boiler is still hot. Pay attention to the hot air coming out of the boiler. Do not stand in front of the door as soon as the door is opened, hot steam may damage it.
MEASURE	Trained competent personnel and the use of Protective equipment.
PROTECTIVE EQUIPMENT	Latex Protective Glasses and Heat-resistant gloves

	INTERACTION WITH CHEMICALS USED ON THE DEVICE
RISK	Contact of washing chemicals used with the body.
MEASURE	Trained competent personnel and the use of Protective equipment. Remove contaminated or wet clothing immediately and rinse the contact area with plenty of water. Observe the chemical manufacturer's recommendations.

RECYCLING INFORMATION

- Older devices are not worthless trash. By passing through an environmental removal process, valuable raw materials can be evaluated for reuse.
- Regulations on waste management should be taken into consideration for wastes.
- Disconnect old devices from electricity. Separate the main cable from the device under observation of authorized personnel.
- Your new device has been placed in an appropriate packaging to prevent any damage during its transport. All materials used for the packaging of the new appliance are of a non-destructive nature and can be recycled. By subjecting packaging to environmental degradation and reassessment, you can help protect the environment.
- Do not give packagings and packaging parts for children to play. Due to the foldable cardboard boxes and foils, they can suffocate without air.
- Properly dispose of the packaging as required. All packaging materials used are genuine materials that do not pollute the environment and can be re-evaluated. No chemical processing is made in wood fragments.
- Get information about the old device removal methods and garbage re-evaluation centers from your dealer or affiliated municipality.

WARNING !

Be sure to convey the wastes that arise during the opening of the product packages, the wastes that will occur when you use the product and all the stages after the product has completed its life, to the authorized recovery centers of the country you are in.

PRE-INSTALLATION ACTIVITY

Planning of the central sterilization units to be installed should be done in accordance with the dimensions of the device to be purchased. For this reason, it is necessary to get information from our company and to plan accordingly.

INSTALLING THE DEVICE

A. Positioning the Steam Sterilizer Device

When the device arrives at the place to be installed after transportation, it is necessary to use a forklift or a crane to lower it from the vehicle and position it where it will be operated.

All packaging materials are recyclable and follow the recycling rules.

- Open the packaging carefully.
- Do not overturn the machine as it may cause irreparable damage.
- Cut the strap or open the box and remove the expanded polystyrene corner protectors.
- First remove the box and then the plastic bag.
- Based on the table on page 20, the back of the device should be 100cm, right side 75cm, left side 75cm, and the space between the device and the ceiling 150cm.
- Place the Steam Sterilizer device on the work surface and level it by adjusting the level with the spirit level (The inner surface of the chamber must be flat). The device should not be covered before these processes are completed.

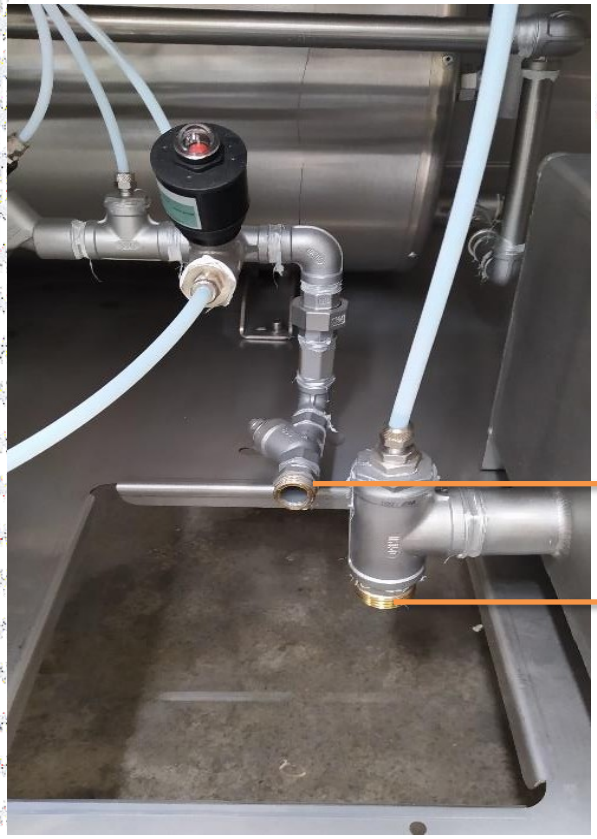
NOTE 1: If the car is requested as an accessory to the device, the gaps in the inlet and outlet of the device should be such that this car can move freely and make loading and unloading easier.

WARNING 1: Regardless of the total weight of the device, the device must be installed on a concrete or epoxy coated hard floor. The mezzanine should not be installed in a place that does not bear the weight of the device.

WARNING 2: The place where the device will be mounted and the ground must not be made of flammable materials. The device cannot be moved after assembly.

- If the device is relocated by others and our company is not informed about it, our company is not responsible for the problems that may arise next.
- The installed device must definitely breathe. If the device must be operated in a closed environment, the absolute environment must be ventilated. For example, it would be useful to have windows or ventilation. If the environment in which the device operates is not receiving air, our company is not responsible for any damages arising from this.

B. Water Connection



WARNING !

Drainage must be at a level below the drain pipe of the device.

Water Inlet: Stainless or galvanized pipe with ¾ ”female connection is required.

Water Discharge: 1 ”and up to 150 ° C durable plastic, stainless or galvanized pipe are required.

- This device must be connected to the water network in accordance with the current legislation.
- When making water connections, the technical drawing shown in Figure 3 should be taken into consideration.
- Irreversible system for water is already in the device.
- Connect using ¾ ”coupling taps in an easily accessible location.
- Make sure the mains water pressure is between 2 and 5 Bar.
- Heaters and check valves, pneumatic solenoids, strainers will be damaged if the city water is extremely calcareous. In order not to damage the device, it is absolutely necessary to treat city water. For this, a water softener device should be used.
- If the pressure is higher than 5 Bar, a pressure reducer should be installed.
- If the average hardness of the water is higher than 10 ° FR, descaled water should be used.

- Characteristics of the city water to be used are given below.

Determinant	Condensate
Silicate (SiO_2)	≤ 0.1 mg / L
Iron (Fe)	≤ 0.1 mg / L
Cadmium (Cd) [c]	≤ 0.005 mg / L
Lead (Pb) [c]	≤ 0.05 mg / L
Rest of heavy metals except iron, cadmium, lead	≤ 0.1 mg / L
Chloride (Cl)	≤ 0.1mg / L
Phosphate (P_2O_5)	≤ 0.1 mg / L
Conductivity (at 20 °C) [a]	≤ 4.3µS / cm
pH (20 °C) value	5 - 7
Appearance	No residue, clean, colorless
Hardness (Ions of alkaline earth)	≤ 0.02 mmol / L

a. See European Pharmacopeia.
b. If the condensate meets the requirements on conductivity, it is not necessary to perform heavy metal tests.
c. The limiting values meet the requirements for potable water.

- In order to discharge the device while vacuuming comfortably after sterilization, expenses must be as smooth as possible. For example, the fewer the corner brackets in the drain, the more comfortable the discharge.

NOTE 2: The expense must be in a closed area, if the expense is open and the expense in the winter freezes according to the weather conditions, our company is not responsible for the malfunctions that may arise from this.

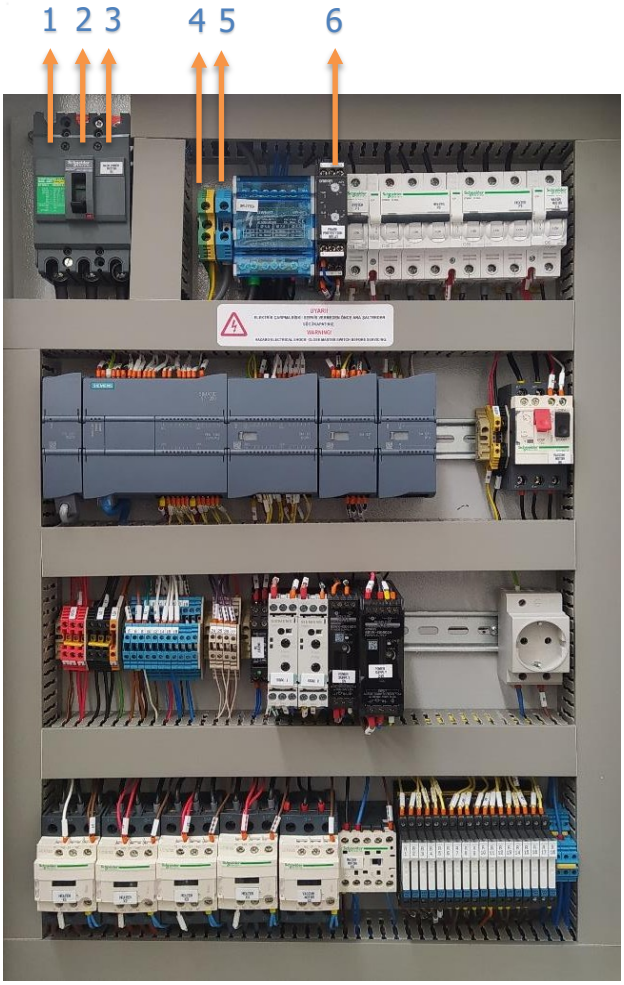
- The materials to be sterilized should be placed on the shelves of the loading trolley of the device. It must be loaded and taken with the loading cart. The loading should not be placed in materials without cars or racks. Otherwise, the drain filters can be closed and the materials cannot be sterilized properly.
- It should be ensured that the vacuum pump and water pump on the device receive water from Reverse Osmosis system instead of city water. Failure of the vacuum pump can be caused by the power failure of the city grid, lack of water, or discharge of the protection pump of the vacuum pump. In this case, our company should be informed.

NOTE 3: The expense must be in a closed area, if the expense is open, our company is not responsible for the malfunctions arising from this if the expense in the winter freezes according to the weather conditions.

- After completing the sterilization process, gloves or cloth should be used according to the temperature while removing the materials from it. If the user takes the hot material with bare hands, our company is not responsible for the damage that will occur.

Static Pressure	: 2.0 - 5.0 Bar
Dynamic Pressure	: 1.5 - 4.0 Bar
Feed Water Hardness	: 0 ° FR - 10 ° FR
Feed Water Temperature	
Cold Water	: 5 - 15 ° C

C. Electrical Connection



1. L1 : 1. Phase
2. L2 : 2. Phase
3. L3 : 3. Phase
4. Grounding
5. Neutral
6. Phase Protection Relay

Plug the 5 X 25 TTR cable ends for easy connection.

1. Environment in line with current Technical Regulations.
2. The electrical connection must be made in accordance with the applicable technical regulations.
3. When making electrical connections, the above panel should be taken into consideration. While making the electrical connection;
   - Make the electrical connection with a section cable suitable for the power of the device.
   - The part indicated by 1 on the panel is L1, it's the first phase. Connect the other cable to the L2 and L3 phases, respectively.
   - Connect the yellow cable to the part number 4 on the board.

- Connect the blue neutral cable to the part number 5 on the panel.
- See Phase Protection Relay;

If the phases are correctly connected, these two lamps light green.

This lamp lights red if the phases are incorrectly connected. In this case, move the phases.

- The city network working current of the device should be connected to a panel with 380V / 230V three-phase according to the power of the device. You can use on / off switch and at least 80 Amp auto fuse inside the panel.
- 380V / 230V three-phase electricity should be connected to the device. When the heaters draw excess current, the cables reach a certain temperature. This has no harm to the device. When excessivecurrent draws, one of the heaters is automatically cut off and the device returns to normal current.
- Heaters and check valves, pneumatic solenoids, dirty holders can be damaged if city mains water is extremely calcareous. In order not to damage the device, it is absolutely necessary to treat city water. For this, a water softener device should be used.
- The height of the trolley should be adjusted to the height of the autoclave after the device is installed or after prolonged use.

D. Air Connection

If air is to be drawn into the device from a central air system;

1. Nut shown in Figure 1 is removed.
2. 10 mm and minimum 6 bar pressure resistant hose is passed through the nut.
3. The hose is attached to the air socket shown in the figure.
4. Air connection is made by tightening the nut.

The device must be connected to a minimum of 5 - 7 bar Medical dry air.

E. Evacuation Links

Use a drain suitable for the device. (You can consult our Authorized Service on this matter.)

For Evacuation Connection, It is Necessary to Follow These Instructions:

- Discharge pipe must be resistant to heat (150ºC and 3,5 Bar) and pressure and connected with a 1" record.
- When the discharge pipe is connected; it should be slightly curved, not corners.
- The discharge point should be placed at a maximum height of 10 cm from the base on which the device is placed.
- Carefully follow these instructions, as incorrect drain connection may prevent the appliance from vacuuming.
- Avoid drain pipe extension.

Caution: If the drain pipe is clogged, be very careful when handling water and avoid hand, eye, etc. avoid contact. In case of contact, rinse the relevant parts with plenty of water.

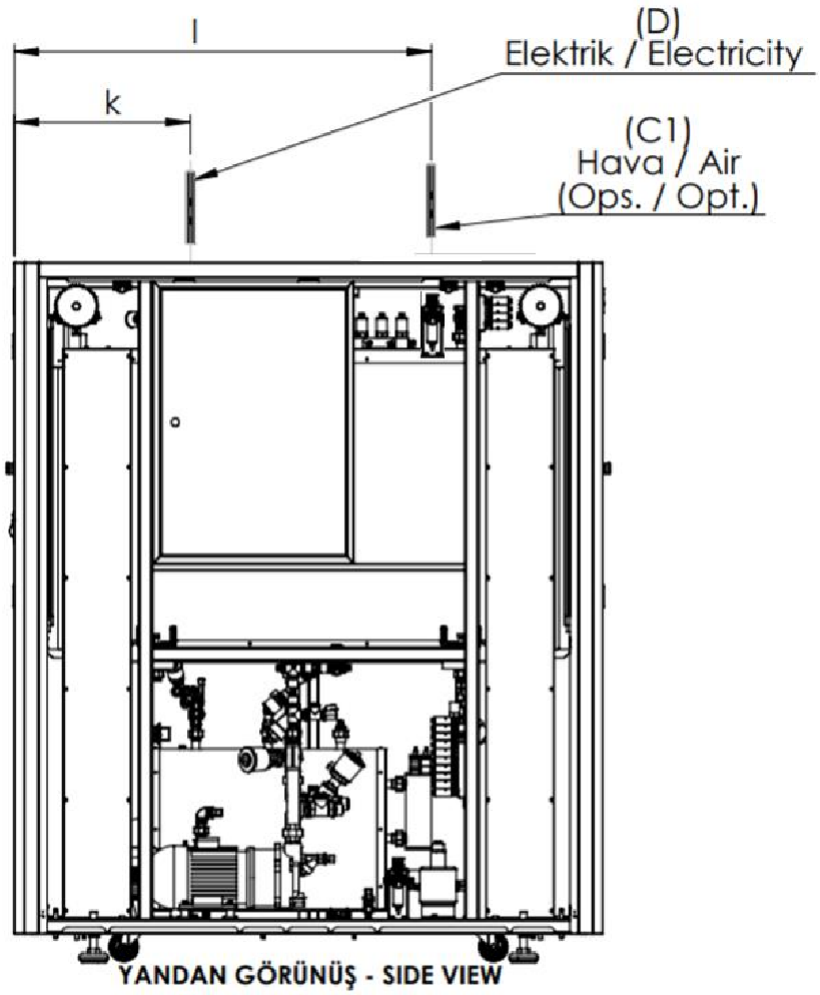

l
k
(D)
Elektrik / Electricity
(C1)
Hava / Air
(Ops. / Opt.)
YANDAN GÖRÜNÜŞ - SIDE VIEW

Figure.1

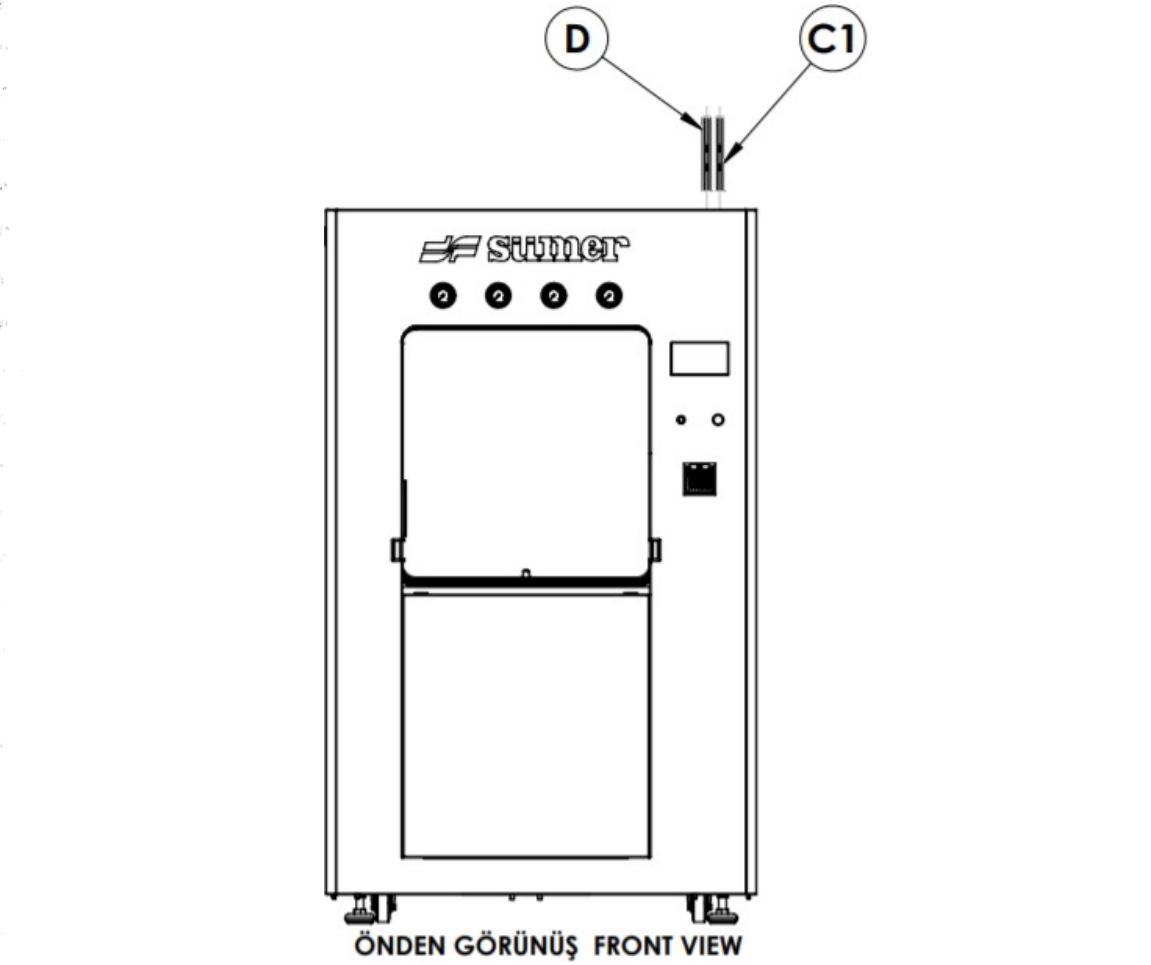

D
C1
ÖNDEN GÖRÜNÜŞ FRONT VIEW
X
(A)
Su / Water
(B)
Gider / Drain
(C)
Hava / Air
B
A
C
DETAIL X
SCALE 1 : 6

