Tuttnauer

Your Sterilization & Infection Control Partners

Washer disinfector
Tiva 15-1V, Tiva 15-2V
Tiva 15-HS-1V, Tiva 15-HS-2V

ENGLISH

_General updating	00	18/12/2018	F.Stefani	M.Pozzebon	M.Pozzebon
DESCRIPTION	**REV.**	**DATE**	**PREPARED BY**	**CHECKED BY**	**APPROVED BY**

INTRODUCTION

The use of the equipment is easy and intuitive. However, the machine should be solely used by staff trained on each part of this manual. The manual must accompany the machine or must be easily consultable during use. The MANUFACTURER service department is always available for further inquiries or direct intervention. The manual provides proper instructions for machine use, maintenance, installation, dismantling and transportation.

This symbol shows a warning concerning the equipment **USER**.
The user **SHOULD NOT** attempt any maintenance and must simply use the equipment replacing consumable liquids when required.

This symbol indicates a warning concerning a routine or unscheduled maintenance operation which should be strictly performed by trained staff, aware of both the techniques and steps to be carried out to operate the equipment in the event of malfunctioning or failure.

When this symbol appears the staff is required to contact the *MANUFACTURER* service department, or the nearest service centre, as soon as possible, so that a qualified technician, authorized by *THE MANUFACTURER*, performs the maintenance operations required.

The symbol on the side indicates that the action requires the operator to be particularly careful. This symbol is also used on the machine in specific parts that, before being accessed, require the documentation attached to be carefully read.

The symbol on the side indicates that the operation in question involves electrocution risks and therefore the operator must pay special attention.
This symbol is also used on the machine in the vicinity of high-voltage devices.

The symbol on the side indicates that the operation in question involves burn risks (hot surface of the material) and therefore the operator must pay special attention to carry it out. This symbol is also used on the machinery in the vicinity of surfaces that can be very hot.

GENERAL SAFETY RULES

FOR SAFETY REASONS PLEASE READ THE FOLLOWING INFORMATION

Do not cover for any reason the labels placed on the machine and replace them immediately if damaged.

The socket for the power supply must be provided with approved grounding system.

Do not use the machine in an explosive atmosphere.

Do not use the machine to wash or disinfect objects and/or containers that, because of their shape or constituting material, are not compatible with the indications given by the manufacturer.

For objects and/or containers allowed please follow the instructions explicitly indicated in this manual.

In case of long downtime period of the machine cut the power supply off and turn off the water taps.

Do not try to open the door of the tank during operation: the device is equipped with a special safety lock system preventing the door from being opened during operation.

Installation, removal, maintenance, adjustments or any kind of intervention that requires guards to be removed or panels to be opened with wrenches SHOULD BE CARRIED OUT BY QUALIFIED AND AUTHORIZED STAFF IN ACCORDANCE WITH THE INSTRUCTIONS GIVEN BY THE MANUFACTURER.

Work on the electrical and plumbing systems, needed to prepare the site where the machine will be installed, must be carried out by qualified staff according to current standards and in a high professional way.

For any maintenance, cut the power supply off by acting on the multi-pole circuit breaker installed upstream of the equipment.

Also take all the necessary safety measures as, by cutting the power supply off, some of the protections provided by the manufacturer could be disconnected.

This equipment must be used by adults who are aware of the information given in this manual.

Do not change, for any reason, the characteristics of the equipment, its installation specifications and the parameters set.

At the end of goods to be used loading and downloading, always close the door of the washing tank in order to avoid possible unpleasant smells coming from the drain.

In case of fire, to extinguish the flames, intervene with a powder fire extinguisher, DO NOT USE WATER.
Do not wash the machine with direct or pressure water jets, or corrosive substances.

In case of malfunctioning ascertain they are not due to lack of routine maintenance, otherwise please contact the MANUFACTURER service centre. Repairs not carried out by staff specifically trained by THE MANUFACTURER can cause further damage to property and/or injury to people.

If one or more components of the equipment must be replaced always use original THE MANUFACTURER S.r.l. SPARE PARTS. Only use products recommended by THE MANUFACTURER in this manual.

The machine must not be dumped when scrapped, as it contains materials subject to legislation requiring disposal at special centres.

Make sure that the floor is suitable to support the load of the equipment when in operation, equal to 350 Kg. The machine does not cause harmful vibrations.

Before installing the equipment, ensure that the supply voltage complies with the one shown on the identification plate and that the water supply pressure is that indicated in the technical data.

Ascertain then that the drain matches the dimensions provided on the installation drawing.

During the installation does not pinch the power cable or water hoses.

If your new machine is damaged, contact your dealer before operating it.

The machine is intended for the treatment and thermo-disinfection of instruments for medical use.

The machine is a NON-STERILE device.

Any use other that the machine was intended for is forbidden.

The user is forbidden to carry out any sort of repair.

The technical service to this machine should only be carried out by QUALIFIED AND AUTHORIZED OPERATORS.

Do not expose the product to freeze.

The electrical safety of this machine is only assured if it is connected to an efficient grounding system.

Be very careful when handling detergents and additives. Avoid contact, wear gloves and always meet the safety requirements specified by chemical manufacturer.

Avoid inhaling chemicals. The chemicals are irritating to the eyes, in case of contact wash thoroughly with water and seek for medical advice. In case of contact with skin, wash thoroughly with water.

The water in the tank is not drinkable

Do not lean on the door and do not use it as a step.

The machine, during its work cycle, reaches a temperature of 95° C; be very careful; there may be a danger of scalding.

Failure to comply with these rules may jeopardize the safety of the device and IMMEDIATELY VOID THE WARRANTY.

Do not use the machine without securing it to the ground using the fixing kit supplied with it.

Do not install the machine in the same rooms where patients are housed.

The machine can heat the environment, thus increasing humidity.

Product validation has been performed by the manufacturer in compliance to EN 15883 for an expected life of 10 years; the validation of the disinfection process is on charge of the user.

Safety instructions for maintenance staff:
Risks for the maintenance of components inside the machine:

⚠	Burns of body parts due to contact with the hot parts of the equipment.	Allow only trained and qualified staff, wearing suitable safety clothes, to carry out maintenance operations. Wear appropriate clothing and protection gloves.
⚠	Electric shock	Disconnect the power supply before working on machine inner parts.
⚠	Contact with liquid chemicals	Always use personal protective equipment (ppe-goggles and gloves) for the eyes and hands.

⚠	• The operator must monitor the machine during the cycle; • Connection with the washing water injection pipe must always be carried out with an appropriate basket; • During the operation does not interrupt the cycle, otherwise disinfection will be impaired; • Use only the recommended cleaning agents and chemical additives. The use of other products can damage the machine; • The fact of recommending chemical additives does not mean the manufacturer assumes liability for any damage to materials and objects to be treated; • Strictly observe the instructions given by chemical manufacturers. Only use the products complying with their intended use; • The machine is designed to function with water and chemical additives. Do not use organic solvents or others, they may result in a risk of explosion or rapid deterioration of some machine parts; • Residues of solvents or acids, in particular "hydrochloric acid", can cause damage to the steel; avoid any contact; • Only use original accessories; • Never use detergent powder;

- Never use foaming detergents;
- The machine must be used only with baskets and/or accessories supplied by the manufacturer;
- The accessories that have not been approved by the manufacturer may affect the results obtained, as well as the user safety;
- Never use chemicals based on chlorides (chlorine bleach, sodium hypochlorite, hydrochloric acid, etc.). These types of chemicals will irreparably damage the machine impairing its integrity.

Manufacturer's liability and limits:

THE MANUFACTURER SHALL NOT BE HELD RESPONSIBLE FOR FAILURES DUE TO TAMPERING AND/OR INCORRECT APPLICATIONS AND/OR INAPPROPRIATE USE OF THE MACHINE. The user must follow the requirements specified in the user manual and in particular:

- Always work within the limits allowed by the machine;
- Always carry out constant and careful maintenance;
- Allow machine use only to staff properly trained and educated, having proven skills and attitudes suitable to carry out the job and purposes required;
- Only use manufacturer's original spare parts.

The instructions for installation, maintenance and operation described below, were prepared to ensure a long life, as well as a correct and optimal operation of the machine.

Manual:

This manual should be carefully preserved with the machine for future reference. In case of machine sale or transfer to another user, make sure that the manual accompanies the equipment to allow the new owner to obtain information on its operation and relevant components. The manual represents the state of the art at the time of construction and delivery of the device and is valid for its entire life. To avoid possible injury to persons or property caused by an incorrect translation of the instructions, the customer is recommended Not to perform operations or manoeuvres on the machine if any queries or doubts about the operation to be carried out arise, and to ask the Customer Service for clarifications concerning the instruction concerned. If the manual is lost please the manufacturer for a copy.

1   INTENDED USE:

Machine for washing, disinfecting and drying of reusable surgical instruments, anesthesia equipment and other operational utensil (glassware, baby bottles and containers).

Misuse of this equipment can be **DANGEROUS TO HEALTH AND SAFETY OF THE OPERATOR** and can cause severe damage to the machine itself.

⚠ If the machine is used in ways other than those intended by the manufacturer, the protection of the unit may be impaired.

Misuse:

It is forbidden to wash:

- Tools and objects that are completely or partially made of wood ;
- Tools and objects different from stainless ones ;

- Tools and objects made of plastic material not suitable for high temperatures.

> If the machine is **NOT USED FOR MORE THAN 24 HOURS**, it is necessary to perform a BGA cycle (Disinfection cycle), in order to avoid contamination.

2 PROGRAMMING

By entering the "Service" menù, after entering a password, you can change any parameters and create new programs.
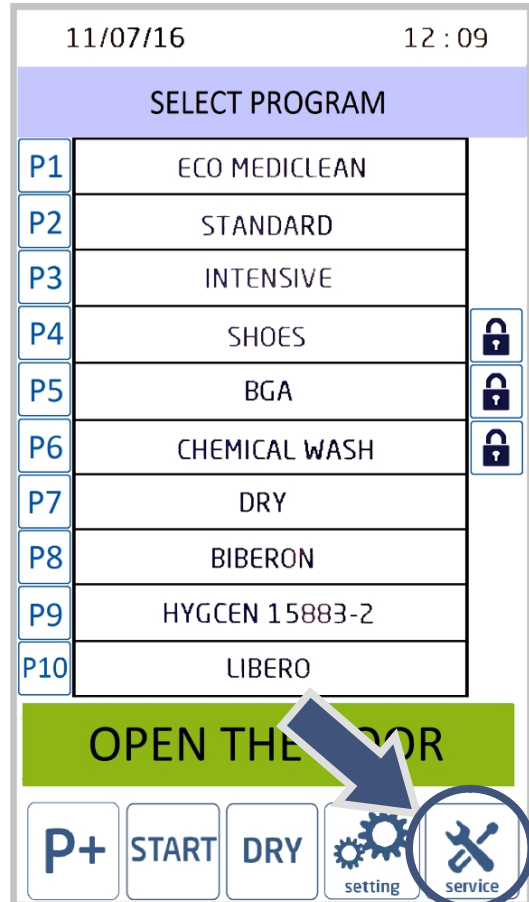
SERVICE

This is the main screen of the "service" menù. It is divided into:
- PROGRAMS: in which you can create/modify Programs and parameters related to them;
- SETTING: in which you can modify general parameters that affect the operation of the machine;
- TEST IN/OUT: in which you can check the status of the inputs and you can enable the devices installed on the machine.
- WARNING! THESE DEVICES ARE CONTROLLED BY THE USER. IMPROPER USE OF THIS FEATURE MAY DAMAGE THE MACHINE, WHICH IS WHY THE USE OF THIS FUNCTION IS PERMITTED ONLY TO TECHNICAL EXPERTS.
- REPORT: in which it is possible to save the programs and parameters installed on a PDF file, download the Report cycle in PDF format and perform the temperature test.
- INFO BOARD: which displays the information of the electronic boards installed on the machine;
- DATASET: using this key you can download/upload the program;
- FLASH: this key allows uploading a new firmware and installing it on the machine.

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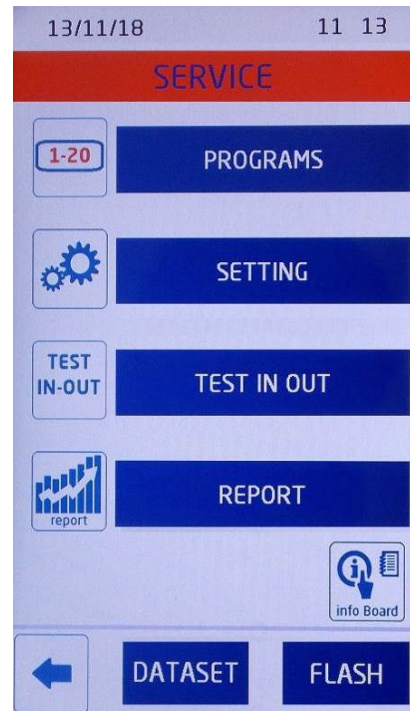
SERVICE / PROGRAMS

This is the main screen of the "Programs" menù. It is divided into:
- SETTING: in which you can modify or create new programs;
- ASSIGNMENTS: in which you can assign a particular program to a certain type of trolley (if the trolley recognition is available)
- WATER LITRES: in which you can set for each program the desired water quantity in L;
- CHEMICALS: in which you can set the amount of chemical for each program.

By pressing the "back arrow" key you return to the "SERVICE" menù
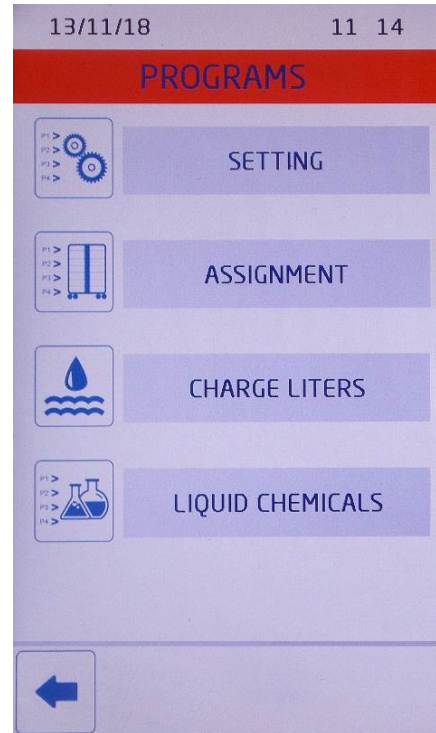
SERVICE / PROGRAMS / SETTING

In this screen you can modify or create new programs; The first row (blue) shows the program number (in this case "1") and then all the phases by which it is formed. The arrows next to the program number are used to scroll through the
various programs from the first until the 20th. The arrow ↓ (next to the drying phase) is used to show the phase from number 11 to number 40.

The [icon] key allows saving the entire program after any modification.

WARNING! AFTER MODIFICATION OR CREATION OF A NEW PROGRAM, IF YOU EXIT THIS SCREEN WITHOUT PRESSING " [icon] " THE NEW DATA

WILL BE LOST.

The [icon] key allows to delete the entire program. When you select a phase (DRAIN in this case) some icons appear in
the right side of the screen:

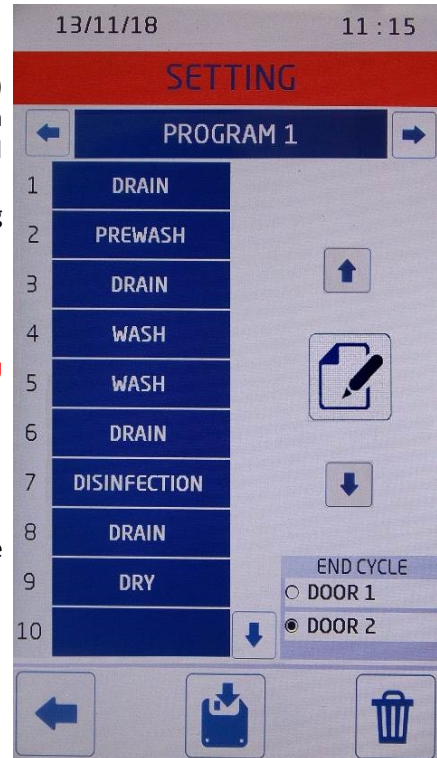| [up arrow icon]	To move the selected phase towards the arrow inside the program;
[down arrow icon]	To move the selected phase towards the arrow inside the program;
[edit icon]	To display and modify the parameters within the selected phase.

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✉ **Tuttnauer Europe b.v**., Hoeksteen 11, 4815 PR Breda, P.O. Box 7191, 4800 GD Breda, Netherlands. ☏ Tel: +31/76-5423510, 🖷 Fax: +31/76-5423540
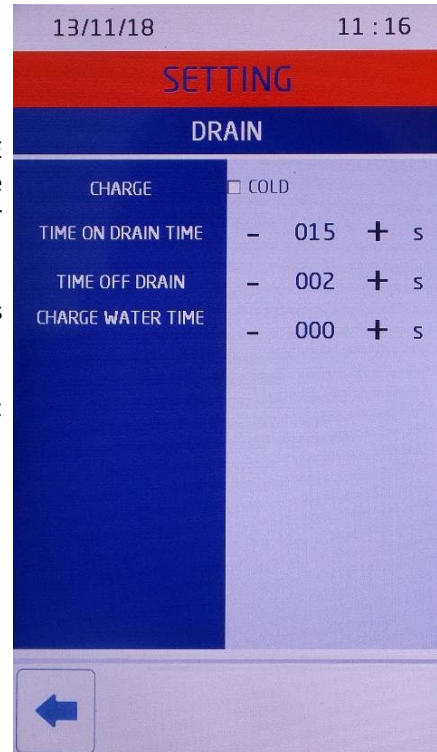
SERVICE / PROGRAMS / SETTING / DRAIN

In the screen view "DRAIN" the parameters of this phase can be changed:

_CHARGE: If this field is selected and a duration is entered in the "CHARGE WATER TIME" parameter, cold water will be supplied to cool the outlet at the beginning of the phase. (Recommended for the discharge phases after disinfection)

_TIME ON DRAIN: Duration during which the unloading solenoid valve is energized (MV closed).

_TIME OFF DRAIN: Duration during which the unloading solenoid valve is not powered (MV open).

Use the "back arrow" key to return to the PROGRAM window.
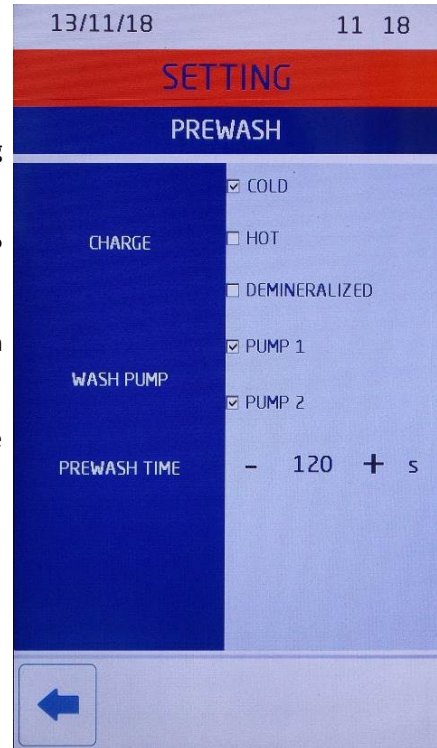
SERVICE / PROGRAMS / SETTING / PREWASH

In the "PREWASH" screen, the parameters of this phase can be changed.

_CHARGE: Here you can set the type of water to be used in the pre-cleaning phase.

_WASH PUMP: Here you can select the pump to be used for this phase (PUMP 1: Chassis pump, PUMP 2: Bath pump).

_PREWASH TIME Here you can set the duration of the pre-cleaning phase (in seconds).

Press the "back arrow" key to return to the PROGRAM window.to the PROGRAM window.

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SERVICE / PROGRAMS / SETTING / WASH (1/2)

In the screen "WASH" (cleaning) the parameters of this phase can be changed.