Figure.2

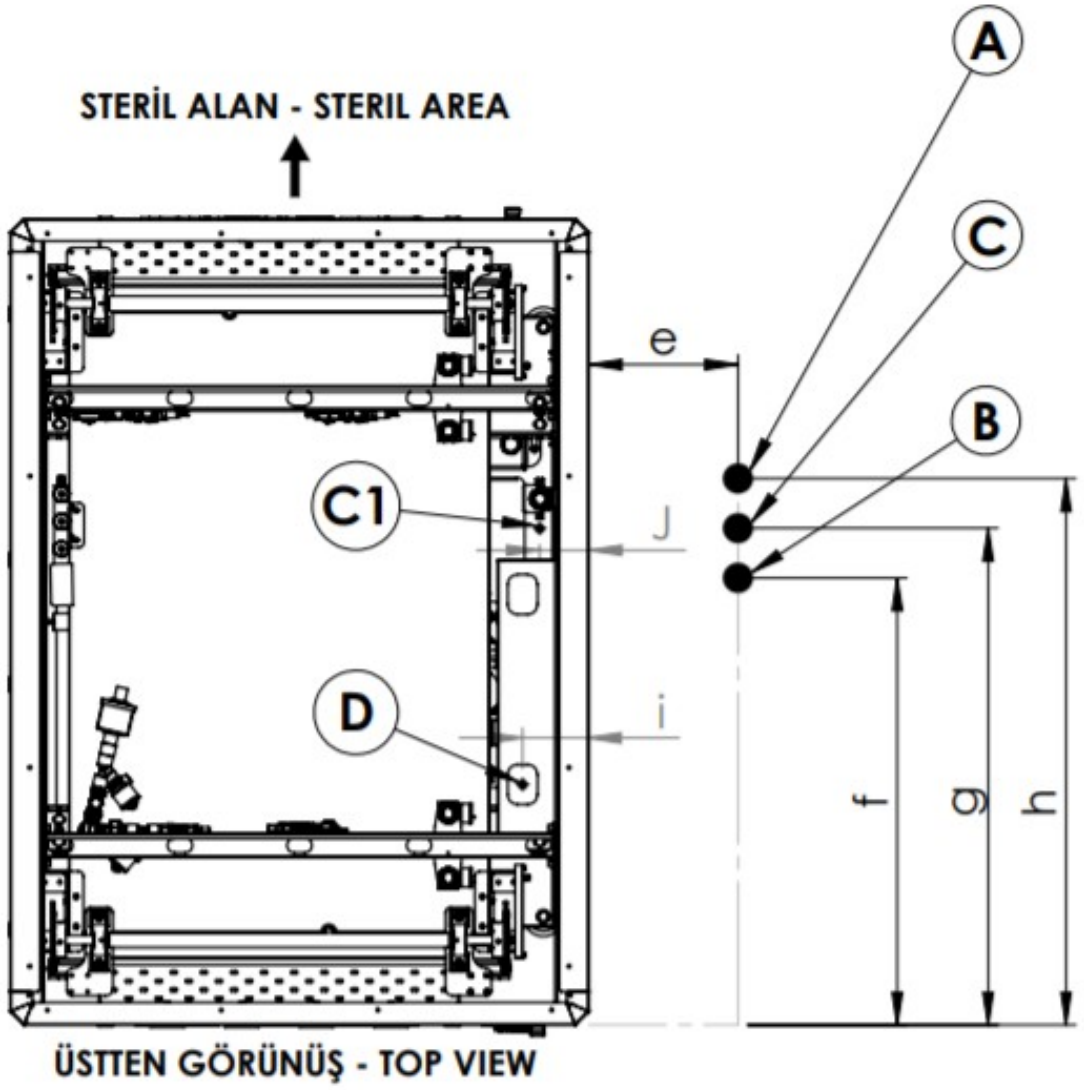
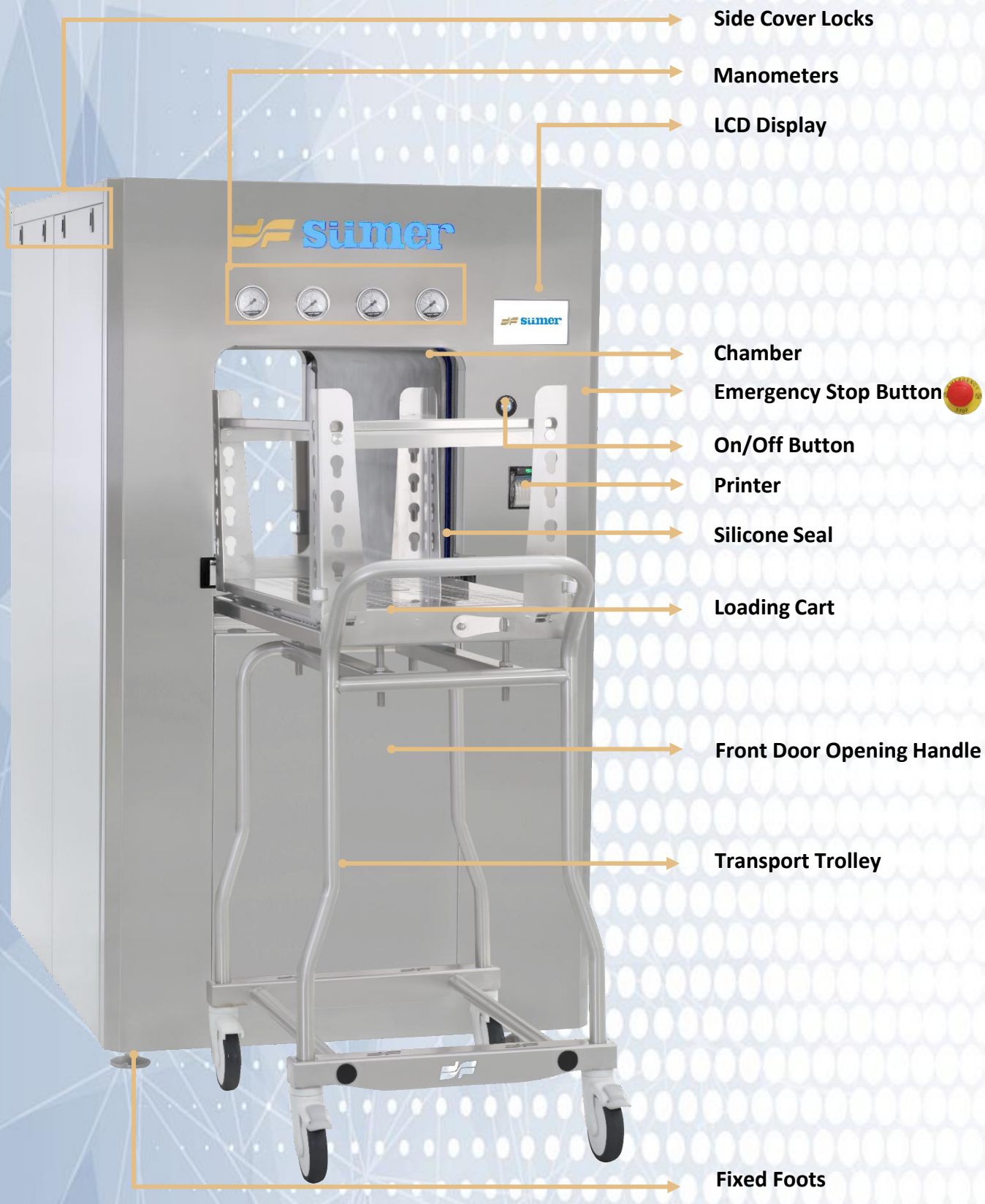


Figure.3

ÖLÇÜ TABLOSU DIMENSION CHART				
NO	250 lt (mm)	325 lt (mm)	425 lt (mm)	580 lt (mm)
e	200	200	200	200
f	750	900	750	900
g	850	1000	850	1000
h	950	1100	950	1100
i	135	135	135	135
J	100	100	100	100
k	485	485	485	485
l	1000	1000	1000	1000

BAĞLANTI TABLOSU FITTINGS CHART	
NO	AÇIKLAMALAR / DESCRIPTIONS
A	**3/4" Arıtılmış Su** 3/4" Distilled Water
B	**Min. 2" Galvanizli Gider Borusu** Min. 2" Galvanized Drain Pipe
C	**4-6 Bar Kuru Hava** 4-6 Bar Dry Air
C1	**Opsiyonel 4-6 Bar Kuru Hava** Optional 4-6 Bar Dry Air
D	**< 40KW: 3L-1N-1PE 400VAC (5x16 mm²)** > 40KW: 3L-1N-1PE 400VAC (5x25 mm²)

STEAM STERILIZER GENERAL INTRODUCTION



DEVICE PARTS

SN	Part Name	Part Description
1	Chassis	The carcass that gathers all the elements of the sterilizer. Side covers on the chassis can be easily removed and installed. In this way, technical intervention is made easier on the device. The device can move easily thanks to the wheels attached to the chassis and it has height adjustable feet to fix it to the desired place. It is made of AISI 304 quality stainless steel material against rust and wear.
2	Chamber	Rectangles are produced in the form of prisms or cylinders. It is the volume where sterilization takes place. It is completely manufactured from AISI 316 L or AISI 316 Ti Quality Stainless Steel. Cell metal thickness is 6 mm.
3	Steam Jacket and Cover	By providing steam circulation on the outer surface of the cell, it provides heating of the chamber wall. Steam jacket (Jacket) is made of 3 mm and the cover of the device is 10 mm AISI 316L or AISI 316 Ti Quality Stainless Steel.
4	Generator	It is a separate unit where the steam required for sterilization processes is produced. Working pressure is 3.5 bar manometer pressure. The steam generator produces at least 98% saturated steam. Heat is supplied to the generator by electrical resistances and the water level is controlled by electrodes. The steam generator designed according to the safety calculations of the pressure vessels is preferably made of AISI 316L or AISI 316Ti Quality Stainless Steel. The generator was tested at high pressures and electrical and mechanical safety was provided. The unit can also work with the hospital steam pipeline.
5	Resistance	It is used in the production of saturated steam by heating the water in the steam generator. Each of the stainless material is produced as 10 - 15 KWA.
6	Isolation	Glass wool without chloro fluoro carbon (CFC) is used as an insulating material in the Autoclave Boiler and heat fields. Thanks to the insulation, the maximum temperature that the device can spread to the environment is tested as 45 ° C (± 3 ° C).
7	Water Level Box	Boiling of water in the steam generator causes fluctuations on the water surface. Fluctuations cause the water level to be measured incorrectly. Therefore, the water level is measured in the water level box directly connected to the steam generator.
8	Water Level Probes	They are the probes that measure the lower, upper and safety levels of the water in the steam generator. These probes ensure that the generator needs water and that the water level does not fall below the resistance
9	Filtration	It filters and cleans the air entering the device with the help of Hepa Filters with 0,2 or 0,3 microns porosity and 99.99% bacteria filtering.
10	Chamber Safety Valve	When the chamber pressure reaches a dangerous value, the safety valve releases excess pressure.
11	Jacket Safety Valve	When the jacket pressure reaches a dangerous value, the safety valve releases excess pressure.

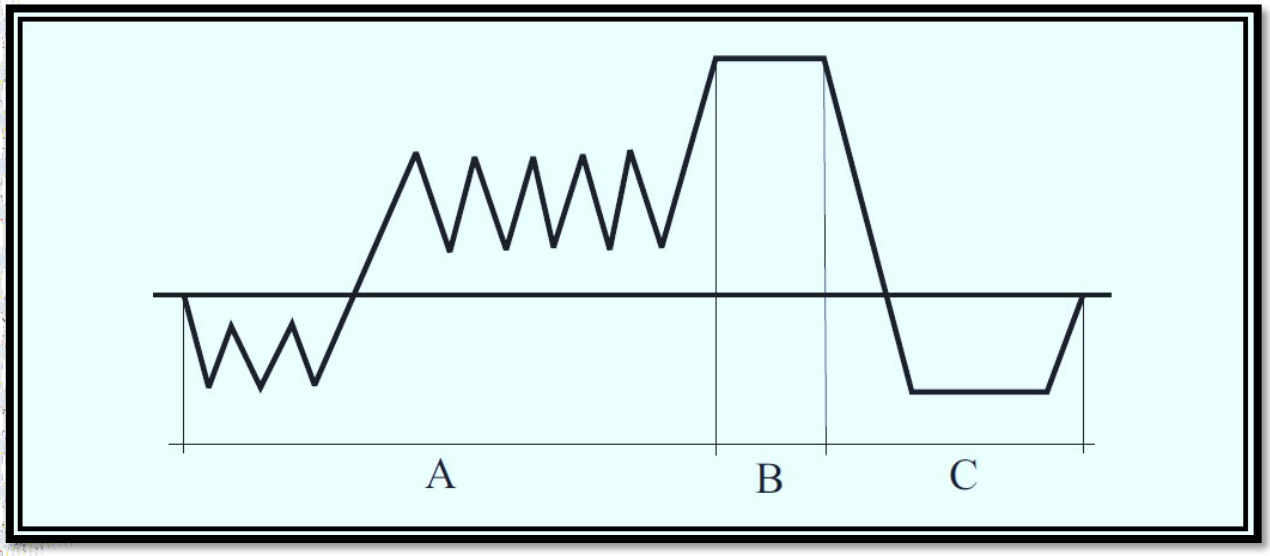
12	Pressure Sensors	The sensitivity of the calibrated pressure sensors is 1% at 0.5 bar.
13	Generator Safety Valve	When the generator pressure reaches a dangerous value, the safety valve releases excess pressure.
14	Manometers	It shows the working pressure values of the device.
15	Water tank	Tank used to meet the water requirement of the device (Condensate Tank)
16	PT100 (Temp. Sensor)	The CHAMBER measures the temperature inside the jacket and generator. It provides calibration of the device.
17	For Tests PT100 Input	It is the entry prepared for the institutions authorized to perform calibration and validation of the device, to install their own PT100s on the device. There are two 1/2" independent pressure and temperature sensor connection inlets to perform the operations.
18	Seal	It is used for sealing the cover system of the device. It is based on 100% vulcanized silicone. It is used in covers and flywheel cover hub.
19	Door	It is the part that ensures the safe isolation of the chamber from the outer atmosphere. Optionally Flywheel Cover or Sliding Cover models can be used. Both cover systems provide chamber sealing with vulcanized heat resistant silicone seals.
20	Emergency Stop Button	It allows the device to stop in any negative situation.
21	Printer	There is a thermal printer on the device.
22	Electric Panel	The main place where the electrical equipment is located.
23	Door Motion Sensor	It ensures that the door functions properly.
24	Movement and Balance Position of the Device	It has 4 wheels that allow the device to be moved easily. It has rubber feet that can be adjusted to ensure its balance.
25	Watch Screen	The monitoring screen is LCD touch screen. It provides monitoring of heat, time, pressure, warnings and each program phases.
26	Loading Cart	Basket in which the materials to be sterilized are placed.
27	Transport Trolley	It is the trolley where the sterilized materials are carried with the loading basket.
28	On/Off Button	It is the key that enables the device to turn on.
29	Up-Down Buttons	These are the buttons that allow the autoclave to move up and down.
30	Pressure Regulator	Manually adjusts the pressure to the desired level.
31	Pnomatik Valve	It provides the steam to be directed to the chamber.
32	Vacuum Engine	It serves to vacuum the air inside the chamber.
33	Water Engine	It is used to flood the generator.
34	Control Valve Coil	It is used to control the air to the pneumatic valves.

STERILIZATION PROCESS

When water vapor meets a cooler object, it concentrates on the material and transfers the energy it carries to this object. It is this energy transfer that provides sterilization. The high energy carried by the pressurized water vapor provides the sterilization by transferring it to the objects in the required time at constant temperature and pressure. Sterilization does not occur unless energy transfer occurs. If there is very little air left in the cabin, this energy is transferred to the air and the air is heated. Since air does not have an energy transfer power, sterilization does not take place at standard times.

With this method, the death of microorganism cells causes the clotting of the protein and stops its reproduction.

After sterilization, steam is expelled and drying is activated. Drying time may increase in proportion to the material load.



A. Before sterilization

The steam required for sterilization is produced.

B. Sterilization

It is the stage in which sterilization takes place at appropriate pressure and temperature.

C. After sterilization

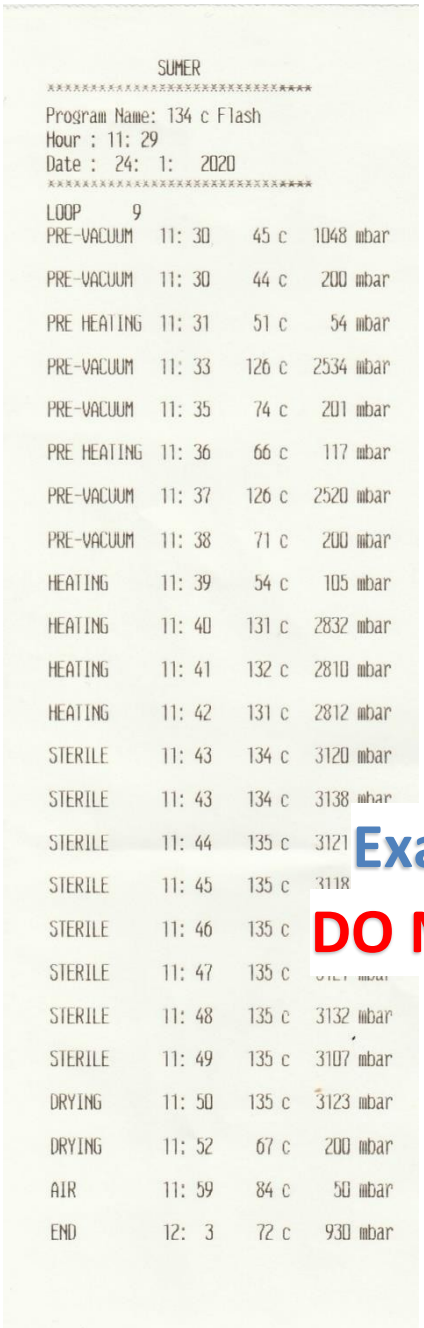
It is the stage where 70 mBar vacuum is taken and moisture is taken out. The sterilization chamber is brought to atmospheric pressure. Pressure balancing with vacuum takes place by accepting it as atmospheric. The system does not allow the doors to open if the internal pressure is more than 0.13 bar atmospheric pressure and the vacuum is more than 0.033 bar atmospheric pressure. The system also has a filter that prevents bacteria from entering. The efficiency of the filter is 99.998% and 0.3 micron (0.0003 mm) in size.

WARNING !

Ambient conditions, type of material, packaging etc. variables like
"STERILIZATION PROCESS"
It affects.
Our product offers you a good sterilization by optimizing all these factors.

STERILIZATION PROCESS DOCUMENTATION

Printer output will help you to archive the sterilization processes and documentation. You can follow the program used in a printout and the appropriate sterilization process and save it. You can see a sample sterilization printout below.



SUMER

Program Name: 134 c Flash
Hour : 11: 29
Date : 24: 1: 2020

LOOP	9		
PRE-VACUUM	11: 30	45 c	1048 mbar
PRE-VACUUM	11: 30	44 c	200 mbar
PRE HEATING	11: 31	51 c	54 mbar
PRE-VACUUM	11: 33	126 c	2534 mbar
PRE-VACUUM	11: 35	74 c	201 mbar
PRE HEATING	11: 36	66 c	117 mbar
PRE-VACUUM	11: 37	126 c	2520 mbar
PRE-VACUUM	11: 38	71 c	200 mbar
HEATING	11: 39	54 c	105 mbar
HEATING	11: 40	131 c	2832 mbar
HEATING	11: 41	132 c	2810 mbar
HEATING	11: 42	131 c	2812 mbar
STERILE	11: 43	134 c	3120 mbar
STERILE	11: 43	134 c	3138 mbar
STERILE	11: 44	135 c	3121
STERILE	11: 45	135 c	3118
STERILE	11: 46	135 c	
STERILE	11: 47	135 c	
STERILE	11: 48	135 c	3132 mbar
STERILE	11: 49	135 c	3107 mbar
DRYING	11: 50	135 c	3123 mbar
DRYING	11: 52	67 c	200 mbar
AIR	11: 59	84 c	50 mbar
END	12: 3	72 c	930 mbar

Examples.

DO NOT USE!

SUMER

LEAK TEST
Hour : 17: 18
Date : 22: 1: 2020
LOOP : 5

VACUUM :	60 mbar
STABLE :	62 mbar
TEST RESULT :	62 mbar
TEST RATE :	0,0 mbar/dk

TEST SUCCESSFUL

WARNING !

Be sure to place the "Bowie Dick" test kit at the beginning of each day and run the "Bowie Dick" program and lubricate the seals with silicone spray.
At the beginning of each week, run the idle "Leak Test" program.
In case of any problem, inform “Authorized Service”.

GENERAL FEATURES

- Reliable domestic production in accordance with TS EN 285 standard,
- Type tests, controls and appropriately determined devices,
- Continuously renewed technology and R&D studies devices,
- Devices offered to the market at reasonable price ranges,
- Trained technical personnel, technical service opportunities,
- Easy access, fast intervention opportunities,
- Economic lifetime, use of quality materials,
- Water and electricity saving devices,
- 1 years warranty, 10 years spare parts available,
- Complete reliability in assembly
- Renewed and repeated training process for the user

Devices; safe, protective, all tests-Calibration, leakage current, water consumption, electricity consumption, air leakage, helix, bowie-dick, ETS, generator capacity and water testing facilities in full sterilization cycle.

SAFETY AND QUALITY

- Protects the user against current leaks
- Short-circuit protection available
- Safety valve
- Uses hepa filter for fresh air
- Water level control with float inside the generator
- Water level float (in water tank)
- Precise steam discharge with pneumatic valve
- Leak test
- Password protection
- Sensor protection against obstructions on the doorway
- Pressure valve locks
- Safety system that prevents opening together in double door models
- Emergency button

CONTROL SYSTEMS AND PROPERTIES IN STERILIZERS

- Monitoring of the control and sterilization phases on the screen with the help of PLC (Programmable Logistic Controller)
- Managing all sterilization processes with the help of touch color screen
- Full control with the electromagnetic compatibility tested control unit
- Programs that have been tested for Compliance according to EN 285 and EN 17665-1-2 standards

SAFETY FEATURES

- The system warns the user when the water runs out. It cuts off power/energy when needed.
- The system warns when the cover is open. The program does not start until the cover is closed.
- The system warns when there is no steam. The program does not start until steam is supplied.
- The lid cannot be opened until the pressure in the sterilization chamber drops to atmospheric pressure.
- When the mains voltage drops, it warns with a sound.
- The system warns when it detects high pressure.
- Pressure sensing sensors alert pressure errors.
- The system warns of cable breaks and sensor failures.
- Displays temperature sensing element (PT 100) faults on the screen. It informs the user.
- Sterilization chamber was controlled with 2.5 bar working pressure. 3.75 bar test pressure.
- In the sterilization boiler and steam generator, in case of excessive pressure, the safe discharge of steam is provided.
- In case the sterilization program is not running, the system; It keeps the intracellular pressure under control so that the lid can be opened at any time.
- The system checks the gasket of the device with pressure gauge.
- The system has a cover gasket that ensures leak tightness until the internal chamber pressure reaches atmospheric pressure.
- The system does not open the covers of the autoclave if there is a ± 100 millibar pressure difference between the autoclave pressure and atmospheric pressure.
- The system reports the difference between warning indicators and internal pressure and atmospheric pressure.
- The system has an emergency door release button.
- The system does not allow the doors to open if the internal pressure is more than 0.13 bar atmospheric pressure and the vacuum is more than 0.033 bar atmospheric pressure.
- If the sterilization vessel temperature drops within acceptable limits, the programs continue. Outside these limits, it can be programmed to restart. The printer has the ability to record both conditions in time.

TECHNICAL DATA SHEET

CHAMBER VOLUME (LITER) AND DIMENSIONS													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Height (mm)	390	390	500	500	670	670	390	500	500	670	670	670	670
Width (mm)	390	390	500	500	670	670	390	500	500	670	670	670	670
Depth (mm)	700	1000	1000	1300	1000	1300	1000	1000	1300	1000	1300	1600	2000
STU Capacity	1	1,5	1,5	2	6	8	1,5	1,5	2	6	8	10	12

DEVICE DIMENSION													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Height (mm)	1655	1655	1765	1765	1935	1935	1655	1765	1765	1935	1935	1935	1935
Width (mm)	885	885	995	995	1165	1165	885	995	995	1165	1165	1165	1165
Depth (mm)	1125	1325	1325	1625	1325	1625	1325	1325	1625	1325	1625	1925	2325

PACKING DIMENSION													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Height (mm)	1920	1920	2030	2030	2200	2200	1920	2030	2200	2200	2200	2200	2200
Width (mm)	1070	1070	1180	1180	1350	1350	1070	1180	1180	1350	1350	1350	1350
Depth (mm)	1280	1580	1580	1880	1580	1880	1580	1580	1880	1580	1880	2175	2575

DEVICE WEIGHT													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Weight (Kg)	500	600	670	770	850	1000	700	800	900	1050	1200	1450	1680

GENERATOR DIMENSION													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Generator Power (3 Phase/230± 10VAC)	20	20	30	30	40	40	20	30	30	40	40	60	60
Installation Power (kW)	25	25	35	35	45	45	25	35	35	45	45	65	65
Generator Volume(L)	25	25	50	50	75	75	25	50	50	75	75	100	100

TRANSPORT TROLLEY DIMENSION													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Width (mm)	480	480	590	590	660	660	480	590	590	660	660	660	660
Height (mm)	1000	1000	1100	1100	1100	1100	1000	1100	1100	1100	1100	1100	1100
Depth (mm)	880	1180	1180	1480	1180	1480	1180	1180	1480	1180	1480	1780	1780

LOADING CART DIMENSION													
MODELS	SINGLE DOOR						DOUBLE DOOR						
	100 L	150 L	250 L	325 L	425 L	580 L	150 L	250 L	325 L	425 L	580 L	718 L	900 L
Width (mm)	380	380	490	490	660	660	380	490	490	660	660	660	660
Height (mm)	365	365	430	430	530	530	365	430	430	530	530	530	530
Depth (mm)	660	960	960	1260	960	1260	960	960	1260	960	1260	1560	960

DEVICE CONSTRUCTION

CARCASS	AISI 304 Stainless Steel
CHAMBER	6mm, AISI 316L Stainless Steel
JACKET	3mm, AISI 316L Stainless Steel
DOOR	10mm, AISI 316L Stainless Steel
PANEL COATING	1-1,5 mm AISI 304 Stainless Steel
PIPING	Brass, AISI 316L Stainless Steel
CHAMBER POLISHING	Electro polishing

JACKET TEST RESULTS		
Jacket Water	1/2"Pipe 2-4 Bar 30Lt/h	1/2"Pipe 4 Bar 30 Lt/h
Jacket Pressure	3,75 Bar	
Jacket Pressure	140 °C	
Working Pressure	2,5 Bar	
Working Temperature	134 °C	

GENERATOR TEST RESULTS		
Generator Water	1/2"Pipe 2-4Bar 40 Lt/h	½"Pipe 2-4 Bar 50 Lt/h
Test Pressure	5,25 Bar	
Test Temperature	150 °C	
Working Pressure	3,5 Bar	
Working Temperature	144°C	

Standard Programs	
Medical & Surgical Instruments	134 °C / ~ 60 dk
Textile Materials	134 °C / ~ 60 dk
Rubber Articles	121 °C / ~ 80 dk
Plastics	121 °C / ~ 60 dk
Liquids in Glass Container	125 °C / ~ 60 dk
Flash	134 °C / ~ 20 dk
Prion	134 °C / ~ 90 dk
Bowie&Dick Test	134 °C / ~ 45 dk
Vacuum Leak Test	~ 25 dk
Customizable Program Capacity	Optional

General Characteristics	
Control System	PLC CPU
Operation Mod	Fully Automatic / Button Command
Screen Type	Multi-Color TFT, LCD Touch Screen
Screen Size	7,0" (10,0" optional)
Keypad	Touch Screen
Printer	40 Character/Line , Thermal Printer
Remote Control and Communication	RS232 Port / USB Ethernet (Optional)
Warning System	Visual & Audio & Printed
Data Storage	Up to 200 Cycles

OTHER MATTERS TO BE CONSIDERED IN USE:

1. After the sterilization process is completed, stay 1 meter away from the door while opening the door.
2. After the sterilization process is completed, when removing the materials, gloves or cloth should be used according to the temperature. If the user takes the hot material with bare hands, our company is not responsible for the damage that may occur.
3. Make sure that the materials and baskets are properly placed in the loading trolley. Make sure that the loading trolley is placed properly and balanced on the transport trolley.
4. Do not touch the door while the door is moving. Be careful against door jams.
5. If the device will not be used for 3 days or more, the water in the device must be drained.
6. When using the device, follow OHS rules.
7. Keep the periphery and floor of the device dry.

OPERATING THE STEAM STERILIZER DEVICE

WARNING !

ALWAYS CHECK YOUR CONSUMABLE MATERIALS!
DO NOT USE NON-COMPLIANT, EXTRA STANDARD, AND HISTORICAL CONSUMABLE MATERIALS!
OTHERWISE THIS CONDITION CAN CAUSE FAILURE OF STERILIZATION!

OPERATION OF STEAM STERILIZER DEVICE

Starting the Device:

By pressing the "On / Off" button as in Picture 1, the control panel of the device is ready in a short time

Check that the Emergency Stop Button is Open. If it is not open, you can pull the button to yourself to make it open.

On / Off Button

Picture 1. On / Off button

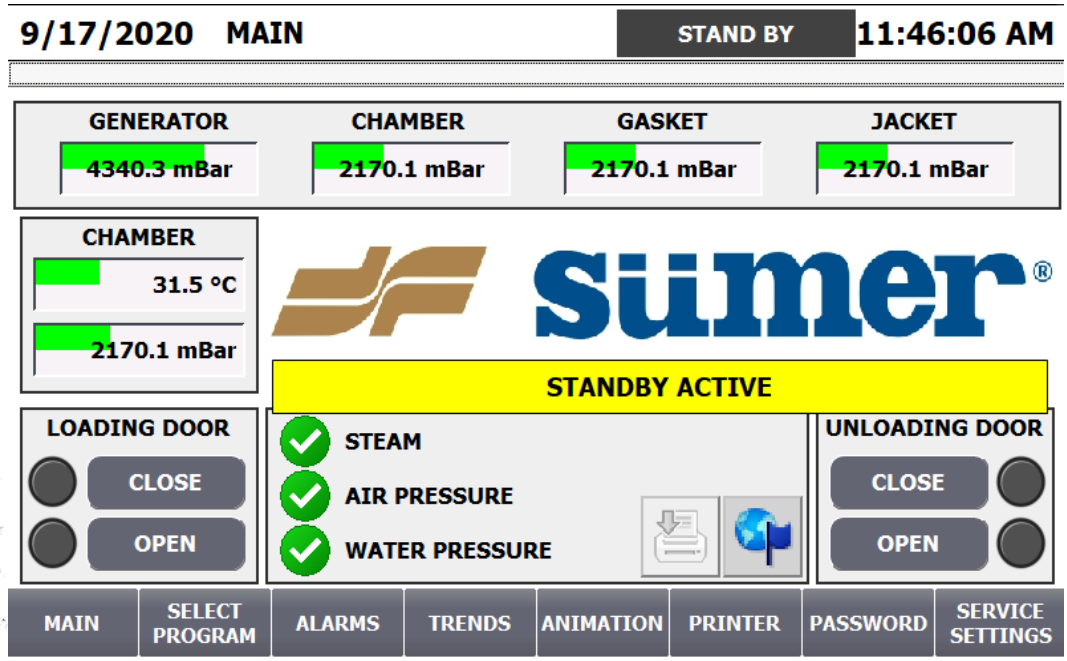
IF YOU PUSH THE EMERGENCY STOP BUTTON AT ANY TIME WHEN OPERATING THE DEVICE, YOU WILL CONTINUOUSLY BEEP A VOICE AND YOU WILL SEE THE VACUUM MOTOR STARTED. THIS TIME IS 5 MINUTES. AT THE END OF DURATION, YOU CAN OPEN THE INTERIOR TO THE INTERIOR MATERIAL.

IF YOU WANT TO RUN THE DEVICE, PLEASE MAKE SURE THE EMERGENCY STOP BUTTON IS TRUE TO YOU. IF IT IS PRINTED ON YOUR DEVICE, IT CAN WAIT FOR A LONG TIME IN A SINGLE STAGE, IT IS ENOUGH TO TAKE THE BUTTON AND THE DEVICE PROGRAM WILL CONTINUE.

On manual door, on / off is done via touch screen. After the device is switched on;

Picture 2. Start Page

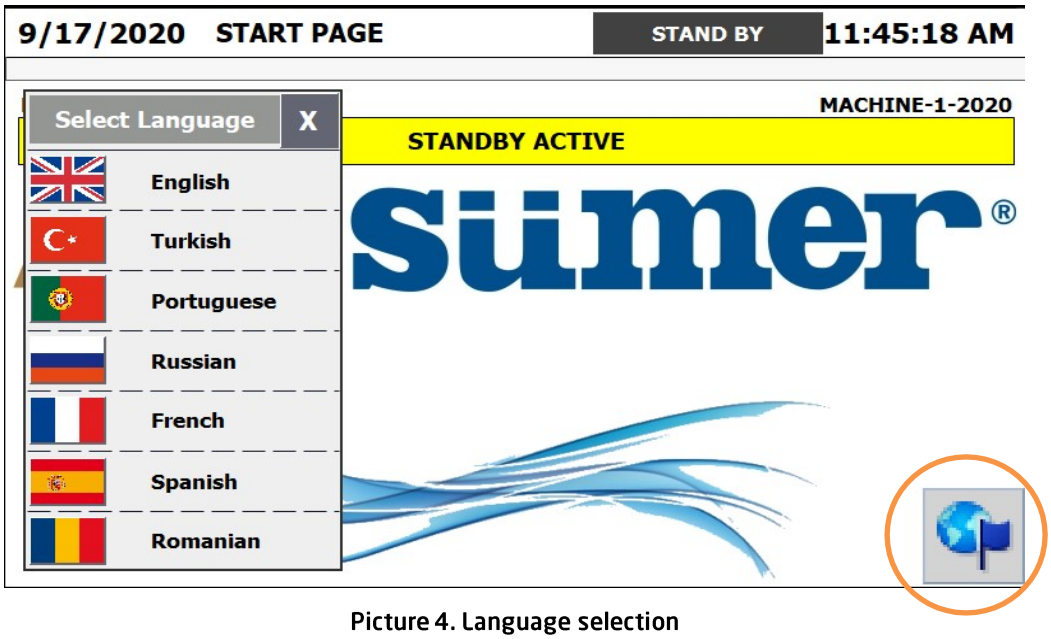
When the logo is clicked on the opening screen, the following operator screen is displayed.



Picture 3. Main screen

Language Selection:

The following language selection screen appears when the language key is pressed.

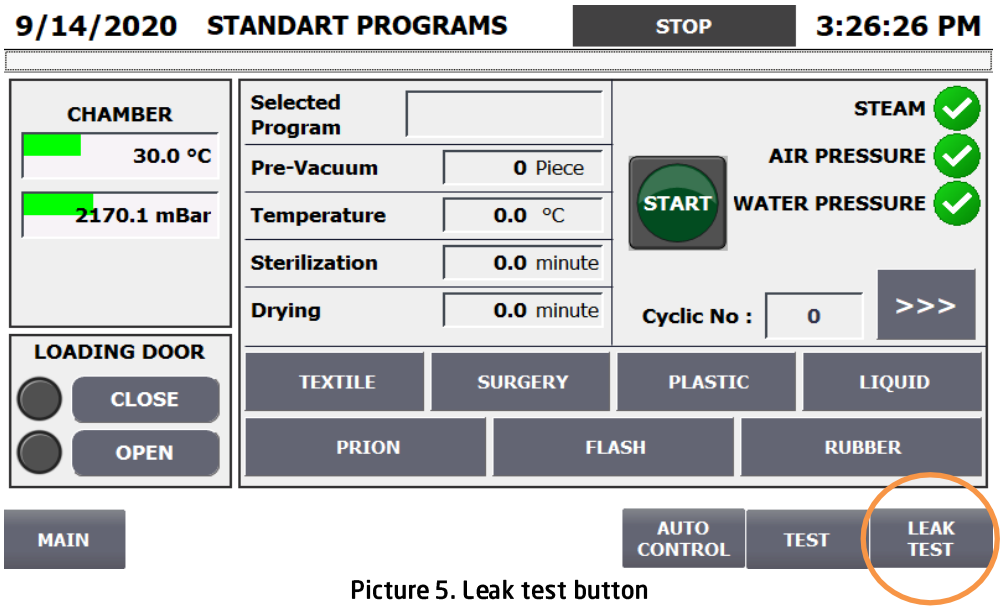


Picture 4. Language selection

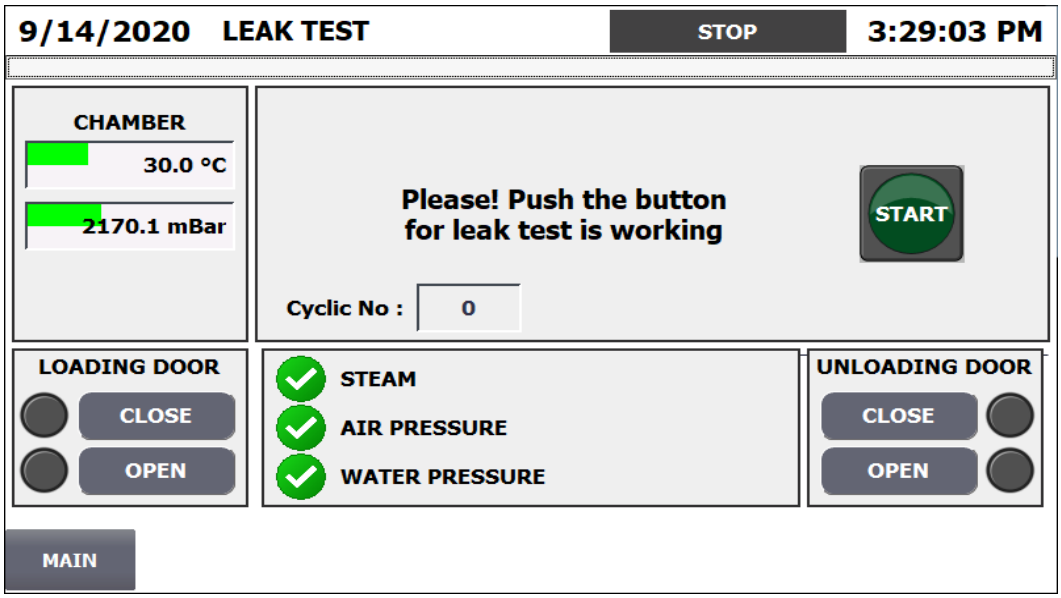
In which language the device is to be operated, the language is selected.