_CHARGE: Here you can set the water type to be used in the pre-cleaning phase.

_PRESTATICAL PUMP: Here you can choose one or more pumps for dosing the cleaning fluid in this cleaning phase.

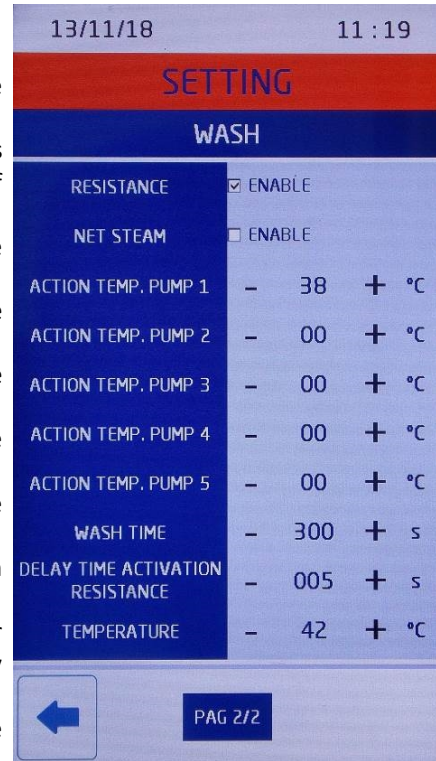_WASH PUMP: Here you can select the pump to be used for this phase (PUMP 1: Chassis pump, PUMP 2: Bath pump).

Press the "back arrow" key to return to the PROGRAM window.
The "arrow forward" button calls up the second screen of the cleaning phase (2/2).

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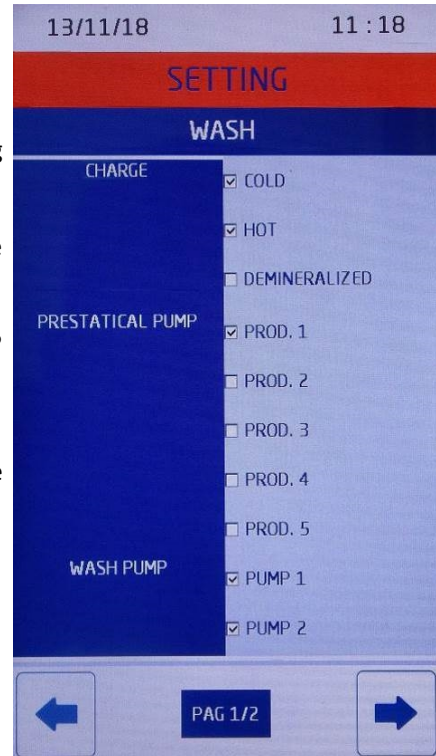
SERVICE / PROGRAMS / SETTING / WASH (2/2)

_HEAT RESISTANCE: Here you can select whether the heating resistance of the bath is to be activated for this phase.

_VAPORE RETE: Here you can select whether the solenoid valve for the mains steam should be activated in this phase in order to shorten the duration of the water heating.

_ACTUAL TEMP PUMP 1: Here you can set the temperature (in ° C) for the initiation of product 1 in this phase.

_ACTUAL TEMP PUMP 2: Here you can set the temperature (in ° C) for the introduction of product 2 in this phase.

_ACTIVE TEMP PUMP 3: Here you can set the temperature (in ° C) for the introduction of product 3 in this phase.

_ACTUAL TEMP PUMP 4: Here you can set the temperature (in ° C) for the introduction of product 4 in this phase.

_ACTUAL TEMP PUMP 5: Here you can set the temperature (in ° C) for the introduction of product 5 in this phase.

_CLEANING TIME: Here you can set the duration of the cleaning phase (in seconds).

_DELAY TIME ACTIVATION RESISTENCE: Here you can set the delay time for activating the heating resistors after switching on the cleaning pumps (usually 5 seconds are set).

_TEMPERATURE: Here the temperature to be reached in this phase can be set.

With the key "arrow back" you return to the window of the first cleaning phase (1/2)

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SERVICE / PROGRAMS / SETTING / RINSE (1/3)

In the Rinse screen, the parameters of this phase can be changed.

_CHARGE: Here you can set the type of water to be used during the flushing phase.

_PERISTALTIC PUMPS: Here you can choose one or more pumps for dosing the cleaning fluid in this flushing phase.

_CLEANING PUMP: Here you can select the pump to be used for this phase (PUMP 1: Chassis pump, PUMP 2: Bath pump).

Press the "back arrow" key to return to the PROGRAM window.
The "arrow forward" button calls up the second screen of the rinse phase (2/3).

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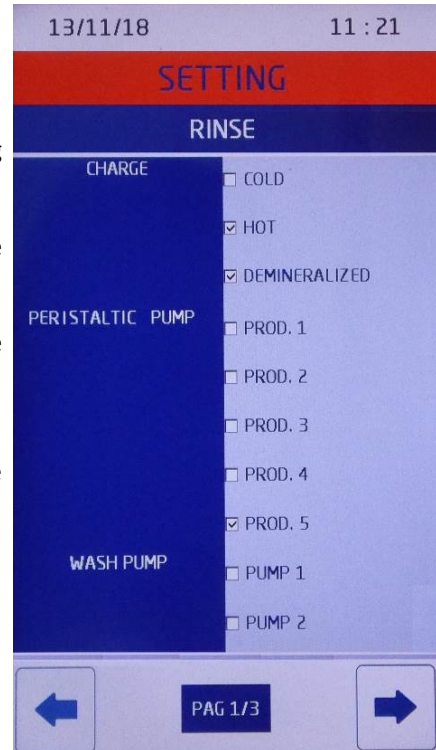
SERVICE / PROGRAMS / SETTING / RINSE (2/3)

_RESISTANCE: Here you can choose whether the heating resistor of the bath should be activated for this phase.

_NET STEAM: Here you can select whether the solenoid valve for the mains steam should be activated in this phase in order to shorten the duration of the water heating.

_CONDUCTIVITY PROBE: Here you can choose whether, at the end of this phase, a check of the conductivity of the water in the tub is required (only if a probe is installed on the unit).

_ACT. TEMP. PUMP 1: Here you can set the temperature (in ° C) for the initiation of product 1 in this phase.

_ACT. TEMP. PUMP 2: Here you can set the temperature (in ° C) for the introduction of product 2 in this phase.

_ACT. TEMP. PUMP 3: Here you can set the temperature (in ° C) for the introduction of product 3 in this phase.

_ACT. TEMP. PUMP 4: Here you can set the temperature (in ° C) for the introduction of product 4 in this phase.

_ACT. TEMP. PUMP 5: Here you can set the temperature (in ° C) for the introduction of product 5 in this phase.

CLEANING TIME: Here you can set the duration of the rinsing phase (in seconds).

DEACTIVATION TIME ACTIVATION: Here you can set the delay time for activating the heating resistors after switching on the cleaning pumps (usually 5 seconds are set).

With the key "arrow back" you return to the window of the first rinse phase (1/3).

The "arrow forward" button calls up the third screen of the rinse phase (3/3).
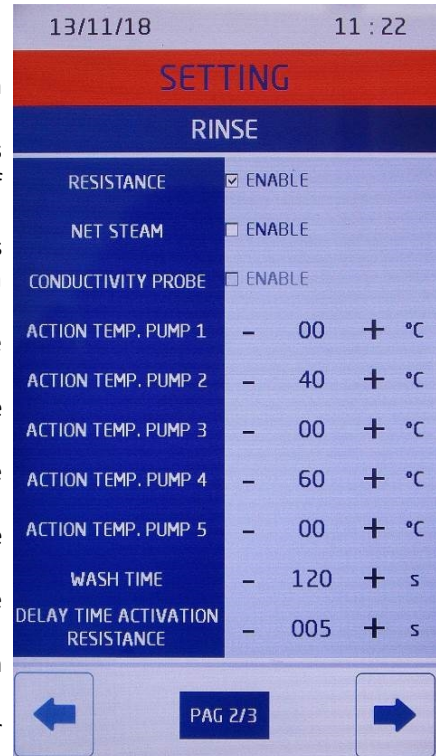
SERVICE / PROGRAMS / SETTING / RINSE (3/3)

_TEMPERATURE: Hier kann die Temperatur, die in dieser Phase erreicht werden soll, eingestellt werden.

_DISCHARGE TIME ON WITH CONDUCTIVITY PROBE: Here, the discharge time can be set when the conductivity probe is activated. The device needs this time if the purge phase is repeated due to increased conductivity. (Usually the times correspond to the times of the standard discharge phases.)

_DISCHARGE TIME OFF WITH CONDUCTIVITY PROBE: Here, the discharge time can be set when the conductivity probe is activated. The device needs this time if the purge phase is repeated due to increased conductivity. (Usually the times correspond to the times of the standard discharge phases.)

With the key "arrow back" one returns to the window of the second rinsing phase (2/3).
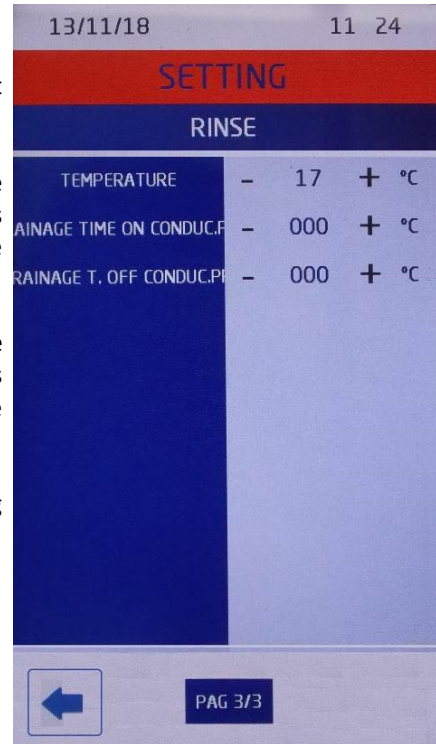
SERVICE / PROGRAMS / SETTING / DISINFECTION (1/3)

In the Disinfection screen, the parameters of this phase can be changed.
_CHARGE: Here you can set the water type to be used during the disinfection phase.

If the option MV jet condenser is selected, the cooling system of the condenser is activated for this phase in order to avoid steam escapes in this phase.

When "Hot demi" is selected, the water from the boiler installed above the unit will be filled in the tub.

_Temp. BOILER 2: If a boiler is available, it is possible to set the temperature that the water in the boiler reaches (usually 85 ° C, 90 ° C must not be exceeded).

_WASH PUMP: Here you can select the pump to be used for this phase (PUMP 1: Chassis pump, PUMP 2: Bath pump).

Press the "back arrow" key to return to the PROGRAM window.
The "arrow forward" button calls up the second screen of the disinfection phase (2/3).

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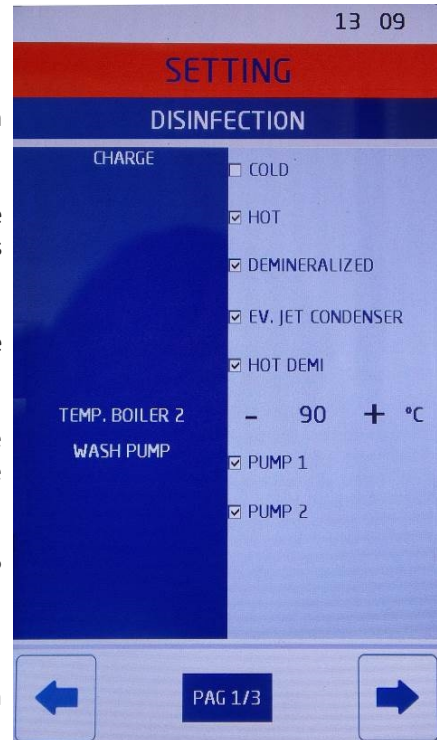
SERVICE / PROGRAMS / SETTING / DISINFECTION (2/3)

_PERISTALTIC PUMP: Here you can select one or more pumps for dosing the cleaning fluid in this disinfection phase.

_RESISTANCE: Here you can choose whether the heating resistor of the bath should be activated for this phase.

_NET STEAM: Here you can select whether the solenoid valve for the mains steam should be activated in this phase in order to shorten the duration of the water heating.

_PRIORITY A0: If this option is selected, the disinfection phase will end as soon as the value A0 entered in the field below is reached.

_A0: Enter the minimum value for A0 (usually 1000 is entered).

With the key "arrow back" one returns to the window of the first disinfection phase (1/3).
The "arrow forward" button calls up the third screen of the disinfection phase (3/3).

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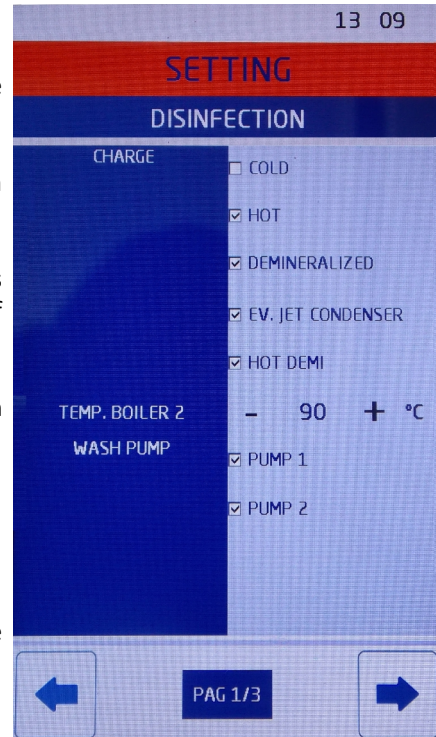
SERVICE / PROGRAMS / SETTING / DISINFECTION (3/3)

_ACT. TEMP. PUMP 1: Here you can set the temperature (in ° C) for the initiation of product 1 in this phase.

_ACT. TEMP. PUMP 2: Here you can set the temperature (in ° C) for the introduction of product 2 in this phase.

_ACT. TEMP. PUMP 3: Here you can set the temperature (in ° C) for the introduction of product 3 in this phase.

_ACT. TEMP. PUMP 4: Here you can set the temperature (in ° C) for the introduction of product 4 in this phase.

_ACT. TEMP. PUMP 5: Here the temperature (in ° C) for the introduction of product 5 can be set in this phase.

_DISINFECTION TIME: Here you can set the duration of the disinfection phase (in seconds).

_DELAY TIME ACTIVATION RESISTANCE: Here you can set the delay time for activating the heating resistors after switching on the cleaning pumps (usually 5 seconds are set).

_TEMPERATURE: Here you can set the temperature to be reached in this phase.

With the key "arrow back" you return to the window of the second disinfection phase (2/3).

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✉ **Tuttnauer Europe b.v**., Hoeksteen 11, 4815 PR Breda, P.O. Box 7191, 4800 GD Breda, Netherlands. ☏ Tel: +31/76-5423510, 📠 Fax: +31/76-5423540
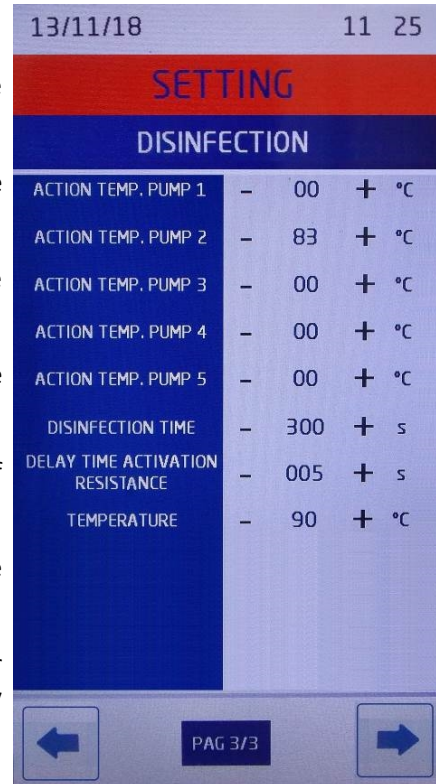
SERVICE / PROGRAMS / SETTING / DRY (1/2)

_ AIR RESISTANCE: Checking this box activates air resistance for the drying phase.

_ WATER FILLING: Fill the sump with water during the drying phase (not used).

_EV.JET. CONDENSER: This field must be selected if the cooling system of the capacitor is to be selected during this phase. (This system helps to reduce the steam leaving the drain line.)

Press the "back arrow" key to return to the PROGRAM window.
The "arrow forward" button calls up the second screen of the drying phase (2/2).

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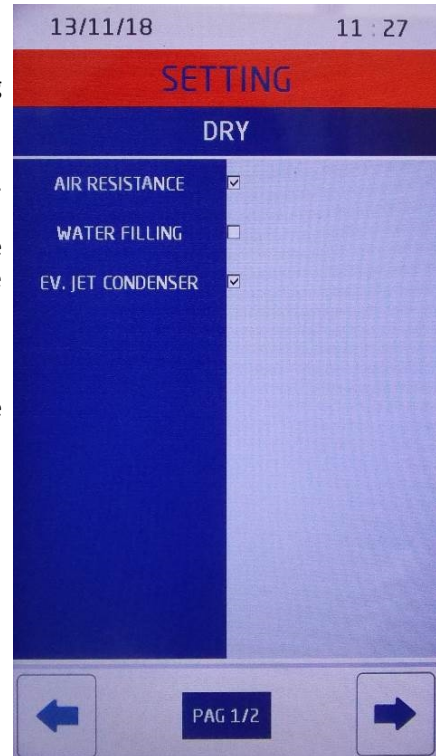
SERVICE / PROGRAMS / SETTING / DRY (1/2)

_INTERMITTENCE TIME: set the time in which the air pump has to go at low speed and intermittently.

WARNING: IF THIS PARAMETER IS MODIFIED, YOU MUST ALSO MODIFY THE PARAMETER: "CONDENSER JET TIME", WHICH SHALL BE EQUAL TO OR LESS THAN THIS PARAMETER. (The parameter is found in the SETTING → TIMES menù)

_AIR PUMP PAUSE TIME: set the pause times between the low and high speed (the air pump remains stopped for this time, 5 seconds)

_AIR PUMP ACTIVATION TIME: time for which the air pump operates at maximum power and in continuous mode, using the heating elements.

_MINIMUM DRYING TEMP: once reached this temperature, measured in the tank, the air pump stops (function not used).

_HEATING ELEMENT ACTIVATION DELAY: delay from when the air pump activates to the maximum power (normally 5 seconds).

_SWITCH-OFF TEMPERATURE: switch-off temperature of the air heating element during maximum pump power.

_HEATING ELEMENT SWITCH-ON TEMPERATURE: switch-on temperature of the air heating element during maximum pump power.

_PUMP INTERMITTENCE SWITCH-ON TIME: air pump operation time during the intermittence phase.

_PUMP INTERMITTENCE SWITCH-OFF TIME: air pump switch-off time during the intermittence phase.

_HEATING ELEMENT ENABLING TIME: total operating time of the heating element that is initialized from the start of the phase where the air pump activates at maximum power.

WARNING THIS TIME MUST BE AT LEAST 30 SECONDS LOWER THAN THE "AIR PUMP ACTIVATION TIME" TO ALLOW THE HEATING ELEMENT TO COOL DOWN AT THE END OF THIS PHASE. ATTENTION! THIS TIME MUST BE AT LEAST 30 SECONDS UNDER THE "AIR TIME ACTIVATION TIME" FOR THE HEAT RESISTANCE TO COOL DOWN AT THE END OF THIS PHASE:

With the key "arrow back" you return to the window of the first drying phase (1/2).

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PROGRAMS / SETTING / ASSIGNMENTS

In this screen, you can assign one or more programs to a certain type of trolley. In the left column there are the trolleys, while in the right one there are all the programs. To assign programs to a particular trolley, just select the trolley and then press on the programs that you want to activate for that trolley. You can take advantage of this feature if the machine is equipped with the "trolley recognition" application.