Program Selection:

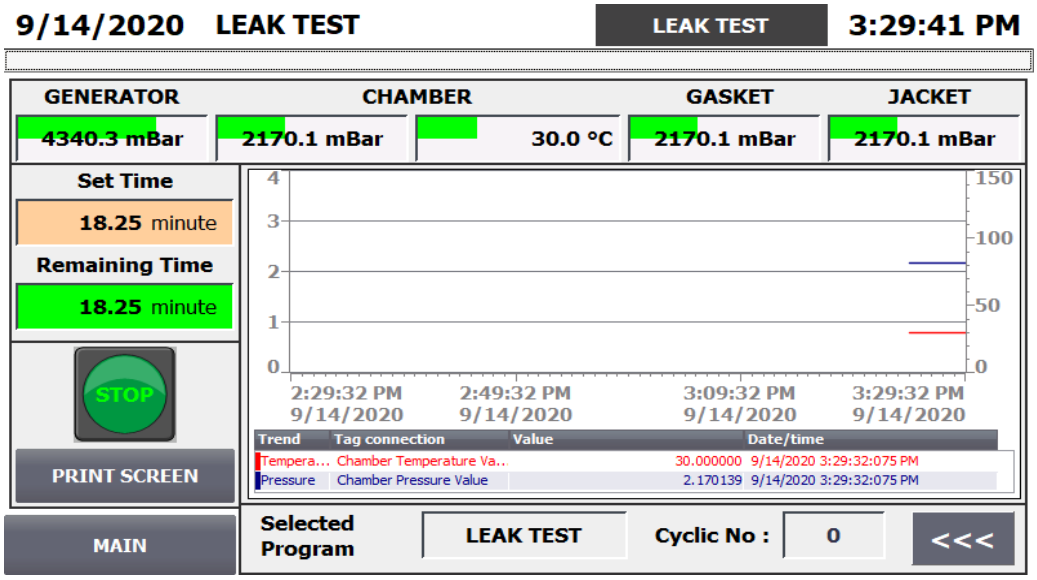
The leak test program should be run on the first run of the day. In order to run the leak test program, the "Leak Test" button is pressed from the operator screen and the test process is started by pressing the "Start" button from the screen that appears. The following screen appears during the test.



Picture 5. Leak test button

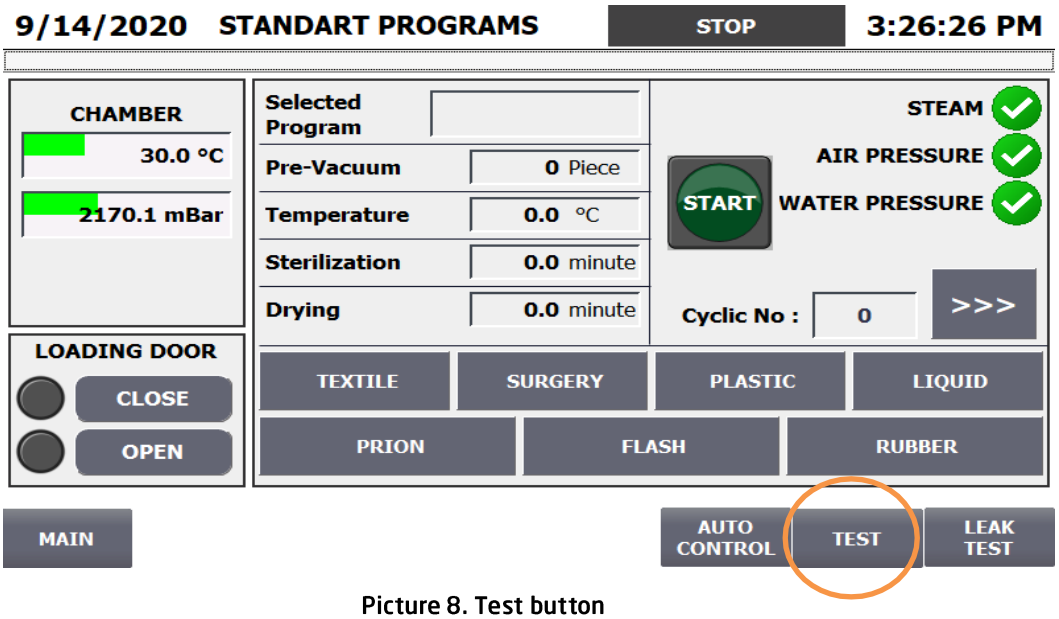


Picture 6. Leak test

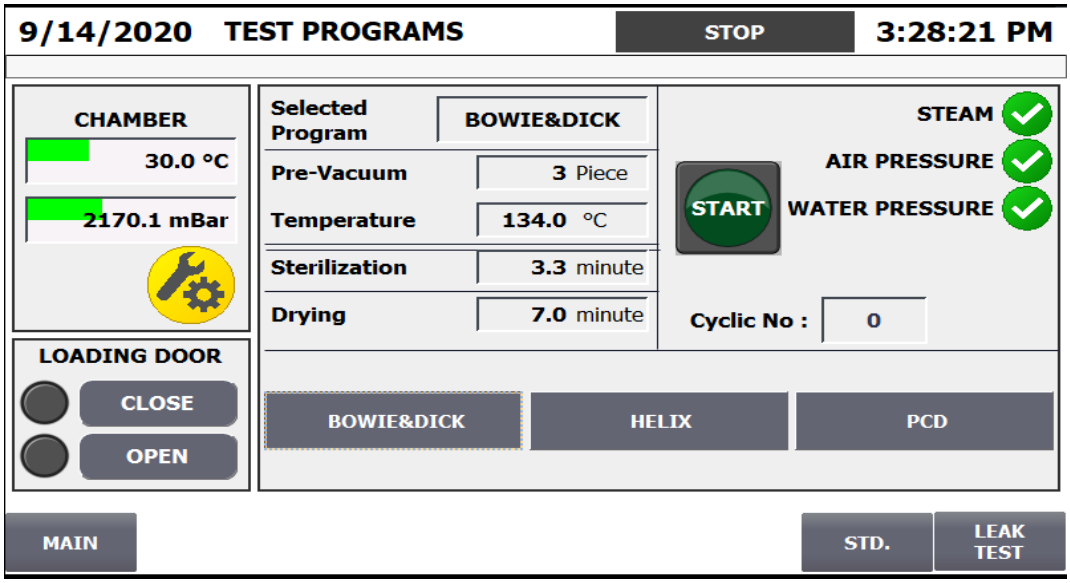


Picture 7. During the leak test

When the Leak Test is successful, the Bowie Dick program is selected in the test programs screen and operated with the indicator.



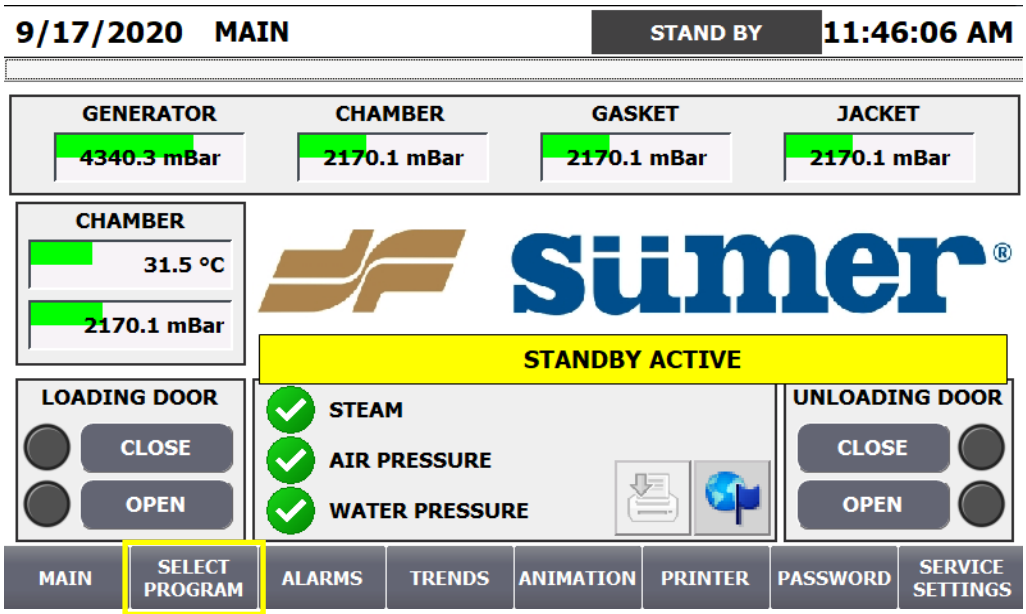
Picture 8. Test button



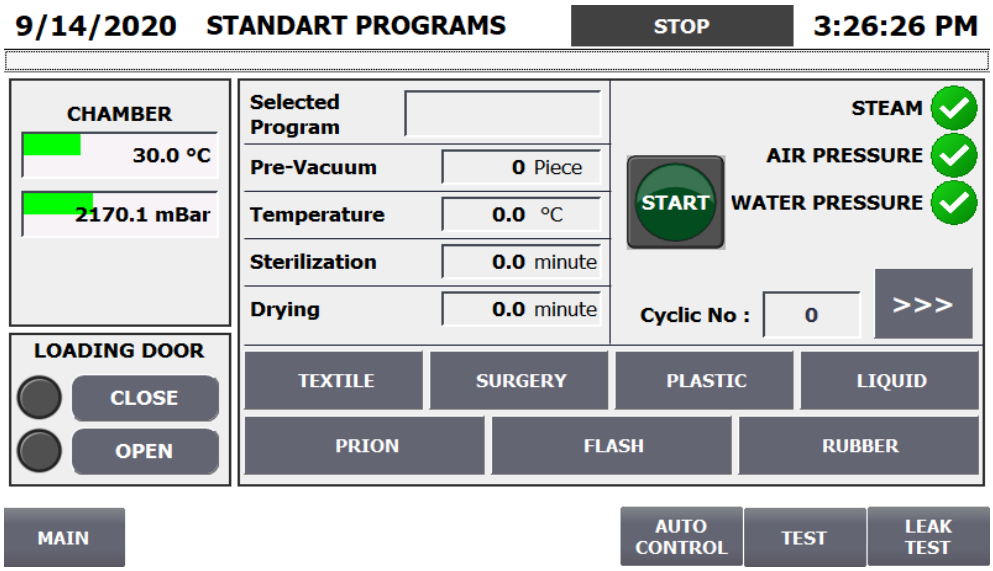
Picture 9. Test programs

After both the Leak Test and the Bowie Dick Test pass, normal programs are started. If any of these tests fails, the device is not operated for safety reasons and contacted Technical Service.

After the tests are successful, the device is switched on. To do this, the following screen is displayed when the “Select Program” key on the operator screen is pressed.

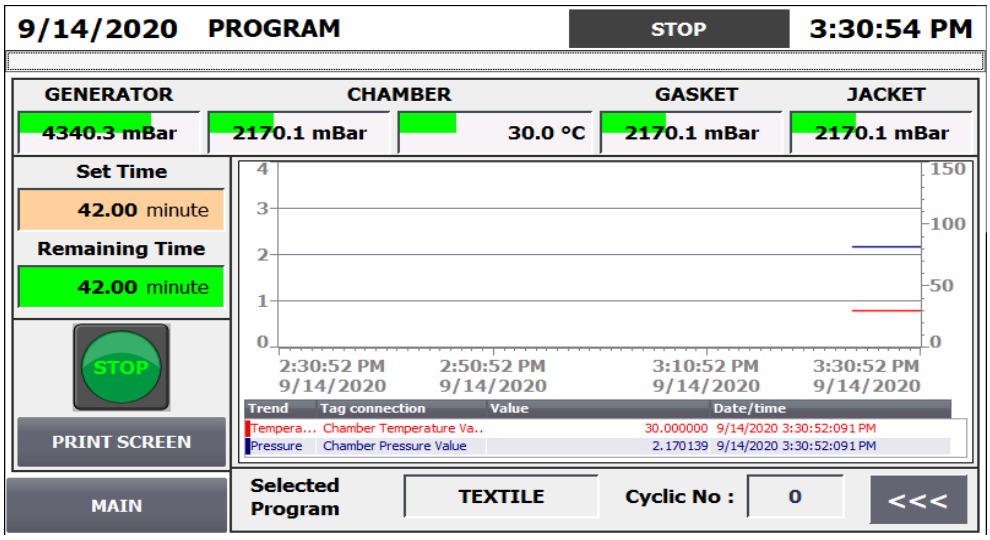


Picture 10. "Select Program" key



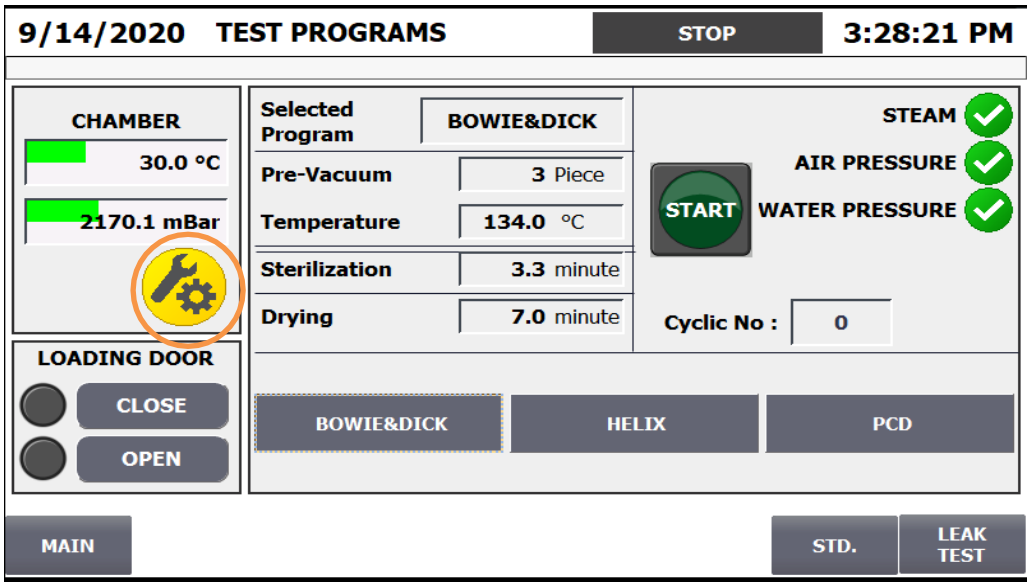
Picture 11. Standart programs

The user selects the desired program by pressing the "Select Programs" button for the standard programs and press the "Start" button and the program starts as it is shown below. The user can also monitor the instant process on the screen.



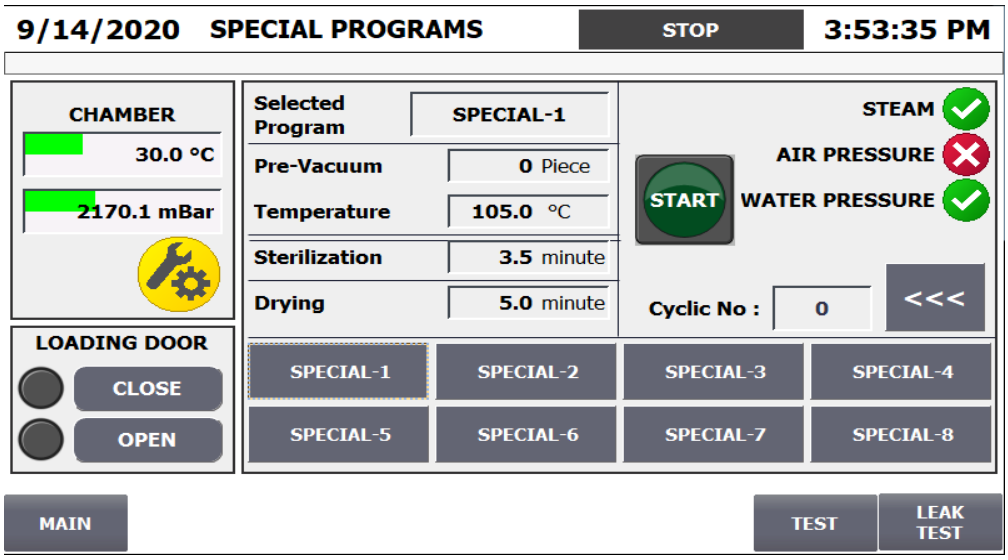
Picture 12. Program control screen

If the user wants special programs than other standard programs, he can switch to the special program tab by pressing the “Special Programs” button on the following screen.



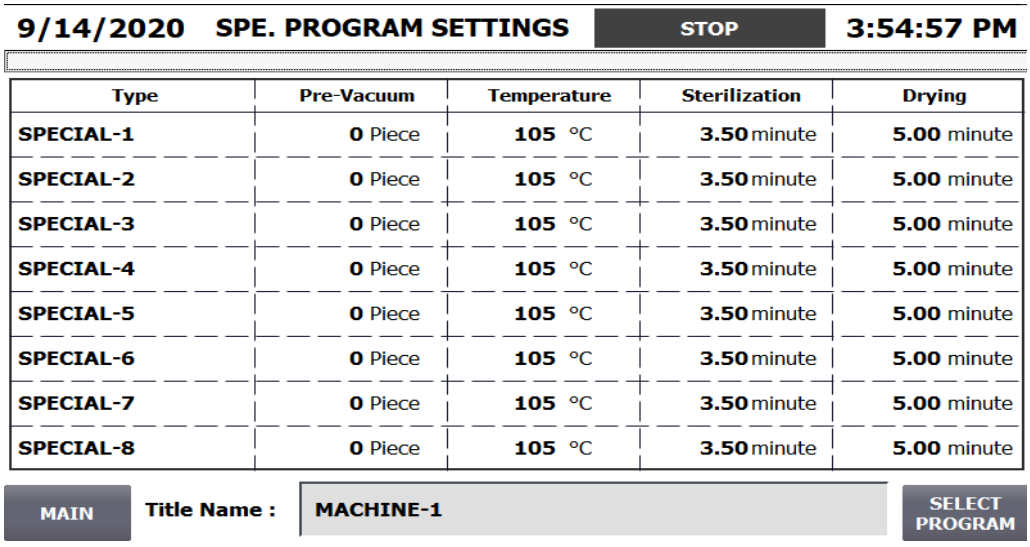
Picture 13. Special programs button

The following screen is displayed when the “Special Programs” button is pressed. A program can be created specifically from this screen.



Picture 14. Special programs

Select the desired program from this screen and press the start button and the special program is enabled.



Picture 15. Special program settings

The “STOP” key should be pressed for 3 seconds when the program is wanted to be stopped, valid for all programs. When the program is stopped, the device will automatically balance the system pressure and terminate the process.

End of Program:

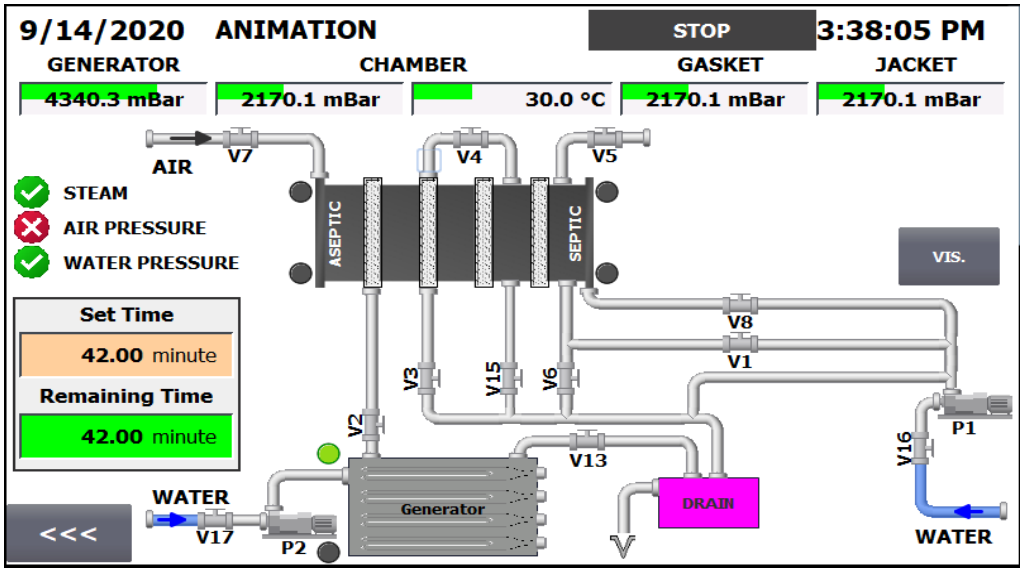
At the end of the running programs, it gives an audible and illuminated warning, the er Leak Test “and the uyarı Bowie Dick“ tests open the dirty door and the other door opens automatically. The following Process Finished screen is displayed.