By pressing the "back arrow" key you return to the "SERVICE" menù
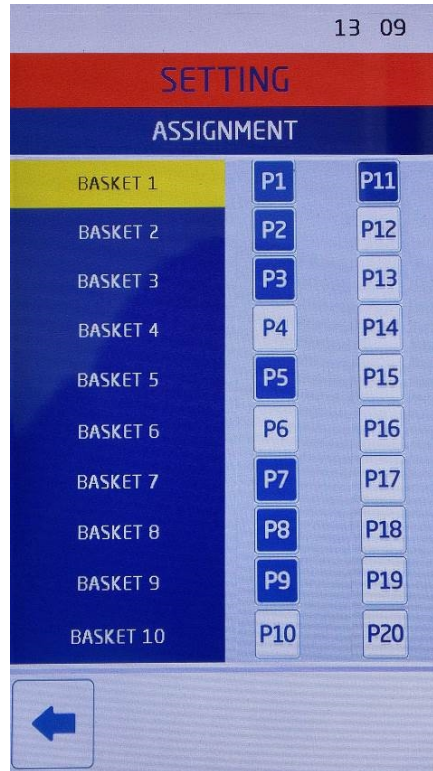
PROGRAMS / SETTING / LITER WASSER

In this screen, you can set the water quantity in L for each program. In the left column are listed the programs and the types of water, while in the right one there is the amount of water expressed in L.. Scroll with the following screens to display the other programs.

13/11/18			11 33
SETTING			
WATER LITERS			
PROG. 1	COLD H2O	− 050 +	
	HOT H2O	− 050 +	
	DEMI H2O	− 050 +	
PROG. 2	COLD H2O	− 050 +	
	HOT H2O	− 050 +	
	DEMI H2O	− 050 +	
PROG. 3	COLD H2O	− 050 +	
	HOT H2O	− 050 +	
	DEMI H2O	− 050 +	
←	PAG 1/7	→	

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PROGRAMS / SETTING / LIQUID CHEMICALS

In this screen, you can set the amount of each chemical for each program. In the left column are listed the programs, while in the right one are listed the chemicals with the relative amount of liquid expressed in ml. Scroll with the following screens to display the other programs.

By pressing the "back arrow" key you return to the "SERVICE" menù.

26

SERVICE / SETTING (1/4)

In this screen there are further submenùs that contain functional parameters of the machine.

_GENERAL: you can find the general parameters inside this menù

_TEMPERATURE: inside this menù there are the parameters related to the temperatures.

_TIMES: inside this menù there are the parameters related to the times.

_PUMPS: inside this menù there are the parameters related to the washing pumps and the peristaltic pumps of the chemicals.

By pressing the "back arrow" key you return to the "SERVICE" menù
By pressing the "forward arrow" key you proceed with the submenùs of the SETTING menù (page 2/4).
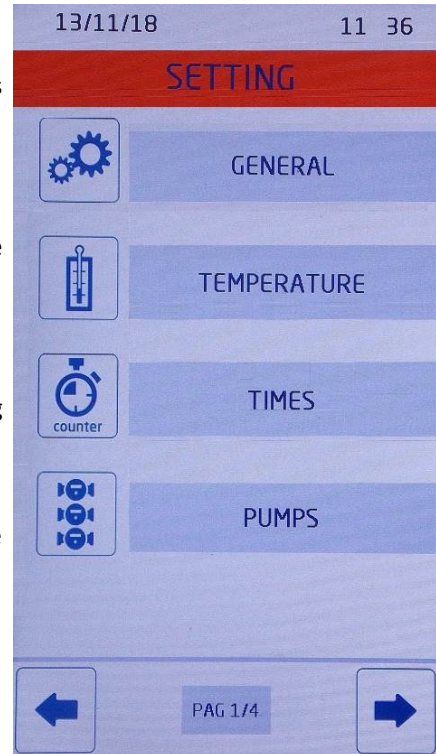
SERVICE / SETTING (2/4)

_REGENERATION: inside this menù there are the parameters related to the regeneration phase (for applying a softener on the machine).

_ENABLING: inside this menù you can enable the flow meters, the alarms and the display of the trends in the graph.

_BOILER: inside this menù there are the parameters related to the boilers (they are installed above the machine, if any).

_SPRAY ARMS: inside this menù there are the parameters related to the washing spray arms; they manage the times for the alarm signal in case the spray arms rotate slowly or are blocked.

By pressing the "back arrow" key you return to the first page of the SETTING menù (page 1/4). By pressing the "forward arrow" key you proceed with the submenùs of the SETTING menù (page 3/4).

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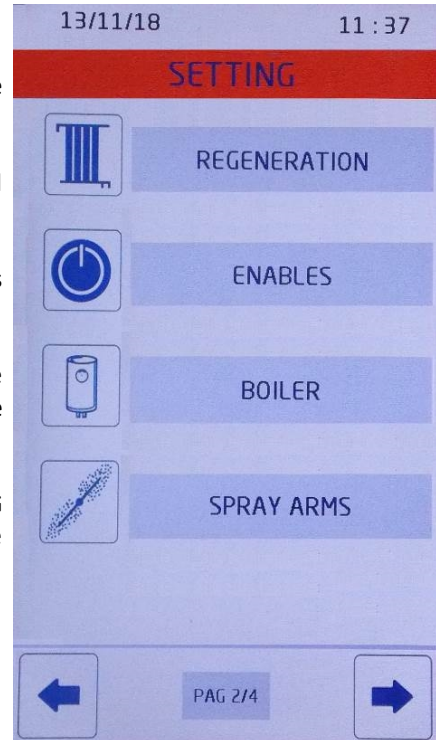
SERVICE / SETTING (3/4)

_SPRAY ARMS BASKETS: inside this menù there are the parameters that manage the enabling of the control of the spray arms on certain types of trolleys.

_CONDUCTIVITY PROBE: inside this menù there are the parameters that manage the conductivity probe.

_DRAIN PUMP: inside this menù there are the parameters that manage the drain pump.

_AUTOMATIC DOORS: inside this menù there are the parameters that manage the automatic doors.

By pressing the "back arrow" key you return to the second page of the SETTING menu (page 2/4). By pressing the "forward arrow" key you proceed with the submenus of the SETTING menu (page 4/4).
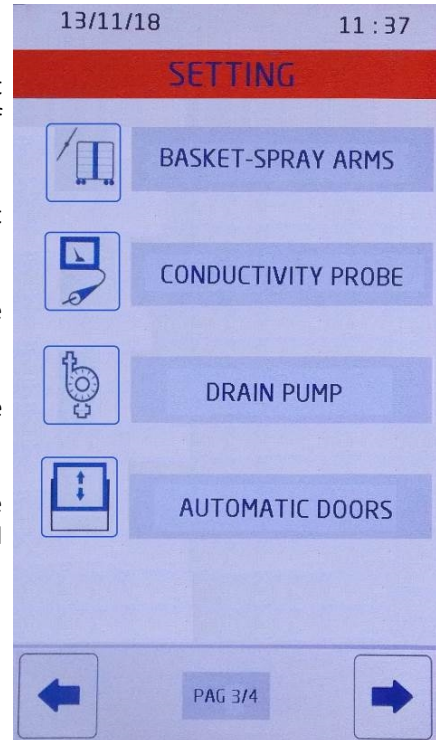
SERVICE / SETTING (4/4)

_PROBES CALIBRATION: in this menu you can calibrate the temperature probes.

_CHEMICAL PRODUCTS CALIBRATION: in this menu you can calibrate the flow meters for the chemicals.

By pressing the "back arrow" key you return to the third page of the SETTING menu (page 3/4).
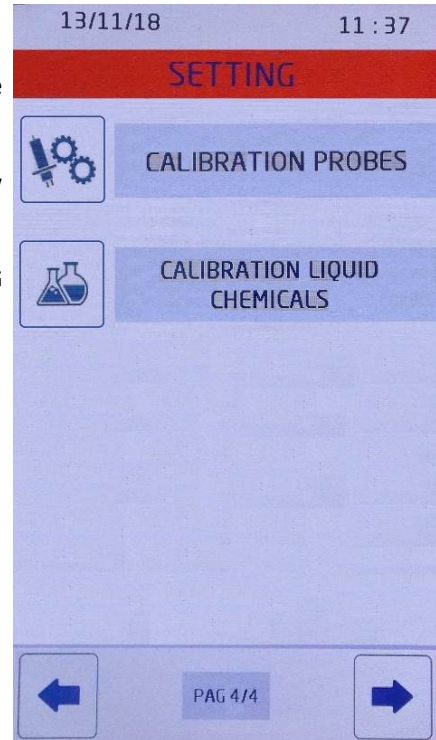
SERVICE / SETTING / GENERAL (1/3)

_PASS-THROUGH: if you set the parameter to OFF at the end of the cycle, you must reinsert the trolley in the tank to allow the door interlock and start a new program; if the parameter is set to ON at the end of the cycle you need to unload the trolley from the tank to allow the door interlock and start a new program; if the parameter is set to HYBRID, at cycle end you can take out the trolley from the tub or leave it inside depending on the needs of the operator at that time.

_SINGLE DOOR: set the parameter to ON if the machine has a single door instead of a pass-through one. IMPORTANT! IF IT IS SET TO "ON", THE "PASS-THROUGH WINDOW" PARAMETER MUST ALSO BE SET TO "ON".

_PRINT GRAPHIC ON RECEIPT: if set to OFF, the receipt will not be printed with the graph showing the temperature curve.

_PROG. No. FOR MAINTENANCE: set a number of programs to be carried out before the machine signals, with a message, the need to perform the routine maintenance.

_ALARM 42 DELAY TIME: set the alarm 42 delay time from the moment the fault occurs.

_ALARM 70 AND 72 DELAY TIME: set the alarm 70 and 72 delay time from the moment the fault occurs.

_ALARM 71 DELAY TIME: set the alarm 71 delay time from the moment the fault occurs.

_NO. OF CYCLES WITH PROD.1 NOZZLE CONTACT OPEN: sets the number of cycles that the machine can carry out with the product 1 nozzle contact open (low float)

_NO. OF CYCLES WITH PROD.2 NOZZLE CONTACT OPEN: sets the number of cycles that the machine can carry out with the product 2 nozzle contact open (low float)

_NO. OF CYCLES WITH PROD.3 NOZZLE CONTACT OPEN: sets the number of cycles that the machine can carry out with the product 3 nozzle contact open (low float)

By pressing the "back arrow" key you return to the service menu. By pressing the "forward arrow" key you proceed with the submenus of the general menu (page 1/3).

SERVICE / SETTING / GENERAL (2/3)

_CYCLE N° WITH TANK IN RESERVE PRED.5: sets the
number of cycles that the machine can carry out with the product 4 nozzle contact open (low float)

_ CYCLE N° WITH TANK IN RESERVE PRED.4: sets the number of cycles that the machine can carry out with the product 5 nozzle contact open (low float)

_NO. OF REGENERATIONS FOR SALT: sets the number of regenerations that the machine can carry out before the message indicating to refill the salt bowl appears on the display.

_DELAY TIME ALARM 40: set the alarm 40 delay time from the moment the fault occurs.

_RESTART MODE: disabled

_MODE TO START PROGRAM: sets the behaviour of the machine once inserted the washing trolley in the tank. If set to "0" all programs are enabled (even those not recommended for that type of trolley), if set to "1" only the recommended programs for that kind of trolley are enabled; if set to "2" you can start any program but the display shows the recommended programs and those that are not recommended. By pressing the "back arrow" key you return to the first page of the general menu (page 1/3). By pressing the "forward arrow" key you proceed with the submenus of the General menu (page 3/3).

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SERVICE / SETTING / GENERAL (3/3)

_ALARM 6 DELAY TIME: set the alarm E06 delay time from the moment the fault occurs.

_LAN NETWORK LIFETIME (s): sets the time within which the machine expects to receive the signal from the external communication system. If this time runs out without the machine receiving any signal, it prepares so as not to require operator and trolleys scanning via bar code.

_COOLING FAN OPERATION (s): sets the operation time of the cooling fan that is initialised at the end of a program.

_PRINTER OPTION: sets the type of communication of the printer (serial or parallel)

_EMERGENCY BUTTON BOARD: if the emergency button is connected on the micro 3 card (expansion card). This contact is used for reporting alarm E94.

_DISPLAY BACK PRESENT: if the display card in the drain side (clean area) is not present (single door machine), this parameter must be set to ON.

13/11/18		11 36
SETTING		
GENERAL		
DELAY TIME ALARM 6	– 12	+
ALIVE TIME NET LAN(s)	– 20	+
COOLING FAN FUNCTION(s)	– 2100	+
PRINTER LANGUAGE	– 2	+
PRINTER OPTION	– Serial	+
EMERGENCY BUTTON BOARD 3	– ON	+
DISPLAY BACK PRESENT	– ON	+
←	PAG 3/3	→
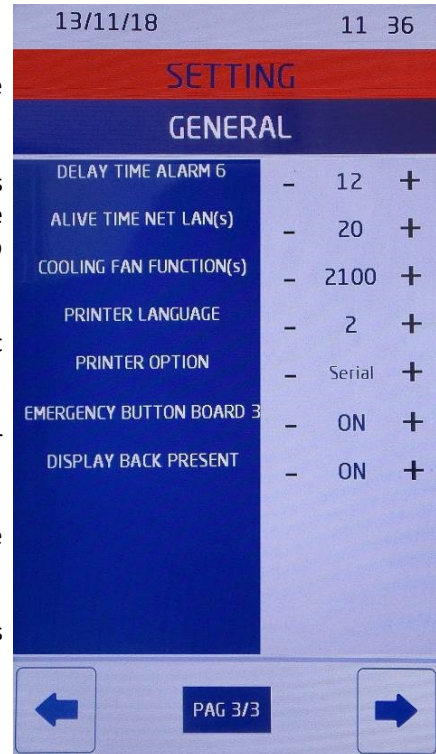
SERVICE / SETTING / TEMPERATURE (1/2)

_HYSTERESIS: Here the hysteresis value for the heating resistors installed in the tank is set.

OPENING TEMPERATURE MV BEAM CONDENSER: Here the activation temperature of the cooling system of the condenser is set during the disinfection phase.

_SHUTTER TEMPERATURE MV RADIATION CONDENSER: Here the shutdown temperature of the cooling system of the condenser is set during the disinfection phase.

_MAXIMUM TEMPERATURE PREWASHING: This is the maximum temperature for triggering the alarm during the pre-cleaning phase.

_MAXIMUM TEMPERATURE TUB: This is the maximum temperature that can be detected in the trough.

_MAXIMUM TEMPERATURE AIR: Here the maximum temperature detected in the air ducts after the heating resistor is set.

_MAX. TEMPERATURE DIFFERENCE: Here, the maximum allowable temperature difference between the 2 temperature probes mounted in the tub is set.

_MAX TEMPERATURE OUTSIDE PHASE: Here, the maximum temperature is set, which can be detected together with the temperature set in the tub for this phase.

_MINIMUM TEMPERATURE OF CONTROL: Here the temperature is set at the beginning of the control of the maximum difference between the 2 probes.

_ALARM DRY TEMPERATURE: Here a minimum temperature is set, which must be reached during the drying phase. This temperature is measured by the probe mounted after the heating resistors in the air ducts. If this temperature is not reached and exceeded, alarm E43 will be triggered at the end of this phase.

Use the "back arrow" key to return to the first page of the SETTING menu (1/4). The "arrow forward" key takes you to the other submenus of the Temperature menu (p. 1/2).

SERVICE / SETTING / TEMPERATURE (2/2)

_DOORS SAFETY TEMPERATURE: sets a temperature beyond which the machine doors do not open at the and of a program.

By pressing the "back arrow" key you return to the first page of the temperature menu (page 1/2).

Tuttnauer
Your Sterilization & Infection Control Partners

☑ **Tuttnauer Europe b.v**., Hoeksteen 11, 4815 PR Breda, P.O. Box 7191, 4800 GD Breda, Netherlands. ① Tel: +31/76-5423510, ☑ Fax: +31/76-5423540
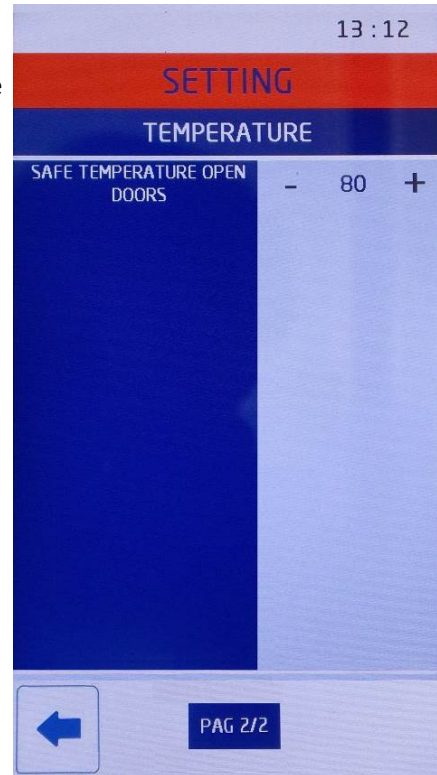
SERVICE / SETTING / TIMES (1/3)

MAX LOADING ZONE D.L. CLOSING TIME: not used

MAX UNLOADING ZONE D.L. CLOSING TIME: not used

MAX LOADING ZONE D.L. OPENING TIME: not used

MAX DRAIN TIME MAX UNLOADING OPENING TIME: not used

WATER FLOW M. 1 PULSE MAX TIME: sets the max time for detecting 1 pulse from the water flow meter.

PRODUCT FLOW M. 1 PULSE MAX TIME: sets the max time for detecting 1 pulse from the chemicals flow meter.

24L HOT+COLD WATER MAX TIME: sets the max time for loading of two types of water at the same time.

24L COLD+PURIFIED WATER MAX TIME: sets the max time for loading of two types of water at the same time.

24L HOT+PURIFIED WATER MAX TIME: sets the max time for loading of two types of water at the same time.

MAX DRAIN TIME: sets the max time during which in the drain phase the pressure switch detects water in the tank.

By pressing the "back arrow" key you return to the first page of the SETTING menu (page 1/4). By pressing the "forwa rd arrow" key you proceed with the submenus of the times menu (page 2/3).

SERVICE / SETTING / TIMES (2/3)

MAX DRAIN TIME: sets the max time during which in the drain phase the pressure switch detects water in the tank with the addition of the water loading in the tank.

MAX 1°C INCREASE TIME: sets the max time for 1°C increase in the washing tank.

MAX COLD WATER TIME: sets the max time for cold water loading.

MAX HOT WATER TIME: sets the max time for hot water loading.

MAX PURIFIED WATER TIME: sets the max time for purified water loading.

CONDENSER JET TIME: sets the operating time of the condenser jet during the drying phase.

MAX OPPOSITE POSITION TIME OF THE BOILER LEVEL PROBES: sets the max time for which this condition can occur: level 1 probe with contact closed and level probe 2 with contact open. After this time the alarm is triggered.

TANK LIGHT ON TIME: stets the tank light on time once started the program (with switch to OFF).

CHEMICAL PRODUCTS TIMEOUT: sets the time in which liquid loading must be completed.

ALARM 47 DELAY TIME: sets the alarm E47 warning delay time.

By pressing the "back arrow" key you return to the first page of the times menu (page 1/3). By pressing the "forward arrow" key you proceed with the submenus of the times menu (page 3/3).

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SERVICE / SETTING / TIMES (3/3)

DELAY TIME FOR READING VOLTAGE CONTROL RELAY: sets the delay time for checking correct voltage on the machine.