WARNING !

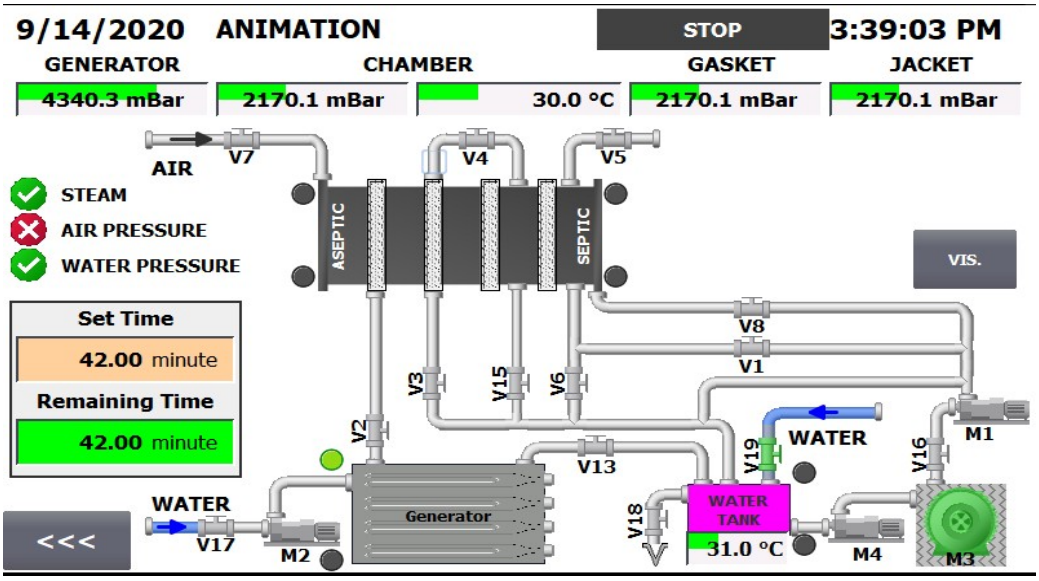
IF YOU DO NOT USE THE DEVICE, ALWAYS LEAVE A DOOR TO PREVENT SEALS FROM THE COVERS. IF THE DEVICE CLOSES THE DOORS IN A CLOSED STATE, THE GASKETS WILL STİCK AND TIGHTEN TO THE COVER.

Animation:

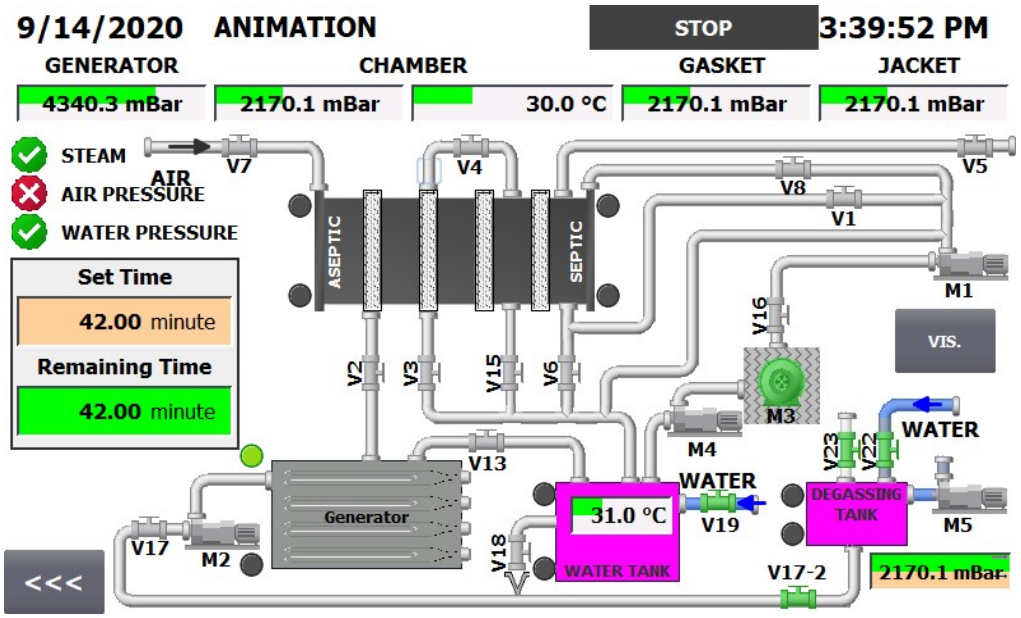
When you press the “Animation“ button, the animation screens will be available. The general operation of the device can be monitored instantly.



Picture 16. Animation (Standart)



Picture 17. Animation (With cooling)

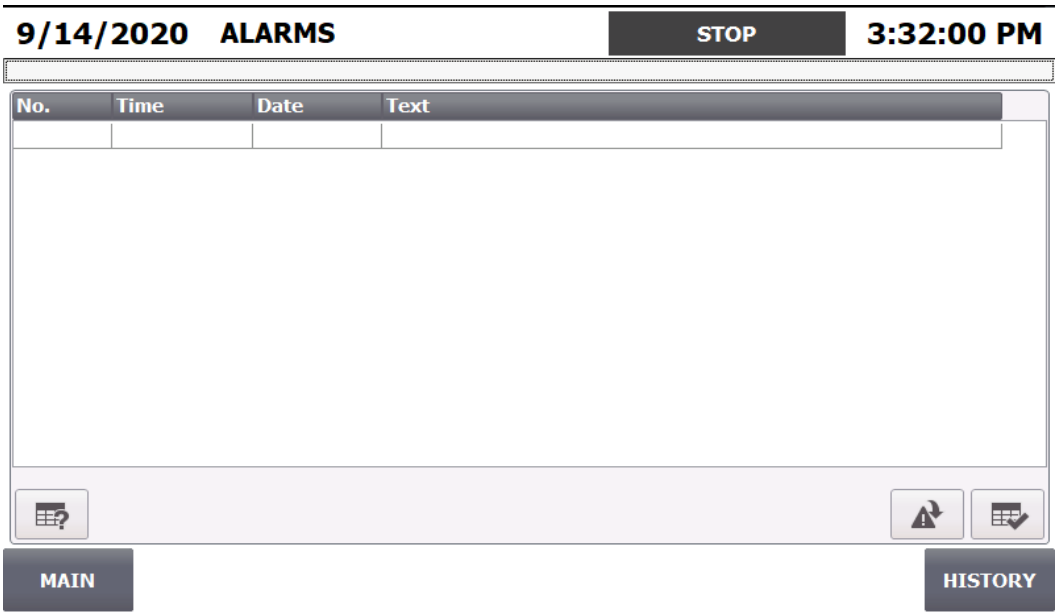


Picture 18. Animation (Degassing cooling)

Alarms:

In case of undesirable situations that occur while the device is operating its normal course, alarms shown.

When you press the “Alarms” button, the screen shown below appears.



Picture 19. Alarms screen

Instant alerts are monitored on this screen.

WARNING!

IF THE DEVICE IS STOPPED FOR ELECTRIC INTERRUPTION OR OTHER REASONS, A RISK FROM THE PRESSURE INSIDE WILL BE CREATED. IN THIS CASE, DO NOT STOP IN FRONT OF THE DOOR.

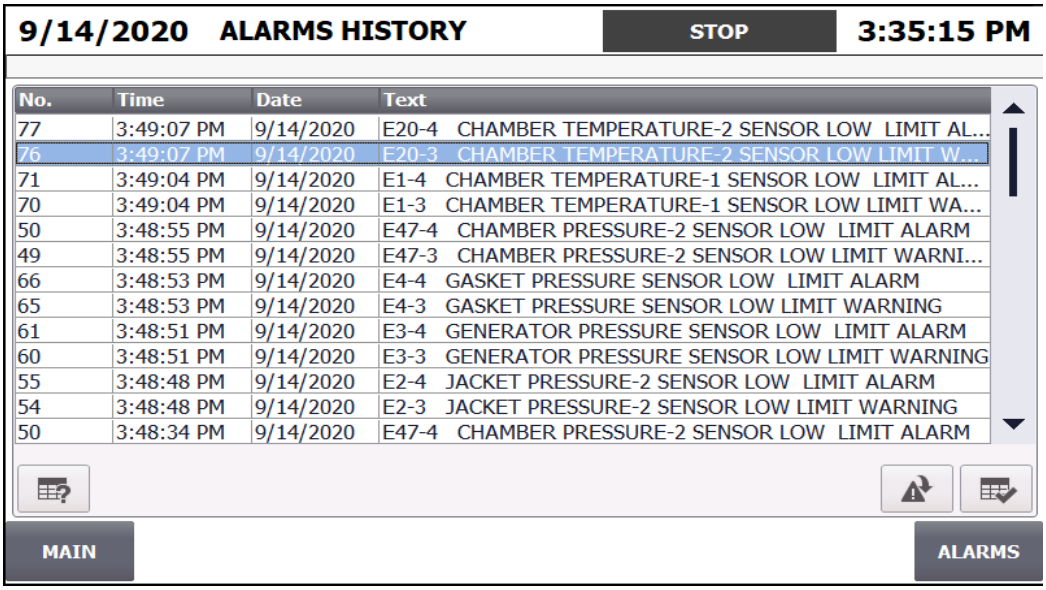
WHEN THIS STATE IS REMOVED AND THE DEVICE WORKS AGAIN, IT ASKS "DO YOU WANT TO CONTINUE FROM THE SCREEN" WHEN IT IS SHORT-DOWN. YES YOUR COURSE CONTINUES FROM THE WHERE THE DEVICE STAYS TO WORK.

IF THE INTERRUPTION IS LONG-TERM THE DEVICE RESTARTS AND ZEROES THE SECURITY FOR PRESSURE PRIORITY FOR SECURITY.

WARNING !

WHEN ERROR CODES DISPLAY ON THE DISPLAY, SOLVE. NOTIFY THAT ERROR CODE BY CONTACTING OUR TECHNICAL SERVICE FOR ERRORS YOU CANNOT RESOLVE.

After pressing the history button at the bottom of the screen, the alarms history can be listed.

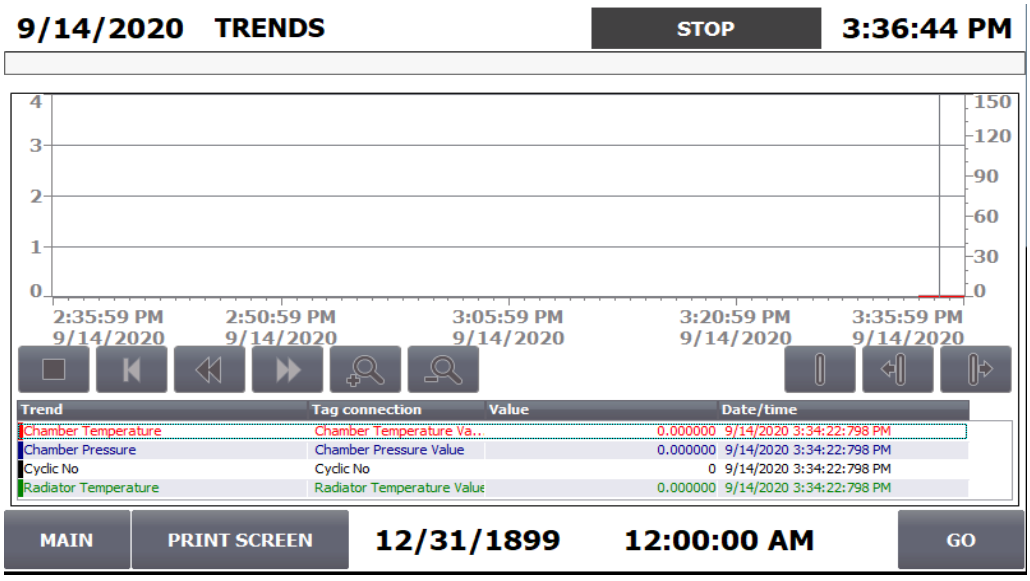


No.	Time	Date	Text
77	3:49:07 PM	9/14/2020	E20-4 CHAMBER TEMPERATURE-2 SENSOR LOW LIMIT AL...
76	3:49:07 PM	9/14/2020	E20-3 CHAMBER TEMPERATURE-2 SENSOR LOW LIMIT W...
71	3:49:04 PM	9/14/2020	E1-4 CHAMBER TEMPERATURE-1 SENSOR LOW LIMIT AL...
70	3:49:04 PM	9/14/2020	E1-3 CHAMBER TEMPERATURE-1 SENSOR LOW LIMIT WA...
50	3:48:55 PM	9/14/2020	E47-4 CHAMBER PRESSURE-2 SENSOR LOW LIMIT ALARM
49	3:48:55 PM	9/14/2020	E47-3 CHAMBER PRESSURE-2 SENSOR LOW LIMIT WARNI...
66	3:48:53 PM	9/14/2020	E4-4 GASKET PRESSURE SENSOR LOW LIMIT ALARM
65	3:48:53 PM	9/14/2020	E4-3 GASKET PRESSURE SENSOR LOW LIMIT WARNING
61	3:48:51 PM	9/14/2020	E3-4 GENERATOR PRESSURE SENSOR LOW LIMIT ALARM
60	3:48:51 PM	9/14/2020	E3-3 GENERATOR PRESSURE SENSOR LOW LIMIT WARNING
55	3:48:48 PM	9/14/2020	E2-4 JACKET PRESSURE-2 SENSOR LOW LIMIT ALARM
54	3:48:48 PM	9/14/2020	E2-3 JACKET PRESSURE-2 SENSOR LOW LIMIT WARNING
50	3:48:34 PM	9/14/2020	E47-4 CHAMBER PRESSURE-2 SENSOR LOW LIMIT ALARM

Picture 20. Alarms History

Trends:

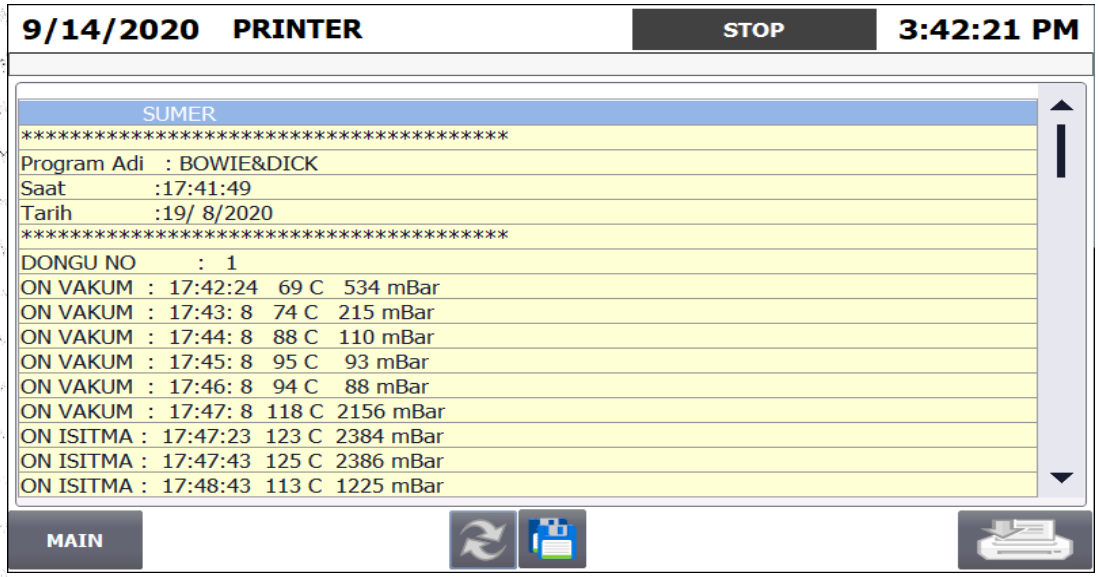
By pressing the “Trends” button at the main screen, the trends screen can be reached.



Picture 21. Trends screen

Printer:

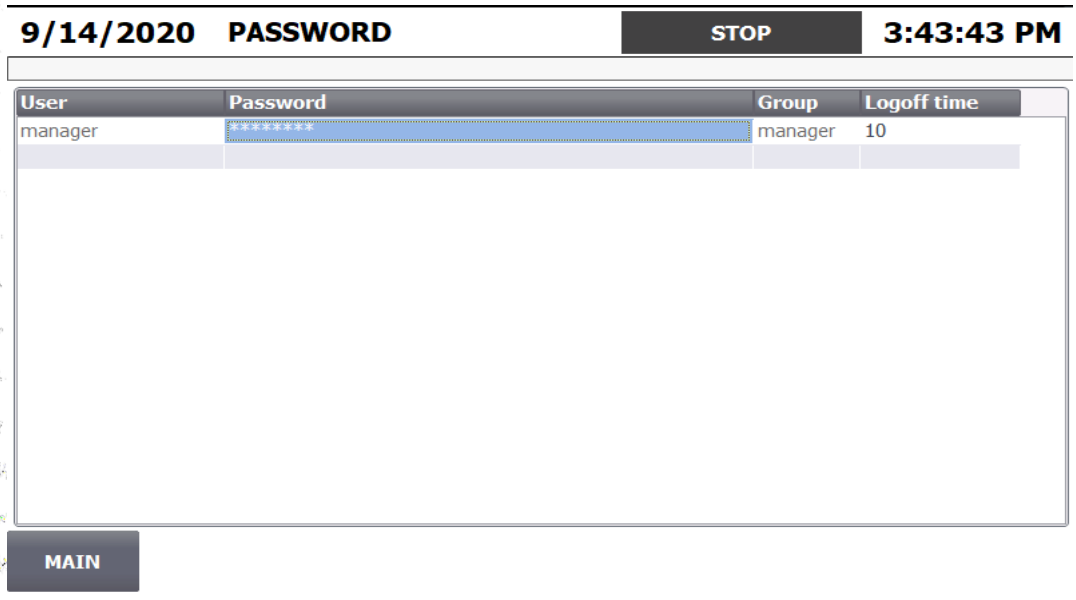
By pressing the “Printer” button, values belong to the last program the device operate can be screened and printed.



Picture 22. Printer screen

Password:

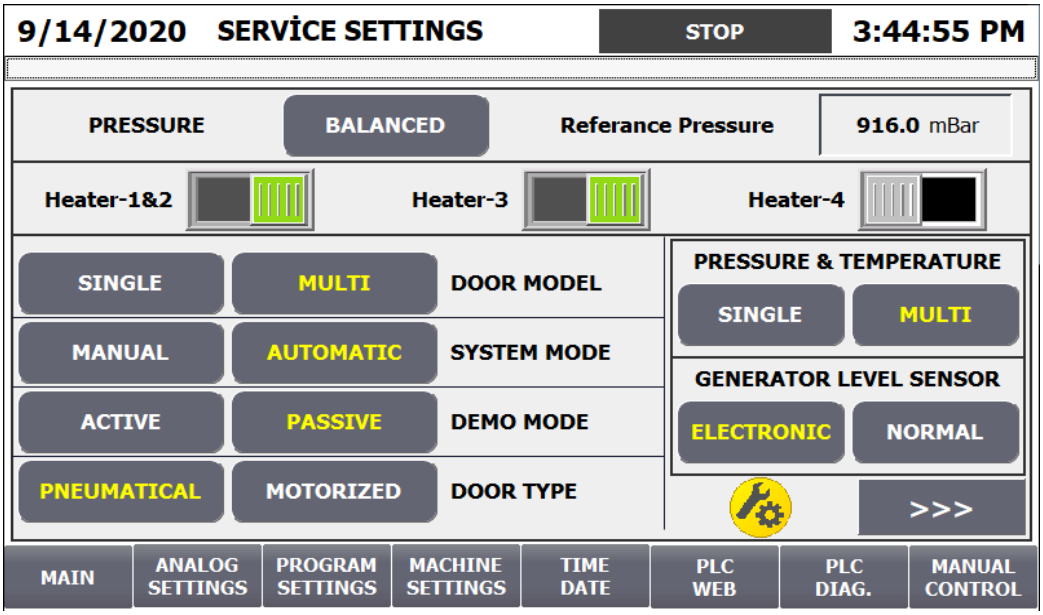
By pressing the “Password” button at the main screen, the device password can be set.



Picture 23. Password screen

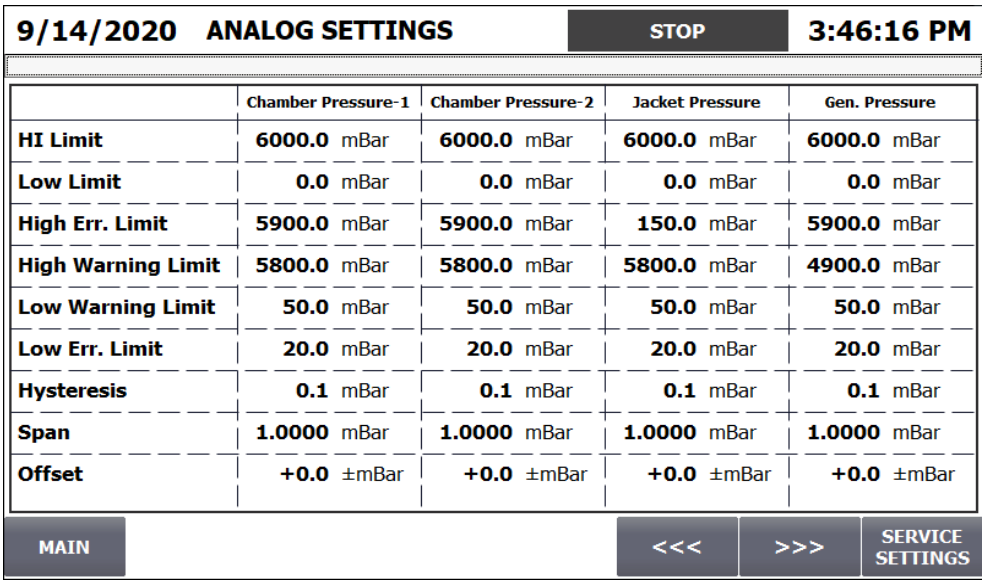
Service Settings:

By pressing the “Service Settings” button at the main screen, the service settings screen can be reached.

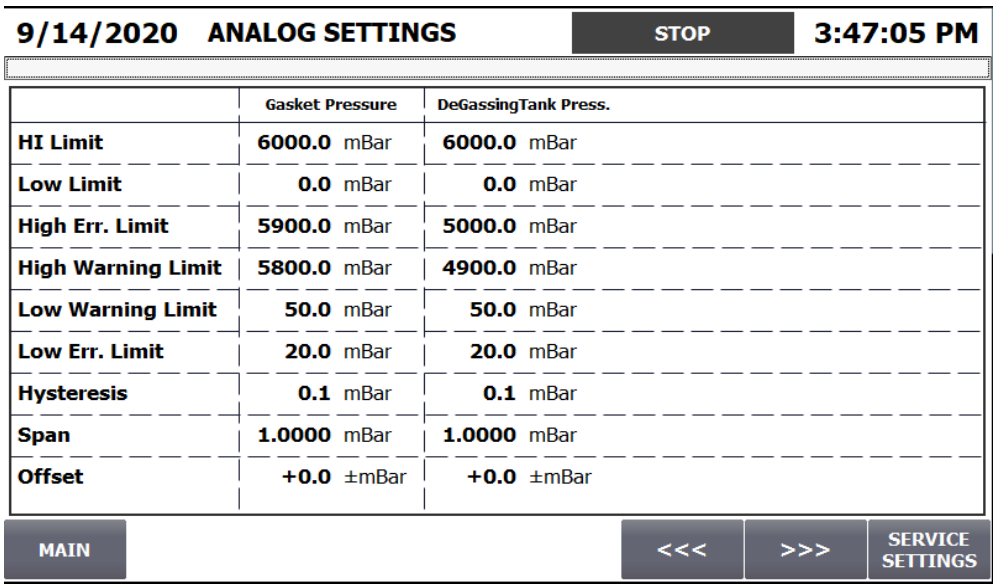


Picture 24. Service settings screen

Controlling the values of pressures and temperatures can be done by pressing the “Analog Settings” button.



Picture 25. Analog settings

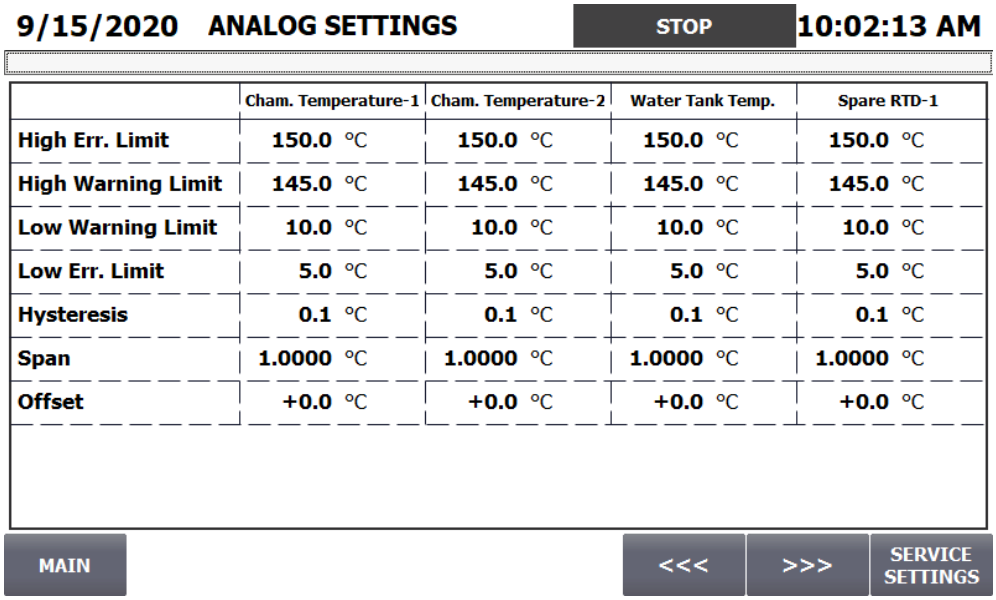


9/14/2020 ANALOG SETTINGS STOP 3:47:05 PM

	Gasket Pressure	DeGassingTank Press.
HI Limit	6000.0 mBar	6000.0 mBar
Low Limit	0.0 mBar	0.0 mBar
High Err. Limit	5900.0 mBar	5000.0 mBar
High Warning Limit	5800.0 mBar	4900.0 mBar
Low Warning Limit	50.0 mBar	50.0 mBar
Low Err. Limit	20.0 mBar	20.0 mBar
Hysteresis	0.1 mBar	0.1 mBar
Span	1.0000 mBar	1.0000 mBar
Offset	+0.0 ±mBar	+0.0 ±mBar

MAIN <<< >>> SERVICE SETTINGS

Picture 26. Analog settings



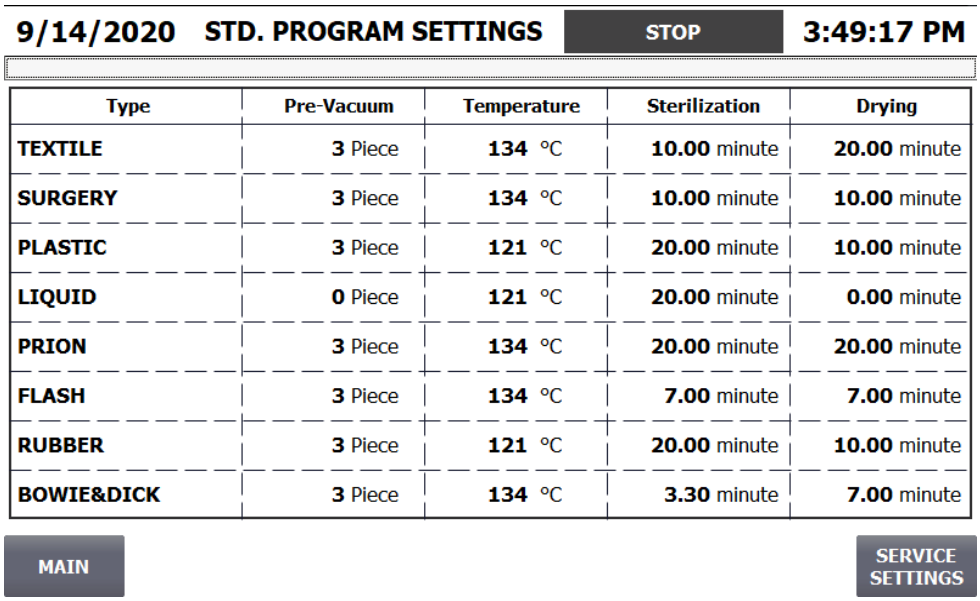
9/15/2020 ANALOG SETTINGS STOP 10:02:13 AM

	Cham. Temperature-1	Cham. Temperature-2	Water Tank Temp.	Spare RTD-1
High Err. Limit	150.0 °C	150.0 °C	150.0 °C	150.0 °C
High Warning Limit	145.0 °C	145.0 °C	145.0 °C	145.0 °C
Low Warning Limit	10.0 °C	10.0 °C	10.0 °C	10.0 °C
Low Err. Limit	5.0 °C	5.0 °C	5.0 °C	5.0 °C
Hysteresis	0.1 °C	0.1 °C	0.1 °C	0.1 °C
Span	1.0000 °C	1.0000 °C	1.0000 °C	1.0000 °C
Offset	+0.0 °C	+0.0 °C	+0.0 °C	+0.0 °C

MAIN <<< >>> SERVICE SETTINGS

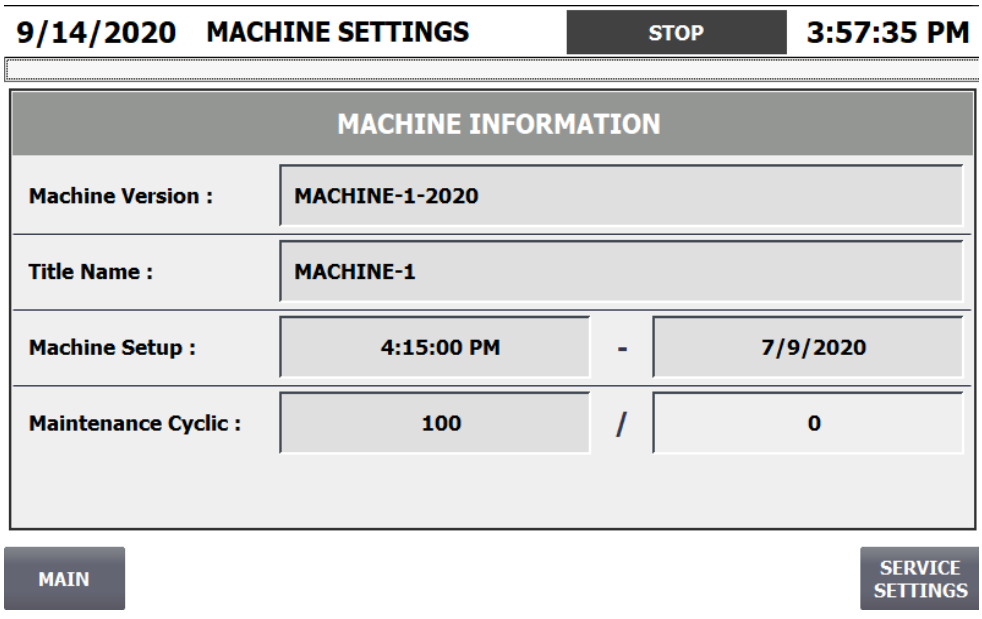
Picture 27. Analog settings

By pressing the “Program Settings” button, pre-vacuum, temperature, sterilization time, and drying time settings can be arrange for standard programs.



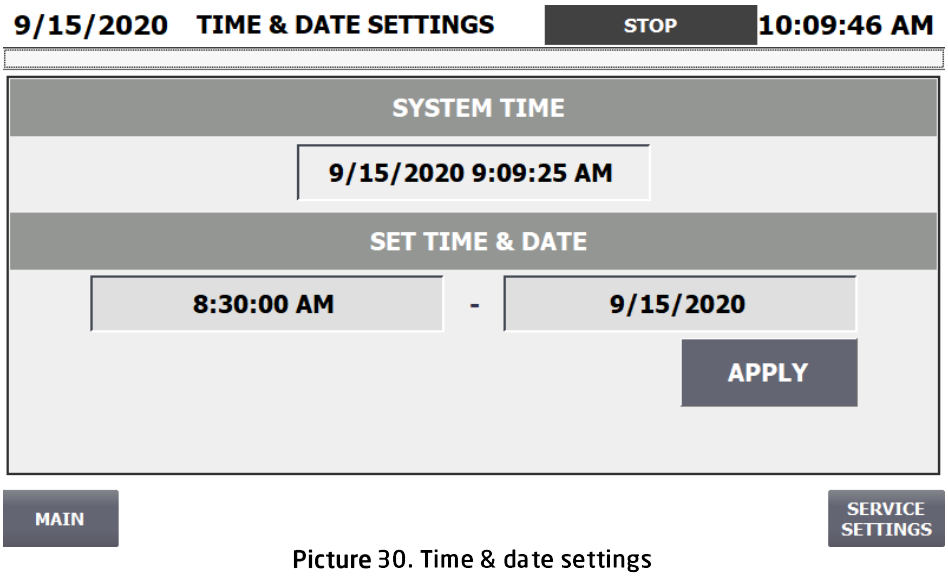
Picture 28. Standart program settings

By pressing the “Machine Settings” button, machine information can be screened. By changing the “Machine Version”, the title on the top at “Printer” screen can be arrange. In addition, maintenance cycle can be set by changing the “Maintenance Cyclic”.



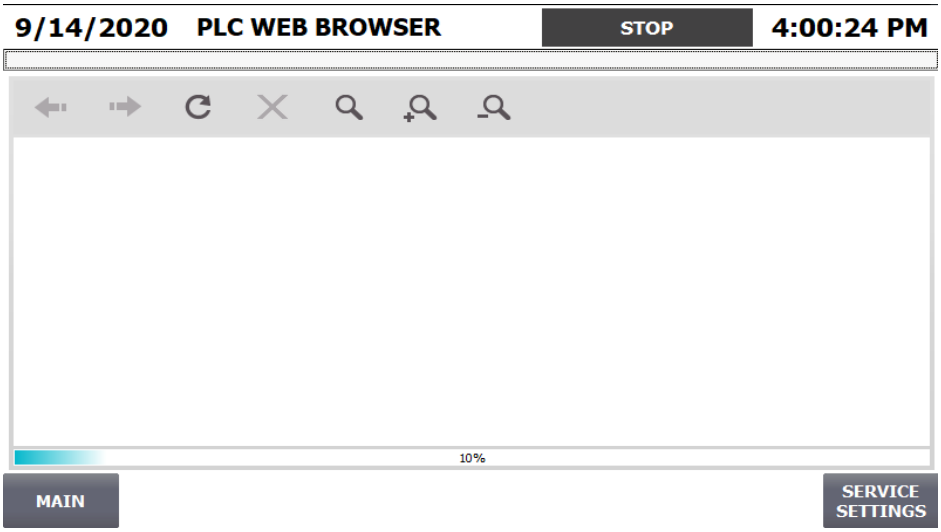
Picture 29. Machine settings

Time and date can be set after pressing the “Time Date” button.

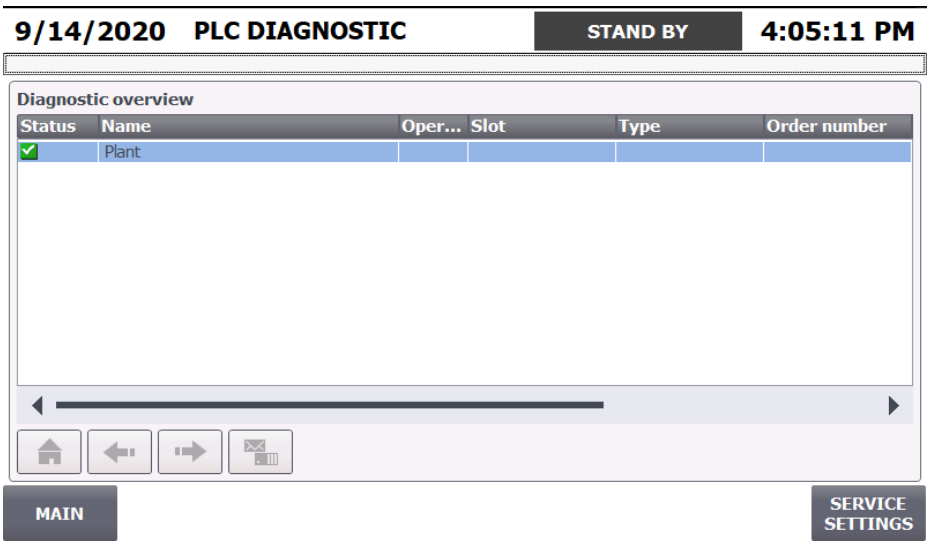


Picture 30. Time & date settings

The PLC input & outputs can be controlled using PLC screens.