By pressing the "back arrow" key you return to the second page of the times menu (page 2/3).
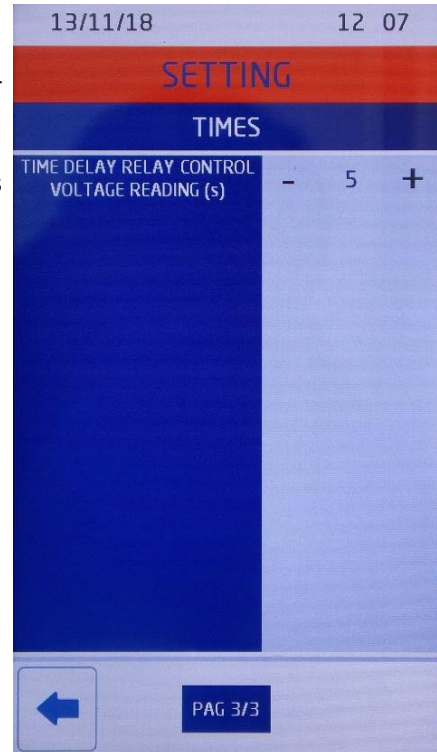
SERVICE / SETTING / PUMPS (1/3)

PRODUCTS ADDITIONAL TIME: sets the additional time for chemical product loading, to be used in case of faults on the pump
or power surges.

No. OF PULSES ON 1L COLD WATER: sets the amount of pulses that must detect the flow meter to load 1L of water.

No. OF PULSES ON 1L HOT WATER: sets the amount of pulses that must detect the flow meter to load 1L of water.

No. OF PULSES ON 1L PURIFIED WATER: sets the amount of pulses that must detect the flow meter to load 1L of water.

No. OF PULSES ON 1L HOT PURIFIED WATER: sets the amount of pulses that must detect the flow meter to load 1L of water.

MAXIMUM AMOUNT OF CONTROL LIQUIDS: maximum range within which the pressure switch for the tank level detects the presence of water.

MINIMUM AMOUNT OF CONTROL LIQUIDS: minimum range within which the pressure switch for the tank level detects the presence of water.

1 PULSE IN CALIBRATION MAX TIME: sets the max time for detection of 1 pulse from the flow meter during the calibration phase.

DISPENSED PRODUCT DELTA: sets the amount of liquid to load in addition to the one set.

WASHING PUMP ON TIME: not used

By pressing the "back arrow" key you return to the first page of
the SETTING menu (page 1/4). By pressing the "forward arrow" key
you proceed with the submenus of the pumps menu (page 2/3).

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SERVICE / SETTING / PUMPS (2/3)

WASHING PUMP OFF TIME: not used

LITRES OF COLD WATER LOADING FOR DRYING: not used CHEMICAL PRODUCTS ML PULSES ADJUSTMENT: sets a value to make dosing of chemical products even more accurate following calibration.

No. PULSES ON 1 ML PROD.1 ADJ.: automatic parameter following calibration.

TIME FOR INTRODUCTION OF 100 ML PROD.1 ADJ.: automatic parameter following calibration.

TIME PULSES ON 1 ML PROD.2 ADJ.: automatic parameter following calibration.

TIME FOR INTRODUCTION OF 100 ML PROD.2 ADJ.: automatic parameter following calibration.

No. PULSES ON 1 ML PROD.3 ADJ.: automatic parameter following calibration.

TIME FOR INTRODUCTION OF 100 ML PROD.3 ADJ.: automatic parameter following calibration.

By pressing the "back arrow" key you return to the second page of the pumps menu (page 2/3).

13/11/18		12:08
SETTING		
PUMPS		
OFF TIME WASH PUMP	– 99	+
COLD WATER CHARGING FOR DRYING	– 0	+
PULSES/ML ADJUSTMENT CHEMICAL PRODUCTS	– 0.10	+
REG. PULSES N° ON 1ML OF PROD. 1	– 2.630	+
TIME REG. TO FILL 100ML OF PROD. 1	– 94	+
REG. PULSES N° ON 1ML OF PROD. 2	– 2.180	+
TIME REG. TO FILL 100ML OF PROD. 2	– 91	+
REG. PULSES N° ON 1ML OF PROD. 3	– 1.879	+
TIME REG. TO FILL 100ML OF PROD. 3	– 33	+
←	PAG 2/3	→

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SERVICE / SETTING / PUMPS (3/3)

No. PULSES ON 1 ML PROD.4 ADJ.: automatic parameter following calibration.

TIME FOR INTRODUCTION OF 100 ML PROD.4 ADJ.: automatic parameter following calibration.

No. PULSES ON 1 ML PROD.5 ADJ.: automatic parameter following calibration.

TIME FOR INTRODUCTION OF 100 ML PROD.5 ADJ.: automatic parameter following calibration.

By pressing the "back arrow" key you return to the second page of the pumps menu (page 2/3).

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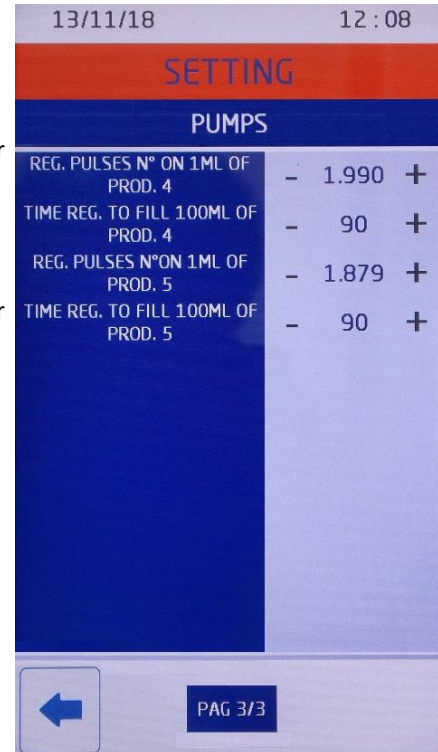
SERVICE / SETTING / REGENERATION

PAUSE TIME DURING REGENERATION: sets the pause time to allow the resins block to regenerate (normally set to 600 seconds).

LOADING WATER FOR REGENERATION TIME: sets the time for the passage of water with salt through the resins. (normally set to 100 seconds).

LOADING WATER FOR REGENERATION RINSING TIME: sets the time for resins rinsing, to remove the excess salt (normally set to 100 seconds).

By pressing the "back arrow" key you return to the second page of the SETTING menu (page 2/4).
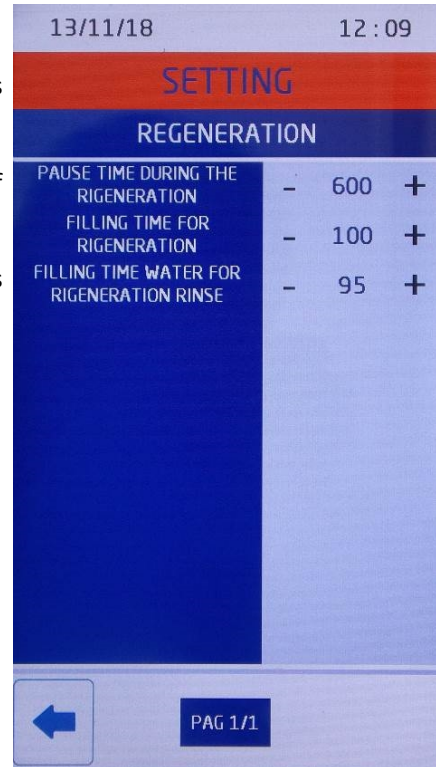
SERVICE / SETTING / ENABLES (1/3)

LOOP TEST: disabled

ALCALINE DET. FLOW METER: enables the flow meter of the liquid of product 1

ACID DET. FLOW METER: enables the flow meter of the liquid of product 2

LUBRICANT FLOW METER: enables the flow meter of the liquid of product 3

DISINFECTANT FLOW METER: enables the flow meter of the liquid of product 4

PRODUCT 5 FLOW METER: enables the flow meter of the liquid of product 5

By pressing the "back arrow" key you return to the second page of the SETTING menu (page 2/4). By pressing the "forward arrow" key you proceed with the submenus of the enabling menu (page 2/3).
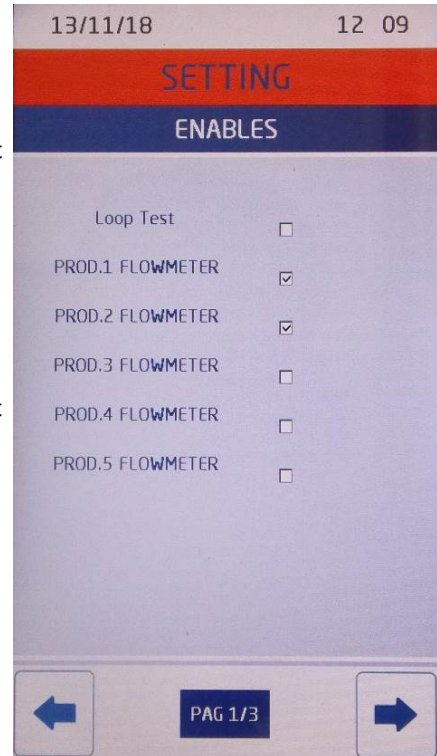
SERVICE / SETTING / ENABLES (2/3)

In this screen you can disable or enable any alarm.

WARNING! DO NOT DISABLE ANY ALARM WITHOUT THE CONSENT OT THE MANUFACTURER. MISUSE OF THIS WINDOW MIGHT DAMAGE THE MACHINE BEYOND REPAIR.

By pressing the "back arrow" key you return to the first page of the enabling menu (page 1/3). By pressing the "forward arrow" key you proceed with the submenus of the enabling menu (page 3/3).
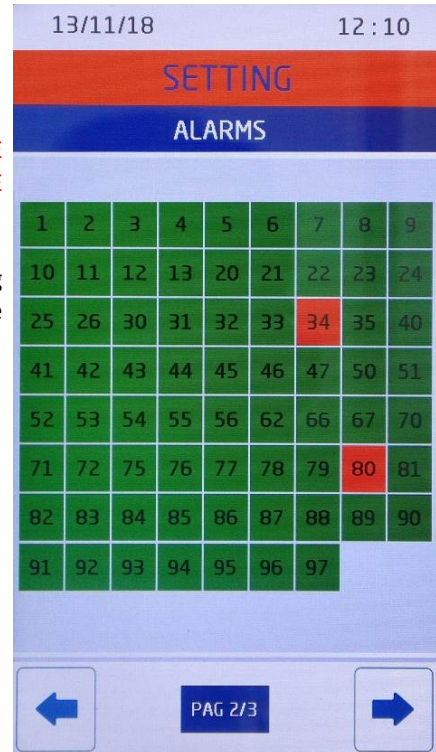
SERVICE / SETTING / ENABLES (3/3)

In this window, you can disable or enable the display of the curves of the following temperature detectors that appear in the graph during the program.

PT1000 WORK: if unchecked, does not appear in the graph of temperature curves.

PT1000 CONTROL: if unchecked, does not appear in the graph of temperature curves.

PT1000 AIR: if unchecked, does not appear in the graph of temperature curves.

NTC BOILER 1: if unchecked, does not appear in the graph of temperature curves.

NTC BOILER 2: if unchecked, does not appear in the graph of temperature curves.

A0: if unchecked, does not appear in the graph of temperature curves.

By pressing the "back arrow" key you return to the second page of the enabling menu (page 2/3).
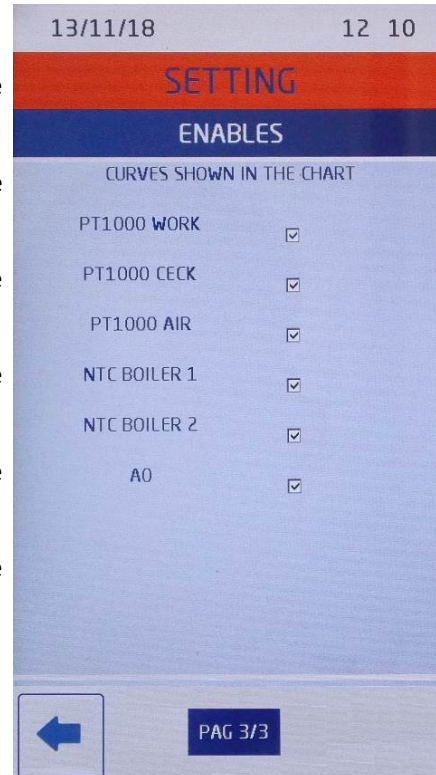
SERVICE / SETTING / BOILER (1/3)

ENABLE BOILER 1: boiler 1 is enabled by selecting this box.

ENABLE BOILER 2: boiler 2 is enabled by selecting this box.

ENABLE COLD WATER BOILER 1: boiler 3 is enabled by selecting this box.

BOILER 1 OFF TEMPERATURE (°C): sets the temperature value that the water inside boiler 1 reaches during the program.

O10M2 ADVANCE OPENING TIME RESPECT TO PHASE: sets the solenoid valve opening time for loading the boiler 2 (purified) in advance of the start of the drying phase.

MAX BOILER 1 LOADING TIME: sets the max time for boiler 1 loading.

MAX BOILER 1 1°C INCREASE TIME (S): sets the maximum time for the increment of 1°C of boiler 1.

MAX BOILER 1 DRAIN TIME: sets the max time for boiler 1 drain.

MAX BOILER 1 TEMPERATURE: sets the max temperature that can be detected inside boiler 1.

BOILER 1 DRAIN TIME: sets the time required for boiler 1 drain.
By pressing the "back arrow" key you return to the second page of the SETTING menu (page 2/4). By pressing the "forward arrow" you proceed to the second page of the boiler menu (2/3)

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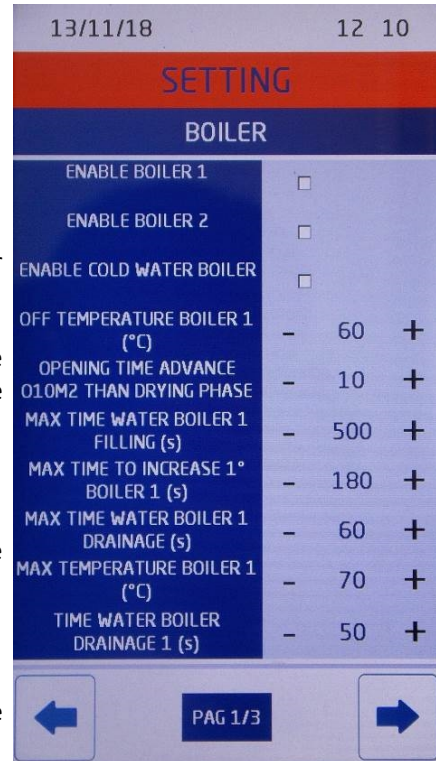
EINSTELLUNGEN→ BOILER (2/3)

BOILER 1 HYSTERESIS TEMPERATURE: sets boiler 1 hysteresis temperature

BOILER 1 STANDBY TEMPERATURE OFF: sets the temperature boiler 1 must reach during machine standby.

MAX BOILER 2 LOADING TIME: sets the maximum time for boiler 2 loading.

MAX BOILER 2 1°C INCREASE TIME (S): sets the maximum time for the increment of 1°C of boiler 2.

MAX BOILER 2 DRAIN TIME: sets the max time for boiler 2 drain in tank.

MAX BOILER 2 TEMPERATURE: sets the max temperature that can be detected inside boiler 2

BOILER 2 DRAIN TIME: sets the time for boiler 2 drain

BOILER 2 HYSTERESIS TEMPERATURE: sets boiler 2 hysteresis temperature

BOILER 2 STANDBY TEMPERATURE OFF: sets the temperature boiler 2 must reach during machine standby.
BOILER STANDBY TIME (HOURS): sets the time for wich the boilers must remain pre-heated during machine standby.
By pressing the "back arrow" key you return to the first page of the boiler menu (page 1/3). By pressing the "forward arrow" you proceed to the third page of the boiler menu (3/3)

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EINSTELLUNGEN→ BOILER (3/3)

ADDITIONAL H20 LOADING TIME: sets the additional time for loading the boiler after the level 1 probe (upper) has detected water.

BOILER 3 DRAIN TIME: sets the time for boiler 3 drain.

MAX BOILER 3 DRAIN TIME: sets the maximum time for boiler 3 drain.

By pressing the "back arrow" key you return to the second page of the boiler menu (page 2/3).

48
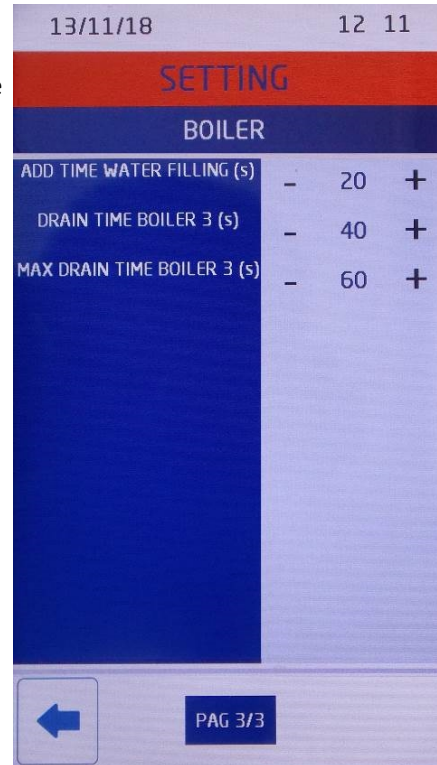
SERVICE / SETTING / SPRAY ARMS (1/3)

In this screen you can set the time, for every spray arm, in which they must make 5 rotations. If one or more spray arms do not make 5 rotations in the set time, they will be indicated on the display with a yellow dot.

By pressing the "back arrow" key you return to the second page of the SETTING menu (page 2/4). By pressing the "forward arrow" you proceed to the second page of the spray arms menu (2/3)

13/11/18	12 11
SETTING	
SPRAY ARMS	

MAX TIME 5 PULSES (s)

L. A	–	10	+
5	–	7	+
4	–	7	+
3	–	7	+
2	–	7	+
1	–	7	+
L.B	–	10	+

← PAG 1/3 →
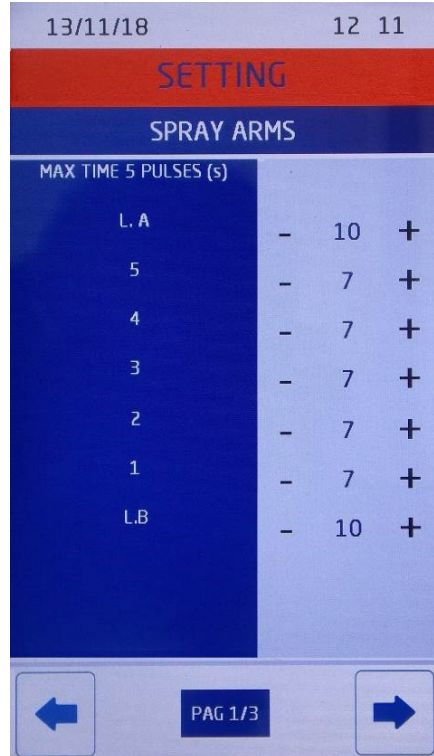
SERVICE / SETTING / SPRAY ARMS (2/3)

In this screen you can set the maximum time for detecting a rotation for each individual spray arm. If this time is exceeded, the alarm appears.

By pressing the "back arrow" key you return to the first page of the spray arms menu (page 1/3).

By pressing the "forward arrow" you proceed to the third page of the spray arms menu (3/3)

13/11/18	12 11
SETTING	
SPRAY ARMS	
MAX TIME 1 PULSE (s)	
L. A	− 10 +
5	− 10 +
4	− 10 +
3	− 10 +
2	− 10 +
1	− 10 +
L.B	− 10 +
←	PAG 2/3 →
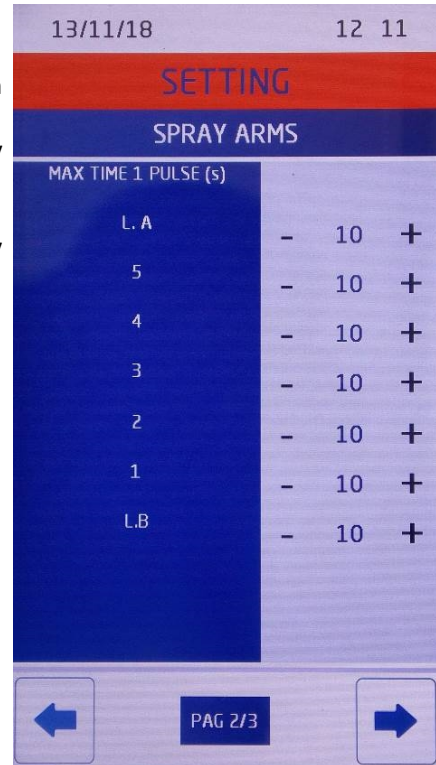
SERVICE / SETTING / SPRAY ARMS (3/3)

ALARM SPRAY ARMS SENSOR: if checked, the alarm is triggered even when one or more spray arms rotate slower (yellow dot)

SPRAY ARMS 5 ENABLE: if checked, control of spray arm 5 is enabled.

ENABLE COLD WATER BOILER: if checked, control of boiler 3 is enabled.

DELAY SPRAY ARMS CONTROL: sets the spray arms control delay time (to allow the pump to circulate the water evenly).

TIME SPRAY ARM SCREEN: sets the time for displaying the message to carry out the spray arms cleaning. If the yellow dot is displayed on a spray arm and remains on the display for more than the time set, a message appears at the end of the cycle, indicating to clean
up that spray arm that rotated slowly.

By pressing the "back arrow" key you return to the second page of the spray arms menu (page 2/3).

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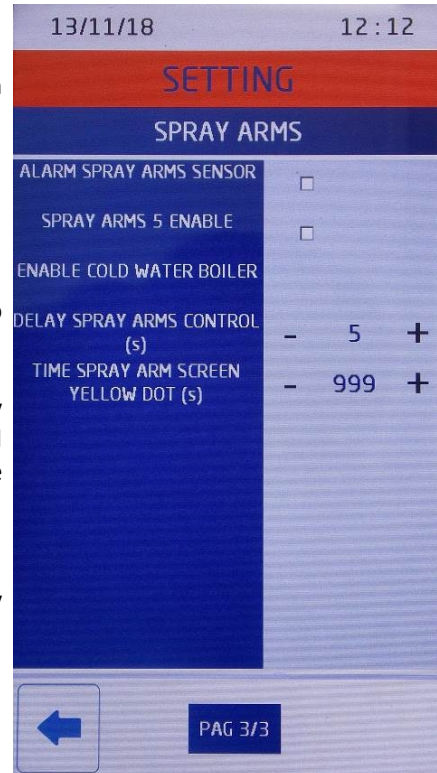
SERVICE / SETTING / BASKET SPRAY ARMS

In this window you can enable control of specific spray arms on specific trolleys.
L.B.: low spray arm
L.A.: high spray arm

By pressing the "back arrow" key you return to the third page of the SETTING menu (page 3/4).
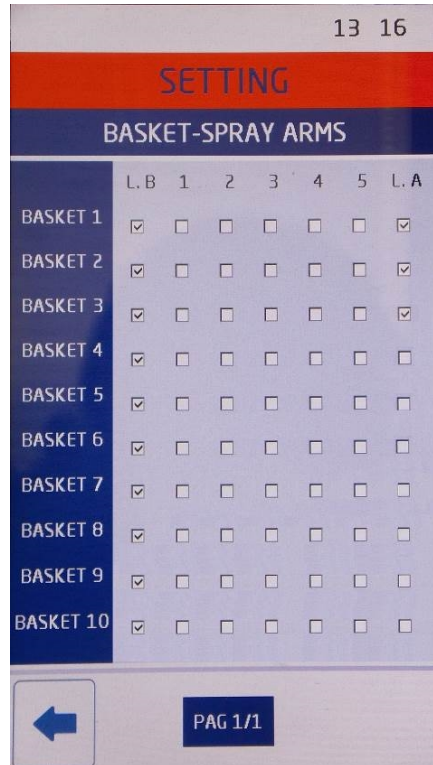
SERVICE / SETTING / AUTOMATIC DOORS

DOOR OPENING WITH CART: if checked, the machine will not open the doors until the trolley caddie, used to load and unload the trolley, is not positioned and fastened on the machine.

DOORS AUTOMATION: if checked, the door will automatically open at cycle end without the need for the operator to press the "open doors" key

MAX TIME OPENING AND CLOSING DOORS (s): sets the maximum time for opening or closing of the automatic doors.

DIFFERENCE TIME HANDLING PORT 1 AND 2: it is the time which passes between the closing of the drain door and the opening of the loading door.

By pressing the "back arrow" key you return to the third page of the SETTING menu (page 3/4).

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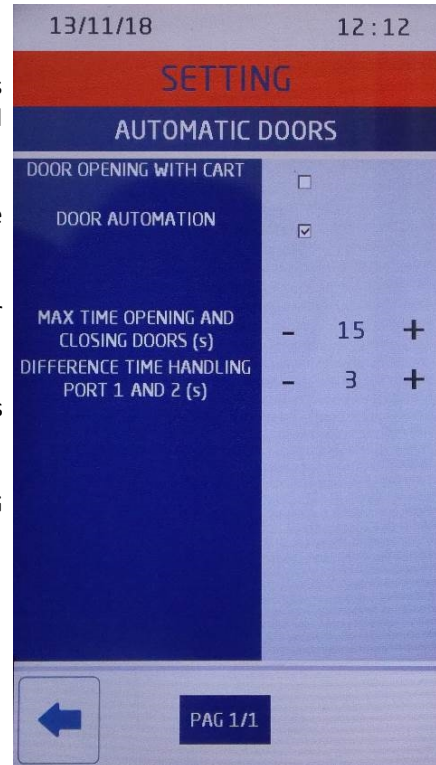
SERVICE / SETTING / CALIBRATION PROBES

In this window you can calibrate the tank PT1000 probes. To calibrate, enter the TEST IN-OUT mode and (with doors closed) load the water, turn on the washing pumps (with a 5 or 6 levels trolley possibly) and activate the tank heating elements. Bring the temperature to 90°C and calibrate with the certified external instrument, inside this screen.

OFFSET PROBE CHAMBER 1: set a value so that the value measured by the probe is equal to the value measured with the external measuring instrument.

OFFSET PROBE CHAMBER 2: set a value so that the value measured by the probe is equal to the value measured with the external measuring instrument.

AIR PROBER OFFSET: not used

By pressing the "back arrow" key you return to the fourth page of the SETTING menu (page 4/4).
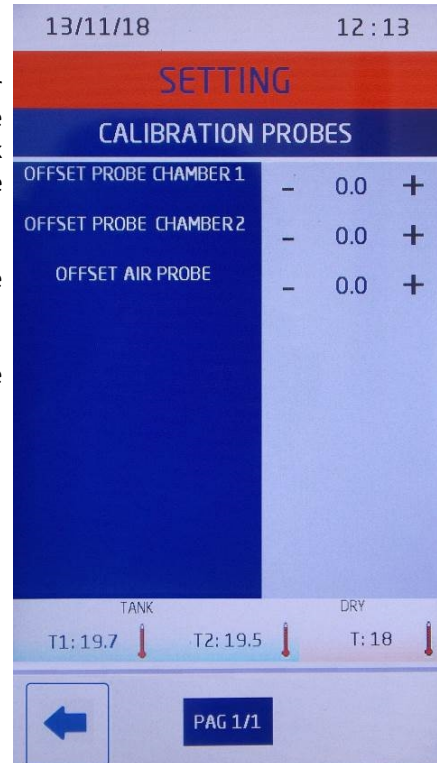
SERVICE / CALIBRATION LIQUID CHEMICALS

In the first half of the window we have the option (by pressing on its pump) to make it active and fill the hydraulic circuit to prepare it to the correct calibration. The second half of the window lists the 5 pumps. Once the product 1 hose has been removed from the rubber holder connected into the tank and has been placed inside the becker, you can press the "Pump 1" key to initialise the calibration of prod.1. Once 100ml have been loaded into the becker, you must press again the "Pump 1" key to end the calibration phase. Perform the same procedure if you need to calibrate the other chemicals. The right column shows whether for that type of product flow control is active (YES= active flow meter).

By pressing the "back arrow" key you return to the fourth page of the SETTING menu (page 4/4).
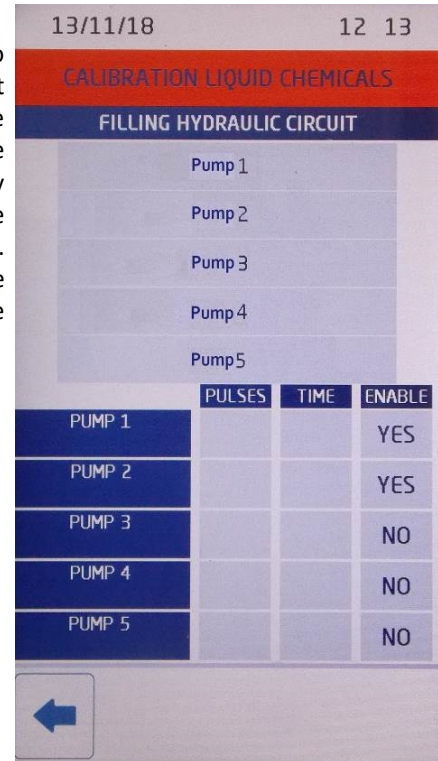
SERVICE / TEST IN OUT / INPUT

In this screen you can check the status of the inputs connected to the electronic cards. Scroll with the pages to see all the inputs. The temperatures measured by the machine probes are always displayed at the bottom.

By pressing the "back arrow" key you return to the service screen.

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SERVICE / TEST IN OUT / OUTPUT

In this screen you can enable and disable the utilities connected to the machine, such as: pumps, solenoid valves, heating elements, etc...

Before doing so, you have to select the top box where there is the TEST box. Scroll with the pages to see all the outputs.

WARNING! THESE DEVICES ARE CONTROLLED BY THE USER. IMPROPER USE OF THIS FEATURE MAY DAMAGE THE MACHINE, WHICH IS WHY THE USE OF THIS FUNCTION IS PERMITTED ONLY TO TECHNICAL EXPERTS. ONCE COMPLETED ANY TEST, REMEMBER TO SELECT THE BOX "NORMAL" TO EXIT THE TEST MODE.

By pressing the "back arrow" key you return to the service screen.-Fenster zurück.
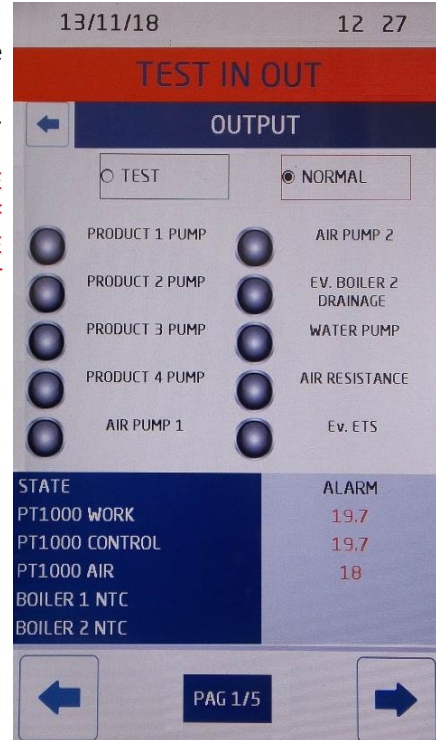
SERVICE / REPORT (1/2)

In this screen you can save them in PDF format on a USB flash drive some information.

PROGRAMS: you can save the programs installed on the machine in PDF format

PARAMETERS: you can save the parameters installed on the machine in PDF format.

CYCLES REPORT: you can save the report with the data of the cycles Carried out up to this moment.

CERTIFICATION: you can carry out the temperature test.

By pressing the "back arrow" key you return to the service screen. By pressing the "forward arrow" you proceed to the second screen of the report menu.

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SERVICE / REPORT / PROGRAMS

This screen displays the program, and you can save it in PDF format on a USB flash drive by pressing the "USB flash drive" key.

By pressing the "back arrow" key you return to the service screen.

By pressing the "forward arrow" key move to the display of the next program.
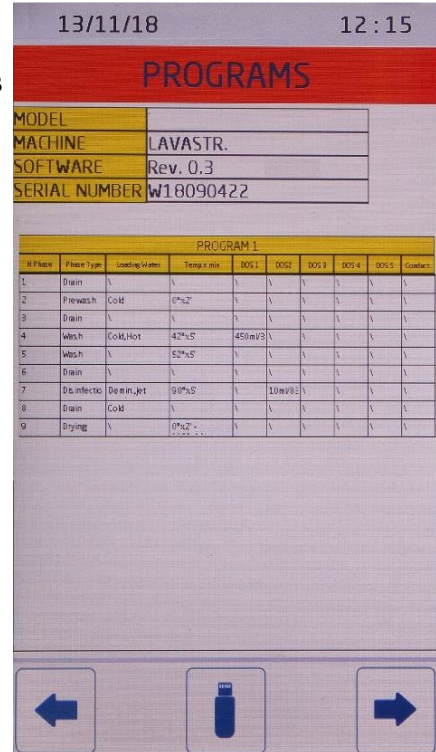
SERVICE / REPORT / PARAMETERS

This screen displays the parameters, and you can save them in PDF format on a USB flash drive by pressing the "USB flash drive" key.

By pressing the "back arrow" key you return to the service screen.

By pressing the "forward arrow" key move to the display of other parameters.
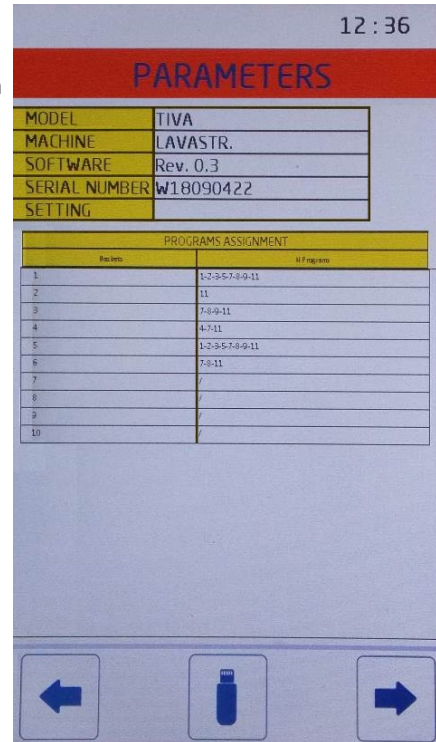
SERVICE / REPORT / REPORT CYCLE

In this screen you can download the report of the cycles carried out until that moment.

Pressing the key [icon] creates a file with the list of programs carried out up to this moment.

Once pressed the key [icon] you need to wait a couple of minutes for the creation of the file containing the data of all cycles carried out.
You can then press the "USB flash drive" key to save the PDF file in the flash drive.

Each time you press the key [icon] you create a different file: they are found in the left column and are saved with the creation date month_day_year).

By pressing the "back arrow" key you return to the service screen.

REPORT CYCLE

11_7_18.aud
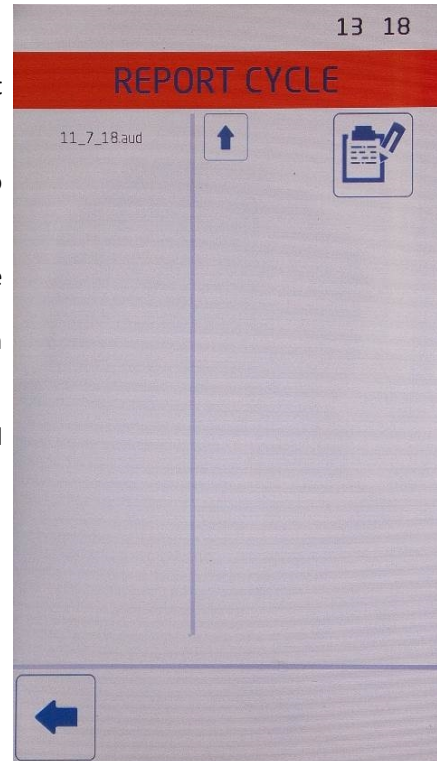
SERVICE / REPORT / CERTIFIED

In this screen you can start a program to carry out the AtosTemperature test. The PDF file with the main data and curves of temperature measured by the PT1000 probes will be created at the end of the program. You can set the main parameters with the "SETTING" key:
- Operator name
- External measuring instrument
- Place of the test
- Additional notes

By pressing the "back arrow" key you return to the service screen.
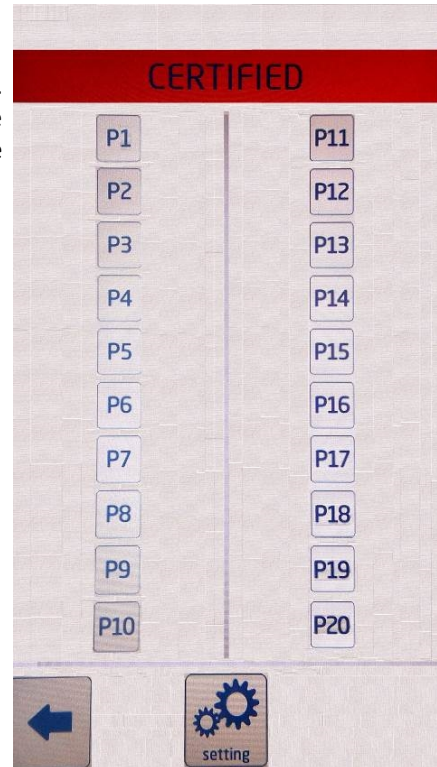
SERVICE / REPORT (2/2)

In the menu you can display the list of all alarms that have occurred so far in the machine.

By pressing the "back arrow" key you return to the service screen.
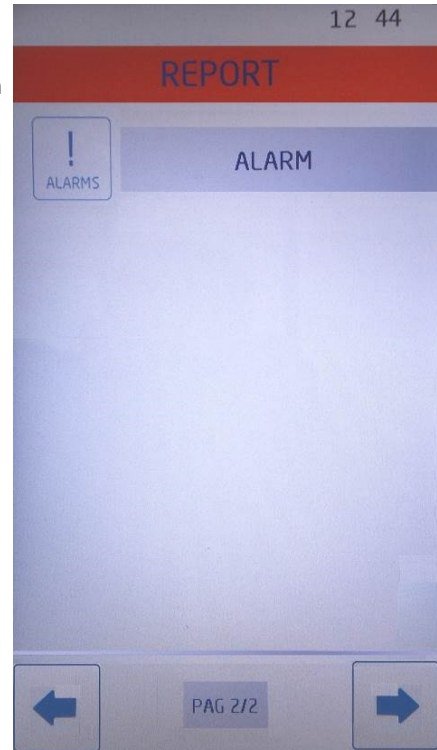
SERVICE / INFO BOARD (1/2)

With the key [info Board] in the service menu you can see information about the machine and the electronic cards installed.

By pressing the "back arrow" key you return to the "service"
screen. By pressing the "forward arrow" you enter the second screen of the "card info" menu
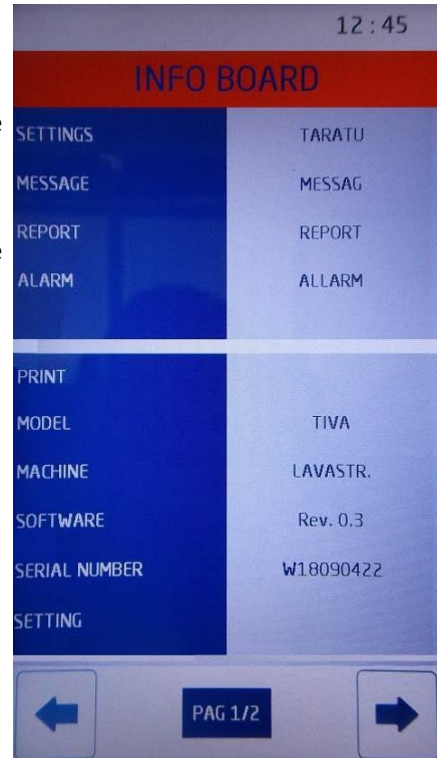
SERVICE / INFO BOARD (2/2)

The second "Card info" screen displays the data of the cards installed in the machine.