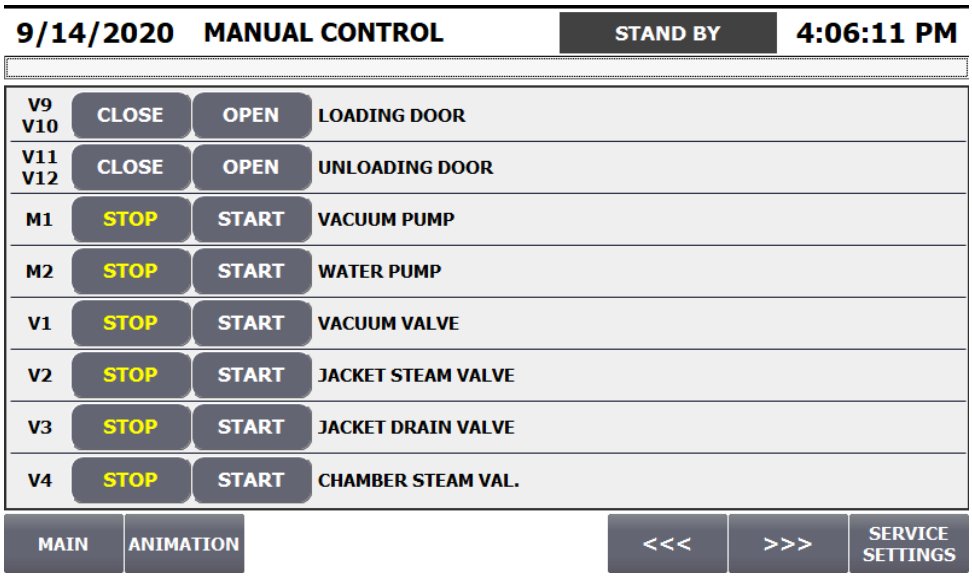


Picture 31. PLC Web browser screen

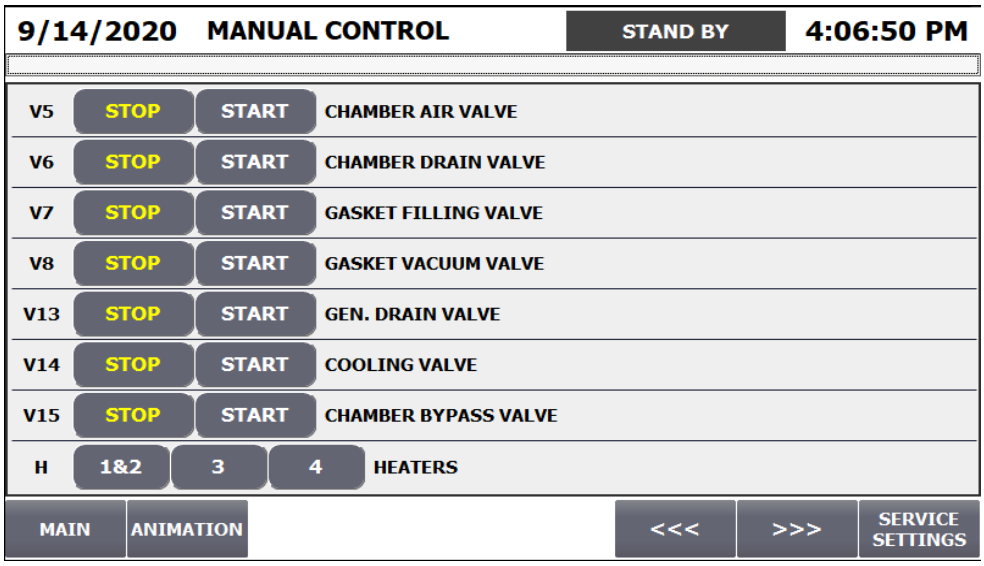


Picture 32. PLC Diagnostic screen

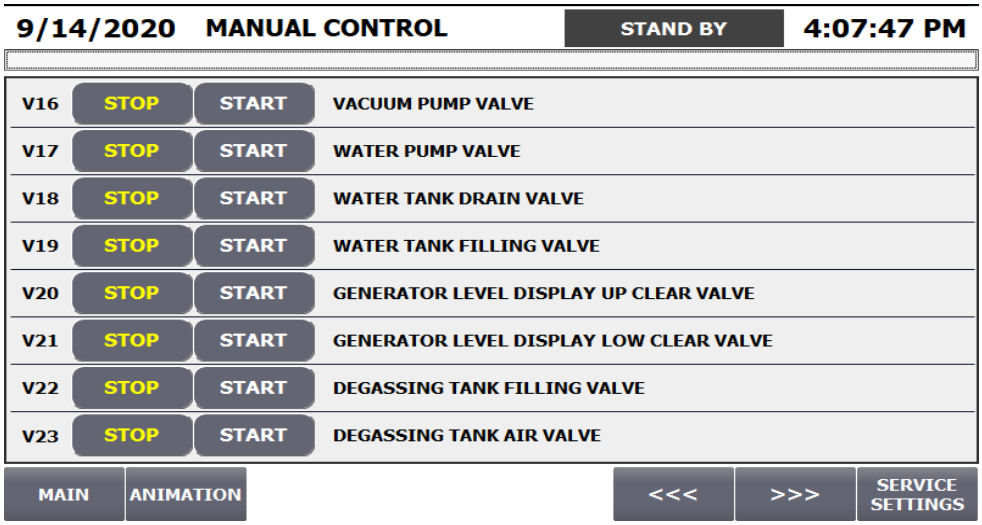
Manual control of mechanical parts seen on below pictures can be done by pressing the “Manual Control” button.



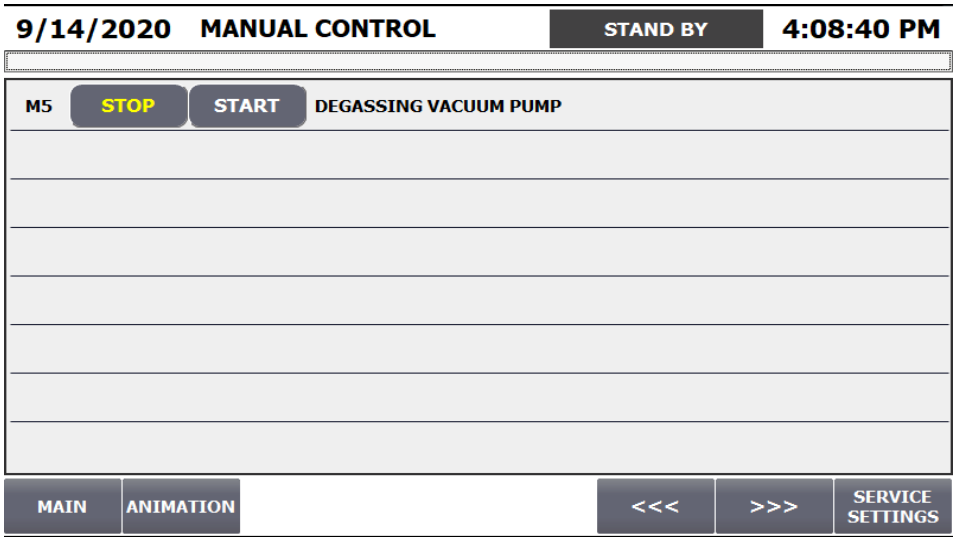
Picture 33. Manual control screen



Picture 34. Manual control screen



Picture 35. Manual control screen



Picture 36. Manual control screen

GENERAL ERRORS AND CODES

E1	CHAMBER TEMPERATURE-1 SENSOR FAULT
E1-1	CHAMBER TEMPERATURE-1 SENSOR HIGH LIMIT ALARM
E1-2	CHAMBER TEMPERATURE-1 SENSOR HIGH LIMIT WARNING
E1-3	CHAMBER TEMPERATURE-1 SENSOR LOW LIMIT WARNING
E1-4	CHAMBER TEMPERATURE-1 SENSOR LOW LIMIT ALARM
E2	JACKET PRESSURE-2 SENSOR FAULT
E2-1	JACKET PRESSURE-2 SENSOR HIGH LIMIT ALARM
E2-2	JACKET PRESSURE-2 SENSOR HIGH LIMIT WARNING
E2-3	JACKET PRESSURE-2 SENSOR LOW LIMIT WARNING
E2-4	JACKET PRESSURE-2 SENSOR LOW LIMIT ALARM
E3	GENERATOR PRESSURE SENSOR FAULT
E3-1	GENERATOR PRESSURE SENSOR HIGH LIMIT ALARM
E3-2	GENERATOR PRESSURE SENSOR HIGH LIMIT WARNING
E3-3	GENERATOR PRESSURE SENSOR LOW LIMIT WARNING
E3-4	GENERATOR PRESSURE SENSOR LOW LIMIT ALARM
E4	GASKET PRESSURE SENSOR FAULT
E4-1	GASKET PRESSURE SENSOR HIGH LIMIT ALARM
E4-2	GASKET PRESSURE SENSOR HIGH LIMIT WARNING
E4-3	GASKET PRESSURE SENSOR LOW LIMIT WARNING
E4-4	GASKET PRESSURE SENSOR LOW LIMIT ALARM
E5	CHAMBER TEMPERATURE SENSOR ERROR
E7	WATER PUMP PROTECT ERROR
E8	VACUUM ERROR
E9	PHASE CONTROL RELAY FAULT
E10	NOT AIR WHEN THE PROGRAM RUNNING
E11	LOADING DOOR CLOSED FAULT
E12	UNLOADING DOOR CLOSED FAULT
E13	VACUUM PUMP PROTECT ERROR
E14	TEMPERATURE UPPER LIMIT FAULT
E15	HEAT ERROR
E16	CHAMBER DRAIN FAULT
E17	HEATER-1&2 PROTECT ERROR
E18	HEATER-3 PROTECT ERROR
E19	WATER INSUFFICIENT
E20	CHAMBER TEMPERATURE-2 SENSOR FAULT

E20-1	CHAMBER TEMPERATURE-2 SENSOR HIGH LIMIT ALARM
E20-2	CHAMBER TEMPERATURE-2 SENSOR HIGH LIMIT WARNING
E20-3	CHAMBER TEMPERATURE-2 SENSOR LOW LIMIT WARNING
E20-4	CHAMBER TEMPERATURE-2 SENSOR LOW LIMIT ALARM
E21	WATER PUMP FEEDBACK ERROR
E22	VACUUM PUMP FEEDBACK ERROR
E23	HEATER-1&2 FEEDBACK ERROR
E24	HEATER-3 FEEDBACK ERROR
E25	HEATER-4 PROTECT ERROR
E26	HEATER-4 FEEDBACK ERROR
E27	EMERGENCY STOP ACTIVE
E28	NOT WATER WHEN THE PROGRAM RUNNING
E29	NOT STEAM WHEN THE PROGRAM RUNNING
E30	CHAMBER PRESSURE HIGH LIMIT ERROR
E31	CHAMBER TEMPERATURE DIFFERANCE ERROR
E32	UNLOADING DOOR PROTECT ERROR
E33	UNLOADING DOOR WATCDOG ERROR
E34	UNLOADING DOOR OPEN CONTACTOR ERROR
E35	UNLOADING DOOR CLOSE CONTACTOR ERROR
E36	UNLOADING DOOR SAFETY ERROR
E37	LOADING DOOR PROTECT ERROR
E38	LOADING DOOR WATCDOG ERROR
E39	LOADING DOOR OPEN CONTACTOR ERROR
E40	LOADING DOOR CLOSE CONTACTOR ERROR
E41	LOADING DOOR SAFETY ERROR
E42	RADIATOR FAN PROTECT ERROR
E43	RADIATOR FAN FEEDBACK ERROR
E44	RECIRCULATION PUMP PROTECT ERROR
E45	RECIRCULATION PUMP FEEDBACK ERROR
E46	CHAMBER PRESSURE-1 SENSOR FAULT
E46-1	CHAMBER PRESSURE-1 SENSOR HIGH LIMIT ALARM
E46-2	CHAMBER PRESSURE-1 SENSOR HIGH LIMIT WARNING
E46-3	CHAMBER PRESSURE-1 SENSOR LOW LIMIT WARNING
E46-4	CHAMBER PRESSURE-1 SENSOR LOW LIMIT ALARM
E47	CHAMBER PRESSURE-2 SENSOR FAULT
E47-1	CHAMBER PRESSURE-2 SENSOR HIGH LIMIT ALARM

E47-2	CHAMBER PRESSURE-2 SENSOR HIGH LIMIT WARNING
E47-3	CHAMBER PRESSURE-2 SENSOR LOW LIMIT WARNING
E47-4	CHAMBER PRESSURE-2 SENSOR LOW LIMIT ALARM
E48	WATER TANK TEMPERATURE-2 SENSOR FAULT
E48-1	WATER TANK TEMPERATURE-2 SENSOR HIGH LIMIT ALARM
E48-2	WATER TANK TEMPERATURE-2 SENSOR HIGH LIMIT WARNING
E48-3	WATER TANK TEMPERATURE-2 SENSOR LOW LIMIT WARNING
E48-4	WATER TANK TEMPERATURE-2 SENSOR LOW LIMIT ALARM
E49	TEMPERATURE LOWER LIMIT FAULT
E50	GASKET PRESSURE UPPER LIMIT ERROR
E51	GASKET PRESSURE LOWER LIMIT ERROR
E52	GASKET VACUUM FAULT
E53	CHAMBER VACUUM FAULT
E54	DE-GASSING TANK TEMPERATURE SENSOR FAULT
E54-1	DE-GASSING TANK TEMPERATURE SENSOR SENSOR HIGH LIMIT ALARM
E54-2	DE-GASSING TANK TEMPERATURE SENSOR SENSOR HIGH LIMIT WARNING
E54-3	DE-GASSING TANK TEMPERATURE SENSOR SENSOR LOW LIMIT WARNING
E54-4	DE-GASSING TANK TEMPERATURE SENSOR SENSOR LOW LIMIT ALARM
E55	DE-GASSING TANK VACUUM PUMP PROTECT
E56	DE-GASSING TANK VACUUM PUMP FEEDBACK ERROR

WARNING !

IF YOU DO NOT SPEND ALL THE WORK TO BE DONE AND STILL NOT SOLVE THE PROBLEM, PLEASE CONTACT WITH OUR TECHNICAL SERVICE.

TROUBLESHOOTING

PROBLEMS AND SOLUTIONS

FAULT CODE	FAULT DESCRIPTION	REASON FOR THE FAULT	TROUBLESHOOTING
E1	Chamber Sensor Error	The temperature sensor may be broken.	The temperature sensor is broken if it does not show any value. Cable connections need to be checked. If there is no problem in any connection, the sensor should be replaced with a new one.
E2	Jacket Sensor Error	Jacket sensor may be broken	If it does not give pressure value on the screen, it may be damaged. Cable connections need to be checked. If there is no problem in any connection, the sensor should be replaced with a new one.
E3	Generator Sensor Error	Generator sensor error may be broken.	If it does not give pressure value on the screen, it may be damaged. If the cable connections are checked and there is no problem, the generator sensor should be replaced with a new one.
E4	Gasket Sensor Error	Gasket pressure may be low or high.	If the seal pressure during operation gives sensor error, the seal pressure may be low. It should be increased from the regulator to normal values.
		The seal may be broken.	Door seals may be torn. In this case, it must be replaced with a new one. If any pressure value cannot be read, the sensor is broken. It

			needs to be replaced with a new one.
E5	Chamber Temperature Sensor Error	It is that the cell temperature does not reach the desired level.	The device may be overloaded. Resistances may puncture. The resistance needs to be replaced with a new one.
E7	Water Engine Thermic Error	Thermic may be disabled.	The thermic needs to be reactivated. The water motor may be drawing excessive current.
		The water engine may be drawing excessive current.	The water engine needs to be checked.
		There may be strain, the air and water coming into the device may be insufficient.	Air and water coming into the device must be measured and checked.
E8	Vacuum Error	Vacuum thermic may be disabled.	The vacuum thermal must be reactivated. Make sure the vacuum motor air valve is half open and the water valve is in the fully open position.
		Water pressure to the device may be insufficient.	It needs to be checked.
		The vacuum motor may be calcified.	It needs to be checked.
		The device may be overloaded.	It needs to be checked.
E9	Voltage Error	There may be an absence of one of the electrical phases coming to the device or voltage fluctuation.	Check that the device has 3 phases fully. Make sure that the tensions are normal. 3 phases may have been reversed. (incorrect connection) Check the phase control relay.
E10	Insufficient Air	Air pressure may or may not be low.	Check the air pressure entering the device. The valves on the air line may be closed. Make sure it is open.

		The air compressor may have been disabled.	Air compressors should be checked.
E11	Charging Door Error	The seal may have been shopworn (deformation).	The gasket needs to be replaced with a new one.
		The seal may not be vacuuming enough.	Vacuum motor and vacuum valve should be checked.
		Door piston air pressure may be low.	Air and regulator should be checked.
E12	Discharge Door Error	The seal may have been shopworn (deformation).	The gasket needs to be replaced with a new one.
		The seal may not be vacuuming enough.	Vacuum motor and vacuum valve should be checked.
		Door piston air pressure may be low.	Air and regulator should be checked.
E13	Vacuum Thermic Error	Thermic may be disabled.	The water in the vacuum motor is not getting enough or the valve may be closed. Therefore, it may be drawing too much current.
		The vacuum motor may be calcified.	The vacuum motor must be maintained. If the engine is defective as a result of maintenance, it should be replaced with a new one.
E14	Temperature Error	It may not have reached the required temperature.	The device may be overloaded.
		One of the resistances may be disabled or puncture.	If the resistance puncture, it must be replaced.
E15	Heat Error	Resistance may be disabled.	Resistances must be startup.

		The resistances may be puncture.	If the resistance puncture, it must be replaced.
		Liquid level electrodes may be calcified and contaminated.	In this case, the electrodes must be removed and cleaned.
E16	Relief Error	The steam in the cabin may not be drained at the desired time.	The load thrown in it may not be loaded with the loading trolley or on the shelf, and may have covered the discharge filters.
		Filters inside the cabinet may be dirty and clogged.	Filters need to be cleaned and maintained.
		Vacuum line may not be made according to the desired criteria. (See page 12 device setup)	Device connections should be checked.
E17	Heater Thermic 1 Error	Resistance thermic may be disabled.	The resistance thermal must be reinstalled.
		The resistances may be puncture.	If the resistance puncture, it must be replaced.
E18	Locking of the discharged cap at the beginning of the sterilization cycle.	Resistance thermic may be disabled.	The resistance thermal must be reinstalled.
		The resistances may be puncture.	If the resistance puncture, it must be replaced.
E19	Water Insufficient	There may be insufficient water in the device.	Make sure that the valves on the water line coming to the device are open.
		The water pressure compressor may have been disabled.	The water pressure to the device should be checked. (see page 16 Connection Table)
E20	Chamber Temperature-2 Sensor Fault	The chamber temperature sensor may be broken.	Resistances should be checked.

		The cell temperature may not reach the required level.	It needs to be checked.
E20-1	Chamber Temperature-2 Sensor High Limit Alarm	The chamber temperature may be over the set temperature value.	The steam solenoid valve of the chamber should be checked.
E20-2	Chamber Temperature-2 Sensor High Limit Warning	The chamber temperature may be over the set temperature value.	The steam solenoid valve of the chamber should be checked.
E20-3	Chamber Temperature-2 Sensor Low Limit Warning	The chamber temperature may not reach the required temperature.	Resistances should be checked. The device may be overloaded.
E20-4	Chamber Temperature-2 Sensor Low Limit Alarm	The chamber temperature may not reach the required temperature.	Resistances should be checked. The device may be overloaded.
E21	Water Pump Feedback Error	The contactor may be broken. The water pressure may be low or there may be insufficient water in the device. The water pump may be broken.	It needs to be checked. It needs to be checked. It needs to be checked.
E22	Vacuum Pump Feedback Error	The vacuum motor contactor may be broken. The vacuum motor may reverse.	It needs to be checked. It needs to be checked.
E23	Heater-1&2 Feedback Error	The heater contactor may be broken. The resistance may be broken. The heater breaker may be disabled.	It needs to be checked. It needs to be checked. It needs to be checked.
E24	Heater-3 Feedback Error	The heater contactor may be broken.	It needs to be checked.

		The resistance may be broken.	It needs to be checked.
		The heater breaker may be disabled.	It needs to be checked.
E25	Heater-4 Protect Error	The heater contactor may be broken.	It needs to be checked.
		The resistance may be broken.	It needs to be checked.
		The heater breaker may be disabled.	It needs to be checked.
E26	Heater-4 Feedback Error	The heater contactor may be broken.	It needs to be checked.
		The resistance may be broken.	It needs to be checked.
		The heater breaker may be disabled.	It needs to be checked.
E27	Emergency Stop Active	It may be pushed the Emergency Stop.	The Emergency Stop needs to be switching off.
E28	Not Water When the Program Running	There may not be entry of water into the device.	The water pressure should be checked.
E29	Not Steam When the Program Running	When the device turned on, it needs to be 15 minutes to occur steam.	If there is no steam after 15 minutes, resistance should be cehecked.
E30	Chamber Pressure High Limit Error	The chamber pressure sensor may be broken.	The sensor should be checked. If it needs, it should be changed with a new sensor.
E31	Chamber Temperature Difference Error	One or two of the sensors may be broken.	Resistance should be checked.
		There may be a temperature difference between two sensors.	The gasket should be checked.
E32	Unloading Door Protect Error	Thermic may be disabled.	It should be activated. If it is still disabled, there may be a door strain. The door mechanism should be checked.
E33		There may be a door strain.	It needs to be checked.