By pressing the "back arrow" key you return to the first screen of the "card info" menu.
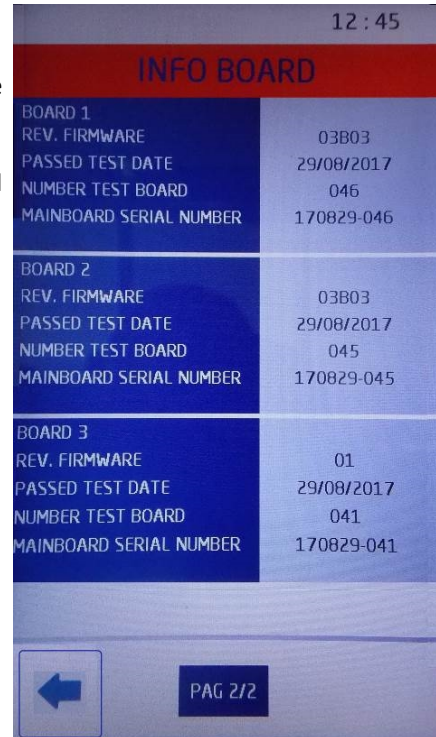
3   INSTRUMENT WASHER PARAMETERS:

This table shows the parameters of the machine only accessible to technicians - entering a password.

REF.	DESCRIPTION	UNIT	DEFAULT	RANGE
1.01	Max time required for loading area door unit closing	Seconds	8	0-99
1.02	Max time required for unloading area door unit closing	Seconds	8	0-99
1.03	Max time required for loading area door unit opening	Seconds	8	0-99
1.04	Max time required for unloading area door unit opening	Seconds	8	0-99
1.05	Max time required for water flow meters single-pulse detection	Seconds	5	0-99
1.06	Max waiting time for 18L hot + cold water fill the tank	Seconds	350	0-999

1.07	Max waiting time for 18L cold + purified water fill the tank	Seconds	350	0-999
1.08	Max waiting time for 18L hot + purified water fill the tank	Seconds	350	0-999
1.09	Max time required for chemicals one pulse detection	Seconds	20	0-99
1.10	Max draining time	Seconds	80	0-999
1.11	Maximum draining time with cold water load	Seconds	90	0-999
1.12	Alarm 23 time delay	Seconds	15	0-99
1.13	Drying minimum temperature	°C	50	0-99
1.14	Maximum temperature for tank pre-wash	°C	80	0-99
1.15	Tank maximum temperature	°C	102	0-999
1.16	Air probe maximum temperature	°C	162	0-999
1.17	Minimum temperature for maximum difference control between the two PT1000 probes in the tank	°C	80	0-99
1.18	Maximum temperature difference between the two PT1000 probes in the tank	°C	2	0-99
1.19	Maximum time for 1° C increase in the tank	Seconds	300	0-999
1.20	Alarm 70 and 72 time delay	Seconds	5	0-99
1.21	Product 1 flow meter pulses	Pulses	20	0-999
1.22	Product 2 flow meter pulses	Pulses	20	0-999
1.23	Product 3 flow meter pulses	Pulses	20	0-999
1.24	Product 4 flow meter pulses	Pulses	20	0-999
1.27	Alarm 71 time delay	Seconds	5	0-99
1.28	Pause time during regeneration	Seconds	600	0-999
1.29	Loading time for regeneration water	Seconds	120	0-999
1.30	Loading time for regeneration rinse water	Seconds	60	0-999
1.31	Maximum waiting time for cold water loading	Seconds	400	0-999
1.32	Maximum waiting time for hot water loading	Seconds	400	0-999

1.33	Maximum waiting time for purified water loading	Seconds	350	0-999
1.34	Cold water flow meter pulses	Pulses	1440	0-9999
1.35	Hot water flow meter pulses	Pulses	1440	0-9999
1.36	Purified water flow meter pulses	Pulses	1440	0-9999
1.37	Maximum number of cycles with product 1 nozzle contact open	No. of cycles	10	0-99
1.38	Maximum number of cycles with product 2 nozzle contact open	No. of cycles	10	0-99
1.39	Maximum number of cycles with product 3 nozzle contact open	No. of cycles	10	0-99
1.40	Maximum number of cycles with product 4 nozzle contact open	No. of cycles	10	0-99
1.41	Alarm 40 time delay	Seconds	10	0-99
1.42	Opening temperature of the solenoid valve jet on condenser during disinfection	°C	80	0-99
1.43	Closing temperature of the solenoid valve jet on condenser during disinfection	°C	91	0-99
1.44	Regeneration with salt (French degrees/number indicating how many times the cold water valve opens):	Number	7	1-11
1.45	Number of regenerations before salt refill	Number	8	1-20
1.46	Product 1 flow meter time	Seconds	10	0-99
1.47	Product 2 flow meter time	Seconds	10	0-99
1.48	Product 3 flow meter time	Seconds	10	0-99
1.49	Product 4 flow meter time	Seconds	10	0-99
1.50	Air pump off time at low speed (intermittent)	Seconds	1	0-99
1.51	Air pump on time at low speed (intermittent)	Seconds	4	0-99
1.52	Air pump total intermittent time at low speed	Seconds	120	0-999
1.53	Hysteresis	°C	2	0-99
1.54	Select a program starting mode (0: Manual, 1: Basket recognition; 2: Manual - Basket recognition)	Number	7	1-11

1.55	Water pump on time, loading phase (intermittent)	Seconds	4	0-99
1.56	Water pump off time, loading phase (intermittent)	Seconds	8	0-99
1.57	Printer enabling (0=off; 1=on)	Number	1	0-1
1.58	End of cycle buzzer (0=off; 1=on)	Number	1	0-1
1.59	Alarm warning buzzer (0=off; 1=on)	Number	1	0-1
1.60	Button pressure buzzer (0=off; 1=on)	Number	1	0-1
1.61	Language selection (1,2,3,4,5,6,7,8)	Number	1	1-8
1.62	Restoring mode after an alarm or after a power failure (0= the program resumes operation starting again the phase during which it was interrupted, 1= the program starts from the beginning; 2= the program restarts exactly where it was interrupted; 3= the program does not restart and remains set to standby mode).	Number	0	0-3
1.63	Program selected in position 1 (P1 keyboard)	Number	10	1-40
1.64	Program selected in position 2 (P2 keyboard)	Number	11	1-40
1.65	Program selected in position 3 (P3 keyboard)	Number	12	1-40
1.66	Number of cycles to perform scheduled maintenance	Cycles	500	0-9999
1.67				
1.68	Jet condenser solenoid valve opening time	Seconds	60	0-999
1.69	Liquid product 1 inlet time	°C	45	0-99
1.70	Liquid product 2 inlet time	°C	45	0-99
1.71	Liquid product 3 inlet time	°C	45	0-99
1.72	Liquid product 4 inlet time	°C	45	0-99
1.73	Pre-washing time	Seconds	120	0-999
1.74	Washing time	Seconds	60	0-999
1.75	Rinse time	Seconds	30	0-999
1.76	Disinfection time	Seconds	60	0-999

1.77				
1.78	Delay time for washing tank heating elements activation	Seconds	30	0-999
1.79	Delay time for washing tank heating elements activation	Seconds	30	0-999
1.80	Delay time for disinfection tank heating elements activation	Seconds	30	0-999
1.81	Drain solenoid valve time on	Seconds	10	0-999
1.82	Drain solenoid valve time off	Seconds	1	0-999
1.83	Advance opening time of the drain solenoid valve with respect to pump shut-down	Seconds	5	0-999
1.84	Cold water loading time at drain solenoid valve opening	Seconds	25	0-999
1.85	Air pump pause time	Seconds	20	0-999
1.86	Air pump activation in continuous mode and at maximum power v = 2800rpm	Minutes	11	0-9999
1.87	Air heating element temperature difference at shut-down compared to average	°C	20	-50/200
1.88	Air heating element temperature difference at start-up compared to average	°C	-20	-50/200
1.89	Air heating element average temperature	°C	100	0-200
1.90	Pre-washing temperature	°C	0	0-99
1.91	Washing temperature	°C	60	0-99
1.92	Rinse temperature	°C	0	0-99
1.93	Disinfection temperature	°C	90	0-99
1.94	Absence of purified water, load cold water. (0=no; 1=yes)	Number	0	0-1
1.95	Absence of hot water, cold water load instead. (0=no; 1=yes)	Number	0	0-1
1.96	Liquid product 1 maximum loading time	Seconds	30	0-999
1.97	Liquid product 2 maximum loading time	Seconds	30	0-999
1.98	Liquid product 3 maximum loading time	Seconds	30	0-999
1.99	Liquid product 4 maximum loading time	Seconds	30	0-999

2.00	Highest temperature measured exceeding the temperature set on each phase	°C	10	0-99
2.01	Programs enabled with basket 1	Number	1.810	0-40
2.02	Programs enabled with basket 2	Number	1,2,3,14,15,16	0-40
2.03	Programs enabled with basket 3	Number	6,9,17	0-40
2.04	Programs enabled with basket 4	Number	20	0-40
2.05	Programs enabled with basket 5	Number	1,2,3,4,5,6,7,8,19	0-40
2.06	Loop mode devices time on	Seconds	10	0-9999
2.07	Loop mode devices time off	Seconds	10	0-9999
2.08	Liquid product 1 millilitres	Ml	10	0-999
2.09	Liquid product 2 millilitres	Ml	10	0-999
2.10	Liquid product 3 millilitres	Ml	10	0-999
2.11	Liquid product 4 millilitres	Ml	10	0-999
2.12	1 L of water pulse number adjustment	Pulses	80	0-9999
2.13	10 ml of liquid product 1 number of pulses adjustment	Pulses	20	0-9999
2.14	10 ml of liquid product 2 number of pulses adjustment	Pulses	20	0-9999
2.15	10 ml of liquid product 3 number of pulses adjustment	Pulses	20	0-9999
2.16	10 ml of liquid product 4 number of pulses adjustment	Pulses	20	0-9999
2.17	Quantity of cold water in the tank	L	18	0-999
2.18	Quantity of hot water in the tank	L	18	0-999
2.19	Quantity of purified water in the tank	L	18	0-999
2.20	Time adjustment for 10 ml liquid product inlet	Seconds	5	0-999
2.21	Cold water loading for drying	L	8	0-999
2.22	Maximum time of "opposite position" between the contacts of the boiler 2 level probes	Seconds	5	0-999
2.23	Boiler heating element off temperature	°C	90	0-99
2.24	Boiler heating element on temperature	°C	85	0-99
2.25	Machine name	Characters		20car (AZ; 0-9)

2.26	Air heating element activation delay time	Seconds	5	0-99
2.27	A0 min value	Number	3000	0-65000
2.28	Alarm 6 time delay	Seconds	3	0-999
2.29	Alarm 2 initial delay time	Seconds	2	0-99
2.30	Tank light on time	Seconds	60	0-999
2.31	Boiler drain time	Seconds	20	0-999
2.32	Boiler added water	Seconds	10	0-99
2.33	Boiler unloading maximum time	Seconds	20	0-999
2.34	Boiler 1°C increase maximum time	Seconds	120	0-999
2.35	Boiler water loading maximum time	Seconds	60	0-999
2.36	Additional water loading time	Seconds	1	0-99
2.37	Boiler maximum temperature	°C	98	0-99
2.38	Rotor 1 probe 5 pulses max time	Seconds	4	0-999
2.39	Rotor 2 probe 5 pulses max time	Seconds	4	0-999
2.40	Rotor 3 probe 5 pulses max time	Seconds	4	0-999
2.41	Rotor 4 probe 5 pulses max time	Seconds	4	0-999
2.42	Rotor 5 probe 5 pulses max time	Seconds	4	0-999
2.43	Rotor 6 probe 5 pulses max time	Seconds	4	0-999
2.44	Max time between rotor 1 one pulse and the subsequent	Seconds	10	0-999
2.45	Max time between rotor 2 one pulse and the subsequent	Seconds	10	0-999
2.46	Max time between rotor 3 one pulse and the subsequent	Seconds	10	0-999
2.47	Max time between rotor 4 one pulse and the subsequent	Seconds	10	0-999
2.48	Max time between rotor 5 one pulse and the subsequent	Seconds	10	0-999
2.49	Max time between rotor 6 one pulse and the subsequent	Seconds	10	0-999
2.50	Air heating element activation time	Seconds	600	0-9999

2.51	Rotor probes alarm settings (1= alarm 80 when the rotor, to send 5 pulses to the card, takes more time than the set one at ref. 2:38 - 2:39 - 2:40 - 2:41 - 2:42 - 2:43; 0= alarm 80 when between a rotor pulse and the other more time than that set is passed at ref. 2:44 - 2:45 - 2:46 - 2:47 - 2:48 to 2:49). If the probes of the rotors are disabled the alarm must not occur.	Number	0	0-1
2.52	Repeated rinses with dirty water	Number	3	0-999
2.53	Maximum conductivity value	Number	20	0-999
2.54	Rotor management delay	Seconds	10	0-99
2.55	Pass-through mode for every cycle	Value	On	On-off
2.56	Rotor time screen yellow dot	Seconds	30	0-99
2.57	Max control L amount	L	17.5	0-99
2.58	Min control L amount	L	16.5	0-99
2.59	LAN network lifetime	Seconds	100	0-99
2.60	Enable conductivity probe	Value	Off	On-off
2.61	Addition time product	Seconds	10	0-99
2.62	ml more than the set value	ml	1	0-99
2.63	Max time 1 pulse in calibration	Seconds	5	0-99
2.64	Pulse/ml adjustment	Value	1	1-100
2.65	Timeout product calibration	Seconds	80	0-999
2.66	A0 priority	Value	Off	On-off
2.67	T. on drain pump standby	Seconds	10	0-999
2.68	T. off drain pump standby	Minutes	60	0-999
2.69	T. on drain pump regeneration	Seconds	10	0-999
2.70	T. off drain pump regeneration	Seconds	60	0-999
2.71	Drain pump abilitation	Value	Off	On-off
2.72	Dry temperature alarm	°C	90	0-99
2.73	Product timeout	Seconds	60	0-999
2.74	Cooling fan functioning time	Seconds	900	0-9999
2.75	Delay time alarm 47	Seconds	60	0-999

2.76	Drainage pump functioning time with alarm	Seconds	60	0-999
2.77	Off temperature boiler 1	°C	60	0-99
2.78	Hysteresis temperature boiler 1	°C	3	0-99
2.79	Drainage time boiler 1	Seconds	10	0-99
2.80	Drainage time boiler 2	Seconds	10	0-99
2.81	Off temperature boiler 1 standby	°C	50	0-99
2.82	Off temperature boiler 2	°C	85	0-99
2.83	Hysteresis temperature boiler 2	°C	2	0-99
2.84	Off temperature boiler 2 standby	°C	65	0-99
2.85	Max charging time boiler 1	Seconds	120	0-999
2.86	Max charging time boiler 2	Seconds	120	0-999
2.87	Max increasing time 1°C boiler 1	Seconds	120	0-999
2.88	Max increasing time 1°C boiler 2	Seconds	120	0-999
2.89	Max temperature boiler 1	°C	95	0-99
2.90	Max temperature boiler 2	°C	95	0-99
2.91	Time opening in advance than drying phase	Seconds	60	0-999
2.92	Enable boiler 1	Value	0	0-1
2.93	Enable boiler 2	Value	0	0-1
2.94	Time boilers standby	Hour	3	0-99
2.95	Max time drainage boiler 1	Seconds	60	0-999
2.96	Max time drainage boiler 2	Seconds	60	0-999
2.97	Charging time add water for boiler	Seconds	8	0-99
2.98	Single door	Value	Off	On-Off
2.99	Door opening only if there is the release trolley	Value	ON	on - Off
3.00	Door automation	Value	ON	on - Off
3.01	Max time opening/closing/ door	Seconds	20	0-99
3.02	Waste time movement door1/door 2	Seconds	3	1-99
3.03	Drain time boiler 3	Seconds	30	0-99
3.04	Max drain time boiler 3	Seconds	60	0-999
3.05	Time delay relay control voltage reading	Seconds	2	0-99

3.06	Offset tank probe 1	°C	0	-9,9 / +9,9
3.07	Offset tank probe 2	°C	0	-9,9 / +9,9
3.08	Offset air probe	°C	0	-9,9 / +9,9
3.10	Maximum number of cycles with product 5 nozzle contact open	No. of cycles	10	0-99
3.11	Time regulation for 100 ml of prod.5	Seconds	60	0-999
3.12	Max time between 5 pulses of spray arm 7 (spray arm pos.5)	Seconds	4	0-999
3.13	Max time between 2 pulses of spray arm 7 (spray arm pos.5)	Seconds	10	0-999
3.14	Spray arm 5 enable	Boolean	Off	On-Off
3.15	Printer option	Value	Serial	Serial / parallel
3.16	Safety temperature for door opening	°C	85°C	0-99
3.17	Data setting	Valore	Gg/mm/aaaa	Gg/mm/aaaa – mm/gg/aaaa – aaaa/mm/gg
3.18	Pulses on 1 L cold water	impulsi	631	0-9999
3.19	Pulses on 1 L hot water	impulsi	631	0-9999
3.20	Pulses on 1 L demi water	Impulsi	631	0-9999
3.21	Graphic print	Valore	ON	On-Off

4   SOFTWARE UPDATES:

To update the software installed on the touch screen monitor, simply put the file.cab in a USB flash drive, plug the USB flash drive into the slot on the control panel above the touch screen monitor. insert the flash drive while the machine is off. Once inserted the flash drive, simply turn the machine on and wait for loading and installation of the new software on the touch screen. During this procedure, the monitor will show the writing "INSTALLATION".

Your Health, Our Technology

Start
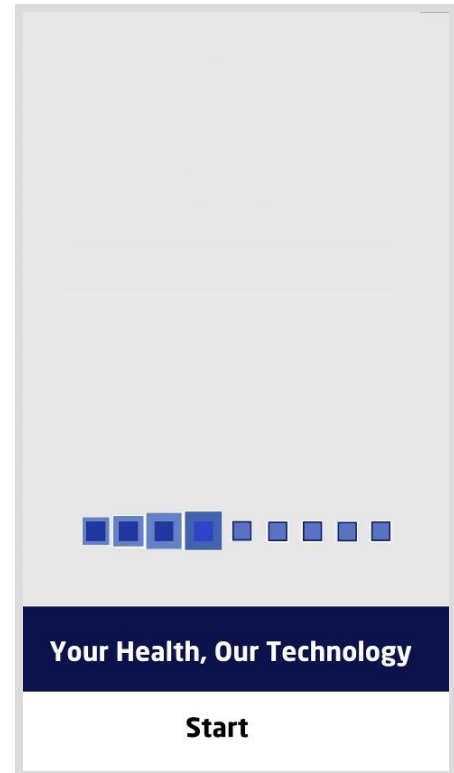
Inside the service menu there are 2 menus to load the dataset and the firmware. By pressing the "DATASET" key a popup window will open, where you can save the program installed on the machine on a USB flash drive and vice versa (install the program from the flash drive to the machine). Furthermore, you can perform a "DEFAULT", that is resetting all the parameters and programs to the factory data.
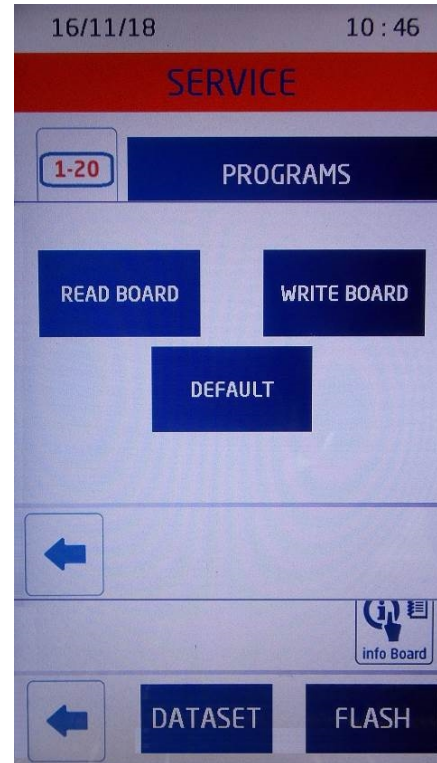
By pressing the "FLASH" key you can install a new firmware (if previously loaded in the USB flash drive). The left screen displays the list with the firmwares available in the USB flash drive.