	Unloading Door Watcdog Error	There may be a mechanical jamming.	It needs to be checked.
		The door's air pressure may be low.	It needs to be checked.
E34	Unloading Door Open Contactor Error	There may be a door strain.	It needs to be checked. The door gasket should be checked.
		There may be a mechanical jamming.	It needs to be checked.
		The door's air pressure may be low.	It needs to be checked.
E35	Unloading Door Close Contactor Error	There may be a door strain.	It needs to be checked. The door gasket should be checked.
		There may be a mechanical jamming.	It needs to be checked.
		The door's air pressure may be low.	It needs to be checked.
E36	Unloading Door Safety Error	The door safety sensor may be activated.	It needs to be deactivated.
		The door safety sensor may be broken.	The sensor should be checked.
E37	Loading Door Protect Error	There may be a mechanical jamming.	The door gasket and the mechanism should be checked.
E38	Loading Door Watcdog Error	There may be a mechanical jamming.	The door gasket and the mechanism should be checked.
E39	Loading Door Open Contactor Error	The contactor may be broken.	The gasket vacuum pressure should be checked. The door opening mechanism and door's air pressure should be checked.
E40	Loading Door Close Contactor Error	The contactor may be broken.	The gasket vacuum pressure should be checked.

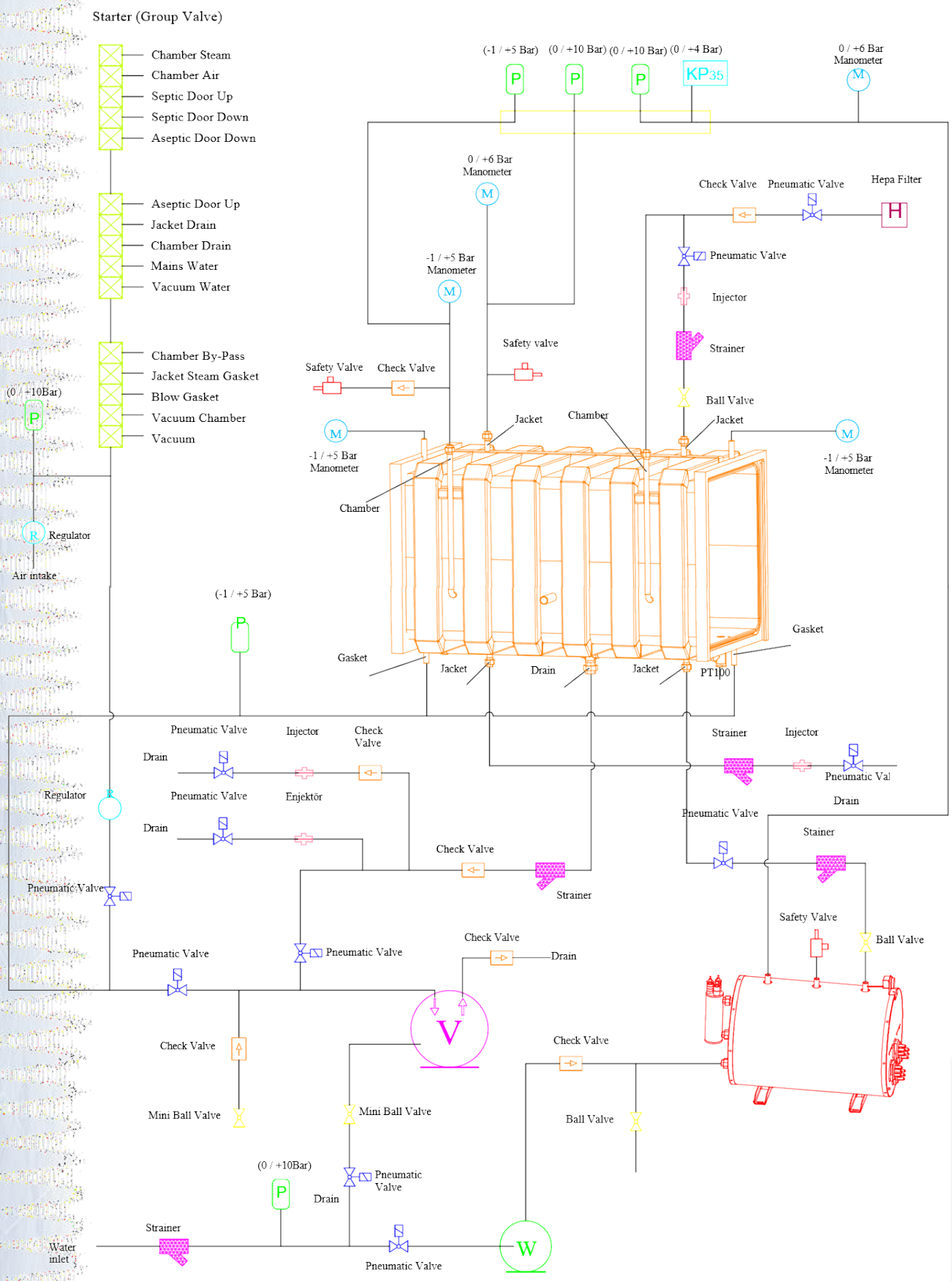
			The door opening mechanism should be checked.
E41	Loading Door Safety Error	The door safety sensor may be activated. The door safety sensor may be broken.	It needs to be deactivated. The sensor should be checked.
E42	Radiator Fan Protect Error	The radiator fan may be broken.	The fan should be checked.
E43	Radiator Fan Feedback Error	The radiator fan may be broken. The contactor may be broken.	The fan should be checked. The contactor should be checked.
E44	Recirculation Pump Protect Error	The recirculation pump may be broken.	It needs to be checked.
E45	Recirculation Pump Feedback Error	The recirculation pump may be broken.	It needs to be checked.
E46	Chamber Pressure-1 Sensor Fault	The pressure sensor may be broken. The steam solenoid valve may be broken. There may be an excess pressure in the cell.	It needs to be checked. It needs to be checked. It needs to be checked.
E46-1	Chamber Pressure-1 Sensor High Limit Alarm	The steam solenoid valve may be broken. There may be an excess pressure in the cell.	It needs to be checked. It needs to be checked.
E46-2	Chamber Pressure-1 Sensor High Limit Warning	The steam solenoid valve may be broken. There may be an excess pressure in the cell.	It needs to be checked. It needs to be checked.
E46-3	Chamber Pressure-1 Sensor Low Limit Warning	The steam solenoid valve may be broken. There may be an excess pressure in the cell.	It needs to be checked. It needs to be checked.

E46-4	Chamber Pressure-1 Sensor Low Limit Alarm	The steam solenoid valve may be broken.	It needs to be checked.
		There may be an excess pressure in the cell.	It needs to be checked.
E47	Chamber Pressure-2 Sensor Fault	The pressure sensor may be broken.	It needs to be checked.
		The steam solenoid valve may be broken.	It needs to be checked.
E47-1	Chamber Pressure-2 Sensor High Limit Alarm	The pressure sensor may be broken.	It needs to be checked.
		The steam solenoid valve may be broken.	It needs to be checked.
E47-2	Chamber Pressure-2 Sensor High Limit Warning	The pressure sensor may be broken.	It needs to be checked.
		The steam solenoid valve may be broken.	It needs to be checked.
E47-3	Chamber Pressure-2 Sensor Low Limit Warning	The pressure sensor may be broken.	It needs to be checked.
		The steam solenoid valve may be broken.	It needs to be checked.
E47-4	Chamber Pressure-2 Sensor Low Limit Alarm	The pressure sensor may be broken.	It needs to be checked.
		The steam solenoid valve may be broken.	It needs to be checked.
E48	Water Tank Temperature-2 Sensor Fault	The heat sensor may be broken.	It needs to be checked.
		The circulation pump may be disabled.	It needs to be checked.
E48-1	Water Tank Temperature-2 Sensor High Limit Alarm	The water tank circulation pump may be disabled.	It needs to be checked.
		The water tank solenoid valve may be broken.	It needs to be checked.

E48-2	Water Tank Temperature-2 Sensor High Limit Warning	The circulation pump may be disabled.	It needs to be checked.
		The water tank solenoid valve may be broken.	It needs to be checked.
E48-3	Water Tank Temperature-2 Sensor Low Limit Warning	The circulation pump may be disabled.	It needs to be checked.
		The water tank solenoid valve may be broken.	It needs to be checked.
E48-4	Water Tank Temperature-2 Sensor Low Limit Alarm	The circulation pump may be disabled.	It needs to be checked.
		The water tank solenoid valve may be broken.	It needs to be checked.
E49	Temperature Lower Limit Fault	The value of the lower limit temperature may not be set.	It needs to be checked.
		The contactor may be broken.	It needs to be checked.
E50	Gasket Pressure Upper Limit Error	The gasket pressure valve may be broken.	It needs to be checked.
		The door gasket may be changed.	It needs to be checked.
E51	Gasket Pressure Lower Limit Error	The gasket pressure valve may be broken.	It needs to be checked.
		The door gasket may be changed.	It needs to be checked.
E52	Gasket Vacuum Fault	The door gasket may not be vacuum.	The door gasket should be changed.
		The vacuum motor can not reach the required level.	The performance of vacuum motor should be checked.
E53	Chamber Vacuum Fault	The performance of the vacuum motor may be low, so it cannot reach the required vacuum level.	The vacuum line should be checked.
		The vacuum motor may reverse.	It needs to be checked.

E54	De-Gassing Tank Temperature Sensor Fault	The heat sensor may be broken.	The sensor should be checked.
		There may not be entry of cold water into the tank.	The city water should be checked.
E54-1	De-Gassing Tank Temperature Sensor Sensor High Limit Alarm	There may not be entry of water into the tank.	The water inlet valve should be controlled.
		The solenoid valve may be broken.	It needs to be checked.
E54-2	De-Gassing Tank Temperature Sensor Sensor High Limit Warning	There may not be entry of water into the tank.	The water inlet valve should be controlled.
		The solenoid valve may be broken.	It needs to be checked.
E54-3	De-Gassing Tank Temperature Sensor Sensor Low Limit Warning	The lower limit value of the … may not set.	It needs to be checked.
E54-4	De-Gassing Tank Temperature Sensor Sensor Low Limit Alarm	The lower limit value of the … may not set.	It needs to be checked.
E55	De-Gassing Tank Vacuum Pump Protect	The vacuum pump may be broken.	It needs to be checked.
		Thermic may be disabled.	It needs to be checked.
E56	De-Gassing Tank Vacuum Pump Feedback Error	The contactor may be broken.	It needs to be checked. If it is needed, it should be changed.

STEAM STERILIZER DIAGRAM



Maintenance – Repair

MAINTENANCE:

Technical service and maintenance are carried out by authorized technical staff.

- No parts of the device should be removed.
- Any parts that are defective or need to be replaced must be selected from the original spare parts.
- The device must be switched off immediately after any failure.

- It should be used according to the device operating manual, maintenance and cleaning should be done at regular intervals. In case of any malfunction, the authorized service must intervene.
- Metal parts should not be mechanically cleaned (metal brush, abrasive cleaning material)
- The door gaskets must be wiped with a smooth and damp fabric before each cycle.
- If there are white or yellow spots on the cell base, this indicates that the quality of demineralized water is low.
- The rough filter should be cleaned once a week or once a day.
- The Steam Sterilizer is made from non-corrosive material.

WARNING:

- The water used in the Steam Sterilizer device should be demineralised water at good quality. SÜMER Company is not responsible for the consequences of malfunctioning and adverse sterilization of non-demineralized water in good quality.
- Defects caused by non-quality water use are not covered by warranty.

CLEANING:

- Clean the inside of the chamber every 3 to 4 weeks with a soft damp cloth.
- Use a brush and plenty of water to clean the filter.
- Do not store chemical materials near the device.

IMPORTANT!

Care must be taken to ensure that the cabinet temperature is cold before cleaning.

- Turn off the device power switch.
- Wear gloves to protect your hands from heat during cleaning.
- Do not use chemicals such as alcohol, detergent for cleaning.
- Remove the filter inside the device and wash it in the sink with a brush and plenty of water and replace it
- Turn on the device power switch,
- Place any basket that is supplied with the appliance empty in the device,
- Close the device door and run Program P5,

- The device will self-clean and sterilize at the end of this process.
- Put the materials used for cleaning in "Medical Waste" garbage. Do not confuse with "Household Waste.

MAINTENANCE – REPAIR AND PERIODIC MAINTENANCE:

1. Maintenance must be performed in accordance with the maintenance instructions in the device's operating instructions. Our company is not responsible for damages caused by improper maintenance.
2. Points to note when servicing the device for the specified periods.
    a. Switching off the mains switch located in the electrical panel of the device
    b. Discharging the generator and jacket
    c. Closing the on / off button on the front panel
3. Our company is not responsible for any malfunctions that occur if the V automat fuses thermal switches, on / off switch, relays, leakage current relay Pt-100 and other parts on the device are replaced by others.

PERIODIC MAINTENANCE

In order to use your device more efficiently and for a longer period of time, you should do it periodically without interruption.

According to your frequency of use, make periodic maintenance of your devices at least every six months.

1. Hepa filters should be replaced with periods of 3 months depending on the air pollution of the environment.
2. At least every six months, the electrodes must absolutely checked or changed if necessary.
3. At least every six months, the resistances must absolutely checked or changed if necessary.
4. At least every six months, the gaskets must absolutely checked or changed if necessary.
5. At least every six months, the inner sets of steam traps must absolutely checked or changed if necessary.
6. At least every six months, the check valves must absolutely checked or changed if necessary.

Door gasket must be lubricated every day.

The appliance should be cleaned every morning before use, without using any chemicals.

AUTOCLAVE MAINTENANCE INSTRUCTION

DAILY MAINTENANCE

- If the city water used is very limy (calcerous), the steam generator must be emptied at the end of the work.
- The device should be cleaned both inside and outside.

WARNING: Please do not use scraper and abrasive cleaning products.

WEEKLY MAINTENANCE

- Apart from daily cleaning, the inside of the device should be cleaned with an acid-free soap solution and plenty of water.
- The steam generator must be discharged at the end of the work.
- The door gasket of the device should be powdered with talcum powder.

MONTHLY MAINTENANCE

- Leakage check of safety valves should be performed.
- Steam inlet filter and water inlet filter should be cleaned.
- Check the I/O of the heater contactors.
- The resistance of the generator must be measured and the fittings checked.
- Copper pipe connections should be checked.
- The wtaer pipe connections should be checked.
- The gears and chains on top of the door lifting motor must be lubricated with monocotyl grease oil.

4 MONTHLY MAINTENANCE

- The electrical system must be checked and the connections (especially contactor connections) must be tightened.
- Vacuum pump and water pump should be checked.

6 MONTHLY MAINTENANCE

- Cold water inlet filter should be cleaned.
- The flood of water reserves should be cleaned.

- Jacket and CHAMBER traps must be checked.
- Steam, water and discharge pipes should be checked.
- The discharge pipe of the generator should be removed and the lime condition checked and purified from lime and mud if necessary,
- The resistances should be checked and replaced with new ones if they are damaged or burned.
- Cable connections, fuse inputs and mains connections must be checked.
- Water pump and vacuum pump must be controlled. Leaks should be avoided when a leak is seen.

ANNUAL MAINTENANCE

- Door safety system must be checked.
- Presustat, Vakumustad and thermometer must be checked. (contact technical service for calibration)
- The program follow-up unit and circuit check must be performed.

WARNING!

The autoclave device delivered by our company is warranted for 1 year against fabrication and manufacturing errors. Maintenance, repair and parts replacement of the defective device within the warranty period will be made free of charge by technical service. The device is not covered by warranty if the device is replaced or replaced by another person or if the source water where the device is installed is not supplied from the reverse osmosis or water softener.

TRANSPORT OF THE DEVICE

If the device is to be transported in the same building or at very short distances, it must be transported on its own wheels. If it needs to be transported at long distances, it should be correctly raised and transported to the transport vehicle and fixed firmly on the vehicle.

WARNING!

- The device must be turned off and cooled at least six hours before starting the transport process,
- The appliance must always be on its own fixing feet and should never be laid on any other surface,
- It must be securely fixed to the transport vehicle, the fittings (hoses) of the device must be in a separate package and the vehicle in which the device will be transported must have closed trailer,

After the device is packaged for safe transport, the warning labels must be put on the device as above.

PRODUCT COMPLIANCE

MDD 93/42/EC MEDICAL DEVICES DIRECTIVE DECLARATION

Product: SÜMER®

Model : OT, ADELA series

CE Class : IIb

GMDN 38671

We declare that the Steam Sterilizer Device meets the requirements of MDD 93/42 / EEC - 2007/47 / EC - Annex IX, IIb in accordance with Rule 15.

RELATED STANDARDS

EN 60601-1, EN 61010-2-40, EN 61010-1, EN 60601-1-2, EN 61326-1, EN 62304, EN 285, EN 13445-1, EN 13445-2, EN 13445-3, EN 13445-4, EN 13445-6, EN15223-1, ISO 17665-1, EN 62366

RoHS DECLARATION

Our company operates worldwide. We are responsible for the use of the environment and natural resources. SÜMER A.S. has been in compliance with ISO 14001 Environmental Management Standard for many years. SÜMER brand OT and ADELA series products conform to the limits defined in 2011/65 / EU (RoHS) for all electronic modules.

All electrical and electronic equipments used in our products and service processes are RoHS compliant and used under the following limits.

Cd	Cadmium	%0.01 ppm
Hg	Mercury	%0.1 ppm
Cr(VI)	Hexavalent chromium	%0.1 ppm
Pb	Lead	%0.1 ppm
PBB	Polybrominated Biphenyls	%0.1 ppm
PBDE	Polybrominated Diphenyl Ethers	%0.1 ppm
Pb	Lead	%0.1 ppm

WEEE DECLARATION

SÜMER products are only for B2B (in accordance with WEEE 2012/19/ EU directive). Products can be disposed in commercial waste disposal.

EMC DECLARATION

We declare that it complies with the Electromagnetic Compatibility Directive 2014/30/EU and harmonized standards EN 61326-1 and EN 60601-1-2.

LVD DECLARATION

We declare that it complies with the Low Voltage Directive 2014/35/EU and the harmonized standard EN 61010-2-40, EN 61010-1 and EN 60601-1.

RELLEVANT DIRECTIVES AND STANDARDS	
Medical Device Directive	MDD 93/42/EEC 2007/ 47/EC
Medical Device Class	Class IIb, MDD 93/42/EEC, 2007/47/ EC (Annex IX)
Low Voltage Directive	2014/35/EU – EN 61010-2-040 – EN 61010-1 EN 60601-1
EMC Directive	2014/30/EU EN 60601-1-2 EN 61326-1
PED and Prodcut Standard	PED 2014/68/EU, EN 285, EN 13445 Standards
Quality Mangement System	ISO 9001
Medical Devices Quality Mangement System	ISO 13485
Enviromental Management Systems	ISO 14001
Occupational Health and Safety Quality Management System	ISO 18001

Electrical Connection	3N+1-380 V, 50-60 Hz 3N+1-230V, 50-60 Hz

SAFETY and QUALITY
Protects operator from electrical current leaks
Short circuit protection.
Safety valve
Hepa filter for air filtration.
Password protection.
The system which prevents the opening of two doors at the same time is used in the double door models.
There is an emergency stop button

TEMPERATURE	
Range	115°C - 137°C (Chamber)
Measurement	PT100 (DIN A Class)
Sensor Positions	Chamber (1), Optional Generator (1), Jacket (1)

PRESSURE	
Measurement	Pressure Sensores (4)
Sensor Positions	Chamber (1), Jacket(1), Generator(1), Gasket(1)

STATIONS FOR SERVICE AND SPARE PARTS:

SÜMER INTERNATIONAL INDUSTRY AND TRADE INC.

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Thank you for choosing us.

Your satisfaction is the best reward for us.

Sümer®

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