5   ALARM MESSAGES:

The machine displays any alarm that may occur. At the center of the touch screen monitor is displayed the alarm description.
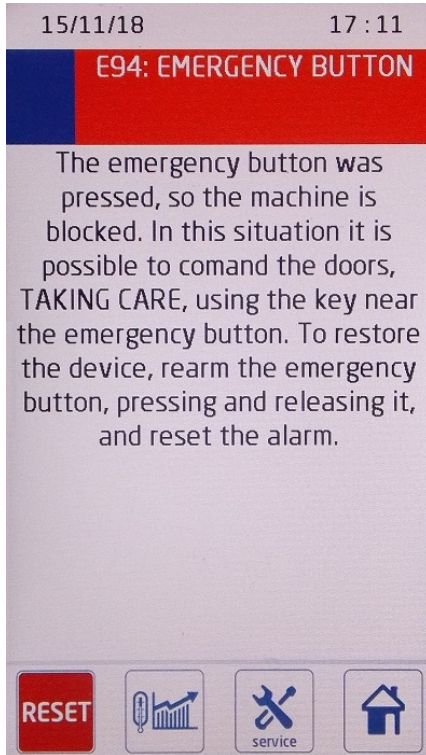
LOAD SIDE DISPLAY   UNLOAD SIDE DISPLAY

ALARM	TITLE	DESCRIPTION
1	Power outage	A blackout occurred during program execution and the program was stopped. Reset the alarm to resume the program previously interrupted.
2	Loading door open	The load door is open and/or unlocked. Reset the alarm. If the problem persists, please contact a technician.
3	Unloading door open	The unloading door is open and/or unlocked. Reset the alarm. If the problem persists, please contact a technician.
4	Loading door locked	The device does not recognize the loading door position. Check the functioning of the door's limits sensors. Reset the alarm. If the problem persists, please contact a technician.
5	Unloading door locked	The device does not recognize the unloading door position. Check the functioning of the door's limits sensors. Reset the alarm. If the problem persists, please contact a technician.
6	Door problem	Both doors are open and/or unlocked. Reset the alarm. If the problem persists please contact a technician

7	L.D. not locked	The loading door did not close within the preset time. Check for the presence of any obstacle on the door's way and reset the alarm. If the problem persists, please contact a technician.
8	U.D. not locked	The unloading door did not close within the preset time. Check for the presence of any obstacle on the door's way and reset the alarm. If the problem persists, please contact a technician.
9	L.D. not unlocked	The loading door did not open within the preset time. Check for the presence of any obstacle on the door's way and reset the alarm. If the problem persists, please contact a technician.
10	U.D. not unlocked	The unloading door did not open within the preset time. Check for the presence of any obstacle on the door's way and reset the alarm. If the problem persists, please contact a technician.
11	Dirty water	The program was interrupted because, after several rinses, an acceptable conductivity value of water was not achieved. Check for the presence of dirt residual on the instruments and check the conductivity value of the network water.
12	Lower panel	The lower panel are open while the door is being used. Check that the lower panels are closed and reset the alarm. If the problem persists, please contact a technician
20	Cold water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
21	Hot water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
22	Purified water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
23	Hot+cold water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
24	Cold+purified water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
25	Hot+purified water failure	The following reasons might have caused the alarm: closed or only partially opened water tap; broken or malfunctioning flowmeter or lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.

26	Printer's paper	The printer ran out of paper. Please insert a new paper roll in the printer or disable the printer itself if you don't have one.
30	Liquid product 1 failure	The following reasons might have caused the alarm: the peristaltic pump and/or the flowmeter of prod.1 might be malfunctioning or broken; the silicone hose might be pinched or perforated or the prod.1 tank might be empty. If the tank is empty, please replace it. Reset the alarm. If the problem persists, please contact a technician.
31	Liquid product 2 failure	The following reasons might have caused the alarm: the peristaltic pump and/or the flowmeter of prod.2 might be malfunctioning or broken; the silicone hose might be pinched or perforated or the prod.2 tank might be empty. If the tank is empty, please replace it. Reset the alarm. If the problem persists, please contact a technician.
32	Liquid product 3 failure	The following reasons might have caused the alarm: the peristaltic pump and/or the flowmeter of prod.3 might be malfunctioning or broken; the silicone hose might be pinched or perforated or the prod.3 tank might be empty. If the tank is empty, please replace it. Reset the alarm. If the problem persists, please contact a technician.
33	Liquid product 4 failure	The following reasons might have caused the alarm: the peristaltic pump and/or the flowmeter of prod.4 might be malfunctioning or broken; the silicone hose might be pinched or perforated or the prod.4 tank might be empty. If the tank is empty, please replace it.
		Reset the alarm. If the problem persists, please contact a technician.
34	Product timeout	The causes can be various: the tube of chemical product is pressed or clogged or the chemical product is too dense.
35	Liquid product 5 failure	The causes are various: the peristaltic pump of product 5 is broken; the flow meter of product 5 is broken; the pipe conveying the liquid has a hole in it and therefore there is a loss of liquid or liquid product 5 tank is empty. If the tank is empty, it must be replaced with a new one. Reset the alarm to resume the program previously interrupted. If the problem persists, call a technician.
40	heating elements inconsistency	There is a problem with the heating elements contactor. Reset the alarm. If the problem persists please contact a technician
41	Drain time	The following reasons might have caused the alarm: the discharge pipe might be clogged or pinched, the dicharge solenoid valve might be closed or broken or the pressure switch might be broken. Reset the alarm. If the problem persists please contact a technician.
42	Air pressure	The following reasons might have caused the alarm: the air pump might be malfunctioning or broken, there may be a leakage inside the air duct or the pressure switch might be broken. Reset the alarm. If the problem persists, please contact a technician.
43	Drying temperature	The following reasons might have caused the alarm: the air heater or the PT1000 temperature probe placed in the air duct may be broken. Reset the alarm. If the problem persists, please contact a technician.

| 44	Max pre-washing T.	The following reasons might have caused the alarm: the contactor of the resistors inside the water tank or the PT1000 temperature probe placed in the washing chamber may be broken. Reset the alarm. If the problem persists, please contact a technician.
45	Tank T. limit	The following reasons might have caused the alarm: the contactor of the resistors inside the water tank or the PT1000 temperature probe placed in the washing chamber may be broken. Reset the alarm. If the problem persists, please contact a technician.
46	Air probe T. limit	The following reasons might have caused the alarm: the air heater contactor or the PT1000 temperature probe placed in the air duct may be broken. Reset the alarm. If the problem persists, please contact a technician.
47	Phase temperature limit	The following reasons might have caused the alarm: the air heater contactor or the PT1000 temperature probe placed in the air duct may be broken. Reset the alarm. If the problem persists, please contact a technician.
50	Tank probe #1 failure	The PT1000 master temperature probe is broken or disconnected. Replace or connect it. Reset the alarm. If the problem persists, please contact a technician
51	Tank probe #2 failure	The PT1000 slave temperature probe is broken or disconnected. Replace or connect it. Reset the alarm. If the problem persists, please contact a technician
52	Air probe failure	The PT1000 air temperature probe is broken or disconnected. Replace or connect it. Reset the alarm. If the problem persists, please contact a technician
53	T. tank control	A temperature difference between the two temperature probes higher than the maximum preset has been detected. Check which temperature probe is damaged and replace it. Reset the alarm. If the problem persists, please contact a technician.
54	Electrical phases	The order of the electrical phases connection is wrong. Try to swap two phases. If the problem persists, please contact a technician
55	Overcharge	An overload occurred. Reset the alarm. If the problem persists, please contact a technician
56	Voltage loss	A blackout occurred. Reset the alarm to resume the program previously interrupted.
62	Micro cards cable	Make sure that micro board 1 and microboard 2 are connected via cable. Reset the alarm. If the problem persists, please contact a technician.
66	No tank heating	There might be an issue with the tank heater. Check for the presence of limescale on the heater and clean it. If the limescale deposit is too thick, replace the heater. Reset the alarm. If the problem persists, please contact a technician.
67	Steam condenser level	The water inside the steam condenser has reached the maximum level allowed. This problem can be caused if the discharge pipe is clogged/pinched or the water level probe inside the condenser is broken. Reset the alarm. If the problem persists, please contact a technician.

70	Chamber washing pump pressure	The following reasons might have caused the alarm: the washing chamber pump might be rotating in the wrong direction, the pressure switch might be damage or there might be foam forming during the washing phases. Reset the alarm. If the problem persists, please contact a technician.
71	Hepa filter clogged	The following reasons might have caused the alarm: the Hepa filter might be clogged or dirty or the pressure switch might be broken. Reset the alarm. If the problem persists, please contact a technician.
72	Trolley washing pump pressure	The following reasons might have caused the alarm: the trolley washing pump might be rotating in the wrong direction, the pressure switch might be damage or there might be foam forming during the washing phases. Reset the alarm. If the problem persists, please contact a technician
75	Liquid product 1 is finished	The device has reached the maximum number of cycles that can be performed with the reserve of prod.1. Please replace prod.1 tank with a new one. Reset the alarm. If the problem persists, please contact a technician.
76	Liquid product 2 is finished	The device has reached the maximum number of cycles that can be performed with the reserve of prod.2. Please replace prod.2 tank with a new one. Reset the alarm. If the problem persists, please contact a technician.
77	Liquid product 3 is finished	The device has reached the maximum number of cycles that can be performed with the reserve of prod.3. Please replace prod.3 tank with a new one. Reset the alarm. If the problem persists, please contact a technician.
78	Liquid product 4 is finished	The device has reached the maximum number of cycles that can be performed with the reserve of prod.4. Please replace prod.4 tank with a new one. Reset the alarm. If the problem persists, please contact a technician.
79	Liquid product 5 is finished	The device has reached the maximum number of cycles that can be performed with the reserve of prod.5. Please replace prod.5 tank with a new one. Reset the alarm. If the problem persists, please contact a technician.
80	Rotor locked	One or more spray arms are blocked. Try to disassemble the arm blocked (indicated by a red dot on display) and clean it. Reset the alarm. If the problem persists, please call a technician.
81	Max charging time boiler 2	The causes can be various: the tap of demineralized water is closed or not entirely open, or for lack of water network.
82	No heating boiler 2	It is a problem in the heater of boiler 2, check if there is some scale around the heating elements. If there is a lot of scale, is necessary to change the heating elements. Reset the alarm to resume the cycle interrupted before. If the problem persist, call a technician.
83	Level error boiler 2	One level sensor of the boiler 2 can be broken. Reset the alarm for resume the program interrupted before. If the alarm persist, call the technician.

84	Level error boiler 1	A boiler1 level probe might be broken. Reset the alarm. If the problem persists, please contact a technician
85	Overheating/overloading	An overheating or an overload occurred. Please seek for technical assistance
86	Boiler 1 maximum temperature	There might be a problem with the boiler heater contactor. Reset the alarm. If the problem persists, please contact a technician.
87	Max boiler 1 loading time	There might be several reasons causing this alarm: the tap of hot water might be closed or only partially opened, the pipes might be clogged or there might be lack of water in the network. Reset the alarm. If the problem persists, please contact a technician.
88	No boiler 1 heating	A problem occurred with the boiler's heating element: check for the presence of limescale on the heating element. If the layer of limescale is very thick, replace the heating element. Reset the alarm to resume the program previously interrupted. If the problem persists, call a technician.
89	No disinfection	The instruments have not been disinfected because the minimum value of disinfection has not been reached. Reset the alarm to resume the program previously interrupted. If the problem persists, call a technician.
90	Boiler 1 error	The causes can be various: the drain pipe of the boiler 1 might be clogged or pressed, or the drainage solenoid valve might be broken or obstructed. Reset the alarm to resume the program interrupted before. If the alarm persists, please call a technician.
91	Boiler 2 error	The causes can be various: the drain pipe of boiler 2 might be clogged or pinched or the drain solenoid valve might be broken or obstructed. Reset the alarm to resume the program interrupted before. If the alarm persists, call a technician.
92	Max temperature boiler 2	There might be a problem with the contactor of the heating elements of boiler 2. Reset the alarm to resume the program interrupted before. If the alarm persists, call a technician.
93	Interrupted program	Warning: the program was manually stopped and instruments may not have been disinfected.
94	Emergency button	The emergency button was pressed, so the machine is blocked. In this situation, it is possible to command the doors, PAYING ATTENTION, using the key near the emergency button. To restore the device it is necessary to rearm the emergency button and reset the alarm.
95	Loading door security	During the movement of the loading door, an obstacle was detected on its path and the door was stopped. Check for the presence of obstacles and remove them. Push and release the emergency button to restore the emergency system. Reset the alarm to resume the machine.
96	Unloading door security	During the movement of the unloading door, an obstacle was detected on its path and the door was stopped. Check for the presence of obstacles and remove them. Push and release the emergency button to restore the emergency system. Reset the alarm to resume the machine.

| 97 | Boiler error 3 | The following reasons might have caused this alarm: the drain hose of boiler 3 might be pinched or clogged or the discharge solenoid valve might be broken. Reset the   alarm. If the problem persists,   please contact a technician. |

6   CYCLE COUNTER:

Connecting the computer to the machine, it is possible to see how many and which programs the machine executed since its installation. The "No. of cycles at control" indicates how many cycles the machine can perform before being subjected to scheduled maintenance.
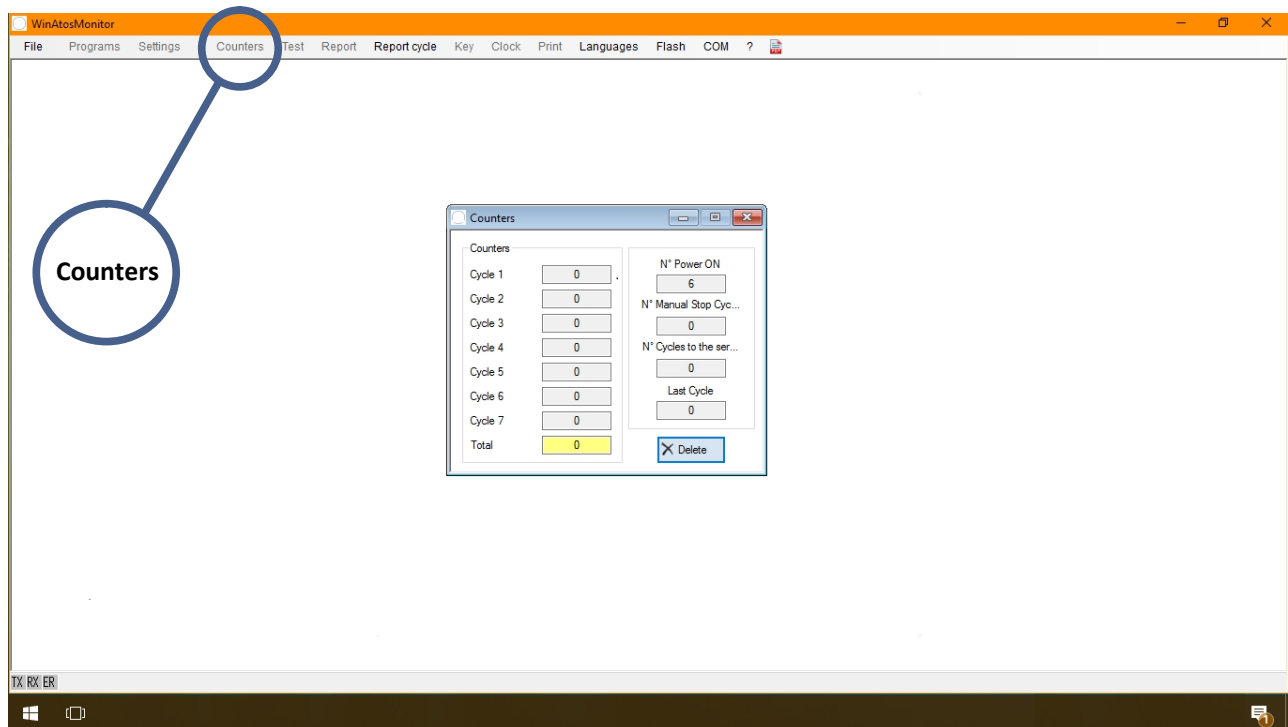
7   DEVICES:

SHEET 1		
INPUT		
NUMBER	DEVICE	CONNECTOR
I1M1	PT1000 1 temperature probe	CN17-2 ; CN17-3
12M1	PT1000 2 temperature probe	CN15-2 ; CN15-3
13M1	Door lock contact closed 1	CN5-1 ; CN5-3
I4M1	Closed door contact 1	CN6-3 ; CN6-1
I5M1	Product 2 flow meter	CN6-5 ; CN10- ; CN10+
I6M1	Product 1 flow meter	CN6-6 ; CN10- ; CN10+
I7M1	Product 4 flow meter	CN6-9 ; CN10- ; CN10+
I8M1	Product 3 flow meter	CN6-8 ;CN10- ; CN10+

| I9M1	Water hoses pressure meter	CN5-2 ; CN5-10
I10M1	HEPA filter pressure meter	CN6-2 ; CN6-10
I11M1	Hot water flowmeter	CN6-7 ; CN10-;CN10+
I12M1	Inserted basket 1 contact	CN14-1 ; CN14-2
I13M1	Inserted basket 2 contact	CN14-3 ; CN14-4
I14M1	Inserted basket 3 contact	CN14-5 ; CN14-6
I15M1	Inserted basket 4 contact	CN14-7 ; CN14-8
I16M1	Inserted basket 5 contact	CN6-1 ; CN6-4
I17M1	Rotor 1 probe	CN5-4 ; CN18-1 ; CN18-2
I18M1	Rotor 2 probe	CN5-5 ; CN18-1 ; CN18-2
I19M1	Rotor 3 probe	CN5-6 ; CN18-1 ; CN18-2
I20M1	Rotor 4 probe	CN5-7 ; CN18-1 ; CN18-2
OUTPUT		
O1M1	Product 1 peristaltic pump	CN13-1 ; CN13-2
O2M1	Product 2 peristaltic pump	CN13-1 ; CN13-3
O3M1	Product 3 peristaltic pump	CN13-1 ; CN13-4
O4M1	Product 4 peristaltic pump	CN13-1 ; CN13-5
O5M1	Relay opening door dirty area	CN12-1 ; CN12-2
O6M1T	Air pump	CN9-1 ; CN9-2
O7M1T/O8M1T	Air pump	CN9-1 ; CN9-3
O9M1T	Water pump	CN9-1 ; CN9-5
O10M1T	Air heating heating element	CN9-1 ; CN9-6
O11M1	ETS solenoid valve	CN12-3 ; CN12-4
O12M1	Boiler solenoid valve	CN9-1 ; CN9-4
O13M1	Tank light	CN11-1 ; CN11-2
O14M1	Network steam solenoid valve	CN11-1 ; CN11-3
O15M1	Rotor probes	CN18-1 ; CN18-2
O16M1	Relay closing door dirty area	CN12-3; CN12-4
SHEET 2		
INPUT		
I1M2	PT1000 temperature probe	CN17-2 ; CN17-3
I2M2	Tank minimum level pressure meter	CN14-3 ; CN14-4
I3M2	Door lock contact closed 2	CN5-1 ; CN5-3
I4M2	Closed door contact 2	CN6-3 ; CN6-1
I5M2	Condenser maximum level contact	CN14-5 ; CN14-6
I6M2	Cold water flow meter	CN6-8 ; CN10- ; CN10+
I7M2	Air pressure switch	CN6-9 ; CN6-10

I8M2	Purified water flow	CN6-7 ; CN10- ; CN10+
I9M2	Product 2 contact level	CN6-1 ; CN6-4
I10M2	Product 1 contact level	CN6-1 ; CN6-5
I11M2	Product 4 contact level	CN6-1 ; CN6-6
I12M2	Product 3 contact level	CN6-1 ; CN6-2
I13M2	Power contactor/automatic switch	CN5-1 ; CN5-4
I14M2	N.O. contact heating element contactor	CN5-5 ; CN 5-1
I15M2	Boiler 2 level probe1	CN5-8 ; CN5-10
I16M2	Boiler 2 level probe 2	CN5-9 ; CN5-10
I17M2	Boiler temperature probe	CN1-1 ; CN1-2
I18M2	Tank light switch	CN14-7 ; CN14-8
I19M2	Card identification jumper	CN23
I20M2	Boiler 1 level probe 2	CN5-6; CN5-10
I21M2	Boiler 1 level probe 1	CN5-7; CN5-10
I22M2	Lower panel security contact	CN14-3; CN14-4
OUTPUT		
O1M2	Cold water solenoid valve	CN9-1 ; CN9-2
O2M2	Hot water solenoid valve	CN9-1 ; CN9-3
O3M2	Purified water solenoid valve	CN9-1 ; CN9-4
O4M2	Cold water solenoid valve for condenser	CN9-1 ; CN9-5
O5M2	Cold water solenoid valve for regeneration	CN9-1 ; CN9-6
O6M2	Drain solenoid valve	CN13-1 ; CN13-5
O7M2T	3 tank heating element	CN9-1 ; CN9-7
O8M2	Relay opening door clean area	CN12-1 ; CN12-2
O9M2T	Boiler 2 heating element	CN11-1 ; CN11-2
O10M2	Hot demi solenoid valve	CN11-1 ; CN11-3
O11M2	Drainage pump	CN13-1; CN13-3
O12M2	Cooling fan	CN18-1; CN18-2
O13M2T	Boiler 1 heating element	CN11-1; CN11-4
O14M2	Drainage solenoid valve boiler 1	CN11-1; CN11-5
O15M2T	Chamber wash pump	CN18-1; CN18-3
O16M2	Relay closing door clean area	CN12-3; CN12-4
O17M2	Printer supply	CN18-1; CN18-4

SHEET 3		
INPUT		
I1ME	Pressure switch trolley pump	CN5-1; CN5-2
I2ME	Safety bar dirty area	CN5-1; CN5-3
I3ME	Safety bar clean area	CN5-1; CN5-4

I4ME	Presence trolley contact clean area	CN5-1; CN5-5
I5ME	Presence trolley contact dirty area	CN5-1; CN5-5
I6ME	Boiler 3 level sensor 1	CN5-1; CN5-7
I7ME	Boiler 3 level sensor 2	CN5-1; CN5-8
I8ME	Purified "hot demi" water flow	CN6-8; CN10-; CN10+
I9ME	Product 5 contact level	CN6-1; CN6-2
I20ME	Relay voltage control contact (15-16)	CN6-1; CN6-3
I21ME	Relay voltage control contact (15-18)	CN6-1 ; CN6-4
I22ME	Relay voltage control contact (25-26)	CN6-1 ; CN6-5
I23ME	Relay voltage control contact (25-28)	CN5-1 ; CN5-6
I24ME	Product 5 flowmeter	CN6-9; CN10+; CN10-
I25ME	Overcharge door motors contact	CN14-1; CN14-2
OUTPUT		
O1ME	Drain boiler 3 solenoid valve	CN18-1; CN18-2
O2ME	Dosing pump prod. 5	CN18-1; CN18-3

8   CHEMICAL PRODUCTS CALIBRATION:

The calibration of the chemical disinfectant flowmeter should only be performed if using liquid chemical disinfectants other than those recommended by the manufacturer.
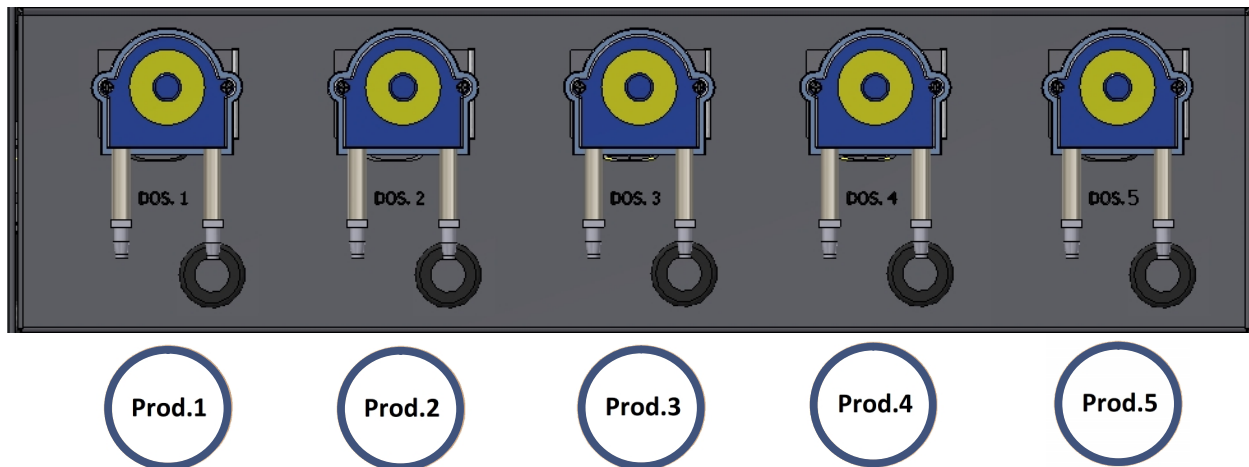
Procedure to calibrate the flowmeters:

1. remove the lower panel and open the peristaltic ;

2. locate the flowmeter to be calibrated, disconnect the silicone hose from stainless steel connector.

3. Locate the flow meter to be calibrated and disconnect the silicone hose from the stainless steel connector

4. Take a 100ml beaker, place it above the peristaltic pump door and insert the silicone hose that comes from the flow meter into the beaker;

5. Insert the nozzle of the chemical product to be calibrated in the liquid tank;

6. Enter the "Service" menu by entering the password, select the "settings" submenu and then the "Chemical products calibration" menu.

7. Once inside the menu, start the pump of the liquid to calibrate by selecting the "Pump x" key in the first part of the display (hydraulic circuit filling). Once the liquid has reached the becker, stop the pump by selecting again the "Pump x" key. In this way, the hydraulic system of the pump is filled by the liquid and is ready to carry out the calibration

8. Now, empty the becker from the liquid, and place it under the hose full of liquid.

9. Press the key of the pump to calibrate in the second half of the "pump x" screen.

10. Wait for the liquid to reach the 100ml level in the becker and then press again the pump key.

11. Now, calibration of the chemical product is complete.

12. Fill another hydraulic system to calibrate another chemical product.

9   MAINTENANCE

9.1   External cleaning of the machine:

Clean the surface of the device with **PRODUCTS SUITABLE FOR STAINLESS STEEL.** Products other than these can irreparably destroy not replaceable parts of the device, making the machine completely unusable. If a suitable cleaning liquid product is not available, use a mixture of water (75%) and alcohol (25%). Cleaning should be done with a lint free cloth (that does not scratch), moistened with a suitable liquid. **DO NOT SOAK THE CLOTH** to prevent the exceeding liquid from penetrating into electrical areas dangerous for the operator. Clean the keyboard and the display with a mixture of water and alcohol or mild detergents. The washing tank is automatically cleaned. In case of need, for an extra cleaning of the washing chamber, run a rinse cycle without introducing instruments.

9.1   Cleaning of the filters inside the machine:

Clean **AT LEAST ONCE A WEEK** the filters positioned at the bottom of the tank to avoid drain obstructions ensuring machine full efficiency. Take the two filters by the handle and open them to remove dirt. Periodically check the level of liquid present in the tanks, in the lower compartment of the machine. When the liquid is nearly finishing a notice appears on the display. When the liquid is finished a message alarm is displayed. The machine is equipped

with flow meters that detect the correct passage of the liquid. In case of abnormal flow interruption the alarm appears on the display.

> ⚠️ Use personal protective devices for hands (PPE - gloves).
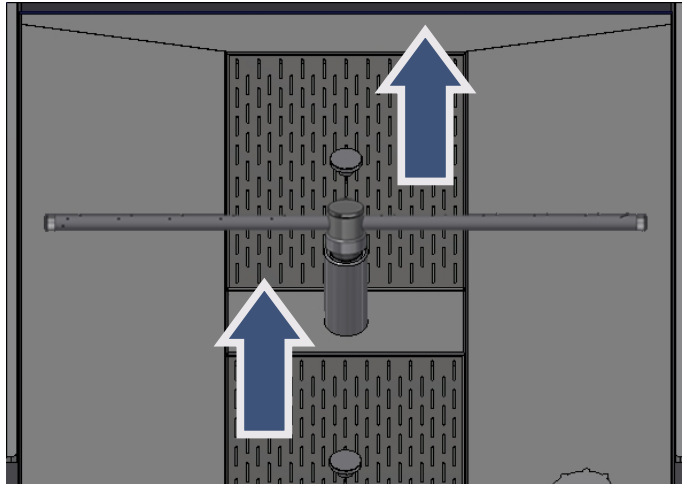
Unscrew the lower handle(1) to divide the two pieces that make up the filter (2).
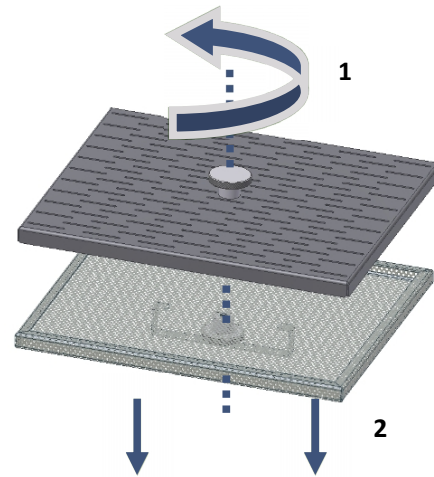
9.2   Cleaning of the Impeller:

Periodically check that the impeller holes are not obstructed so as not to compromise the washing. Verification is visual. Also check if the impeller remains locked and does not rotate. If the machine is equipped with the "impeller monitoring" application (optional), an alarm appears in the event of a blocked impeller. To clean the impeller, proceed as follows:

1. Grasp the bush above the impeller and hold it in place while unscrewing the impeller clockwise;

Bushing
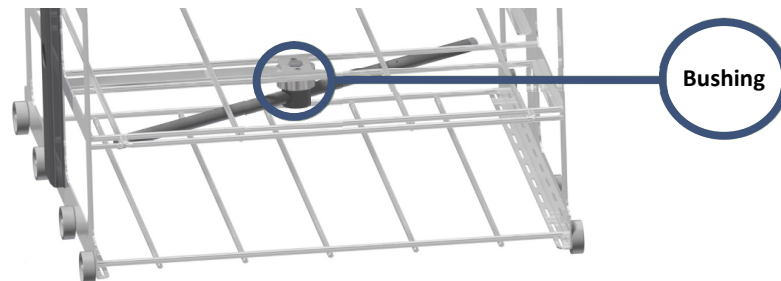
2. Unscrew the plastic plugs at the end of the impeller;

3. Check to see if there is any dirt inside the impeller which prevents the correct flow of water;
4. Clean the blocked holes with a jet of water;
5. Once the cleaning has been completed, screw the two plugs back onto the ends and screw the impeller back onto the carriage.

9.3 Cleaning of the filters for water loading:

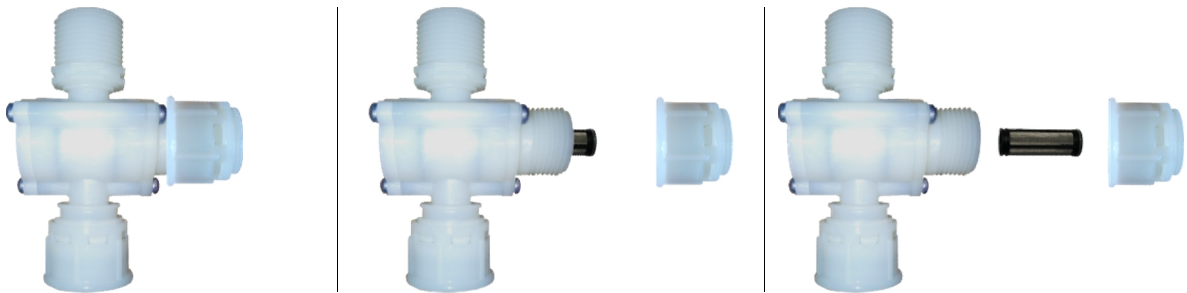Using the main switch on the side of the machine cut the power off. Close the water supply to the machine.

Open the higher compartment of the machine, reach the filters and unscrew the caps (see pictures). Extract the cylindrical filter inside the cap, possibly clean it thoroughly with compressed air; in the same way, and clean the filter housing. Place the Hylindrical filter in its housing, taking care to insert the closed side facing the cap (the open side should enable the steel rod to fit inside the filter). Screw the cap on the housing and repeat for the other filter.Open the taps supplying water to the machine and restore power.

9.1 Periodic maintenance:

⚠ If the water supplied is high in calcium content, it is recommended to periodically carry out a general inspection and a cleaning of the device. Do not clean the device with direct water jets. Do not use products based on chlorine (bleach)

(*: **ACTIONS REQUIRED ONLY IN CASE OF MACHINE FAULTY OPERATION DURING TESTING**)
Please Note: maintenance operations must be carried out according to the number of cycles or to the operation time.

⚠ In order to avoid malfunctions or blocks, the machine requires regular periodic maintenance.

☎ If you are unable to operate the machine even after routine/unscheduled maintenance please contact the MANUFACTURER customer service by specifying the nature of the fault, the model and the serial number of the machine.

The operator/user may enter into a service agreement with THE MANUFACTURER representative, to receive direct servicing. In addition, there is the possibility to have technical staff trained at THE MANUFACTURER premises. The technical service will be then able to carry out servicing independently, solving any technical problem.

⚠ To remove limescale only use adequate products. Do not use corrosive products not compatible with the materials constituting the machine.

EVERY	CYCLE	MONTHS						ACTIVITY	TIME
		6	12	18	24	30	60		
every	2000	X						Unscrew the impellers inside the tank and on the trolley in use, unscrew the plugs at the ends of the impellers and wash the inside checking that there are no impurities that obstruct the holes.	10´
every	2000	X						Visually check the integrity of the tank seal and check that there are no water leaks during the cycle.	10´
every	10000					X		With the machine turned off as a main switch, check that the power cable connections are intact and that they do not show oxidation.	5´
every	4000		X					Disconnect the machine from the building's water mains, remove the solenoid valves from the machine plant and clean the inside with water to remove impurities.	30´
every	4000		X					Check that the sliding float is not blocked and operates properly. Check that the entire lance circuit is working properly, so that there are no leaks.	15´
every	8000				X			Check that the hooking of the tubes to the peristaltic pumps is firm and does not allow leakage of liquid.	15´
every	8000			X				Remove the machine from the building's water supply, remove the filters, open them and clean the inside with water to remove impurities.	25´
every	4000						X	Check the electrical consumption of the resistors, visually check their status inside the chamber, verify that there are no water leaks from the electrical connections in view on the back of the tank.	20´
every	12000						X	Check that there are no water leaks.	40´
every	12000		X			X		Check that there are no constructions inside that does not allow correct operation.	15´

90

PART	Impellers in the chamber	Seal of chamber	Power connections on the panel	Solenoid valves loading water	Suction noozles	Pipes for loading products	Water filters	Heating elements inside the chamber	Washing pump stuffing box.	peristaltic pumps

10 TEMPERATURE TEST
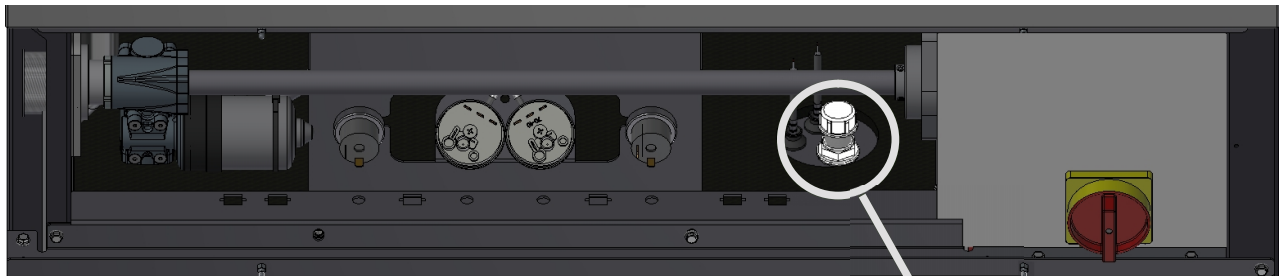
To carry out a temperature test proceed as follows:

1. Cut the power supply off ;
2. Remove the top cover, detaching it from the metal clips behind it. Place the panel over the machine if there is enough space otherwise place the panel down on the floor ;
3. Turn the machine on ;
4. Carry out the test ;
5. Once the test is complete, cut the power supply off, remove the thermocouple and close again the white cap for tank inspection ;
6. Reassemble the panel ;
7. Restart the machine.

DIAGRAMS

Tuttnauer Europe b.v., Hoeksteen 11, 4815 PR Breda, P.O. Box 7191, 4800 GD Breda, Netherlands. ✆ Tel: +31/76-5423510, 🖷 Fax: +31/76-5423540

SCHEMA ELETTRICO – ELECTRICAL SYSTEM – SISTEME ELETRIQUE – ELEKTRISCHF ANLAGE

SCHEDA 3 – BOARD 3

DISEGNATO DA: L. M.

REV.04
07.07

N° DISF'GND

Scheda micro 3
Micro board 3

Flussometro prodotto 5
I24ME

Flussometro acqua hot deni
I8ME

Power supply 24 V D.C.

Sonda livello 2 boiler 3
I7ME

Sonda livello 1 boiler 3
I6ME

Contatto presenza carrello trasporto (zona sporco) Contact presence transport trolley (clean step)
I5ME

Contatto presenza carrello trasporto (zona pulita) Contact presence transport trolley (clean side)
I4ME

Contatto di pulsante emergenza
I3ME

CONTATTO N.C. COSTA SICUREZZA ZONA SPORCO SWITCHGEAR N.C. CONTACT DIRTY SIDE
I2ME

I1ME

PRESSOSTATO POMPA VASCA TANK PRESSURE SWITCH PUMP

Contatto livello prodotto 5
I9ME

RELE CONTROLLO TENSIONE RELAY CONTROL VOLTAGE

I20ME
I21ME
I22ME
I23ME

ELETTROVALVOLA SCARICO BOILER SOLENOID DRAIN BOILER VALVE
Q1ME

POMPETTA PERISTALTICA PRODOTTO 5 PRODUCT 5 PERISTALTIC PUMP
Q2ME

Sensore ghrante 7 Spray arm 7 sensor
I25ME

AUX SUPPLY

POWERBOARD

CONTROLLO DI IDENTIFICAZIONE SCHEDA BOARD IDENTIFICATION INSIDE

POWER SUPPLY

L1
N
TB

L1
L2
L3
N

FUSE 5 16A

CAVO 5X4

CAVO 5X4

CAVO 5X4

INTERRUTTORE GENERALE ZONA PULITO

INTERRUTTORE GENERALE ZONA SPORCO

400V 3~+N 50HZ
DISPOSITIVO DI CONNESSIONE DEDICATO
DEDICATE CONNECTION DISPOSAL

YELLOW/GREEN
BLUE
GREY
BLACK
BROWN

YELLOW/GREEN
BLUE
GREY
BLACK
BROWN

PE
N
L1 L2 L3
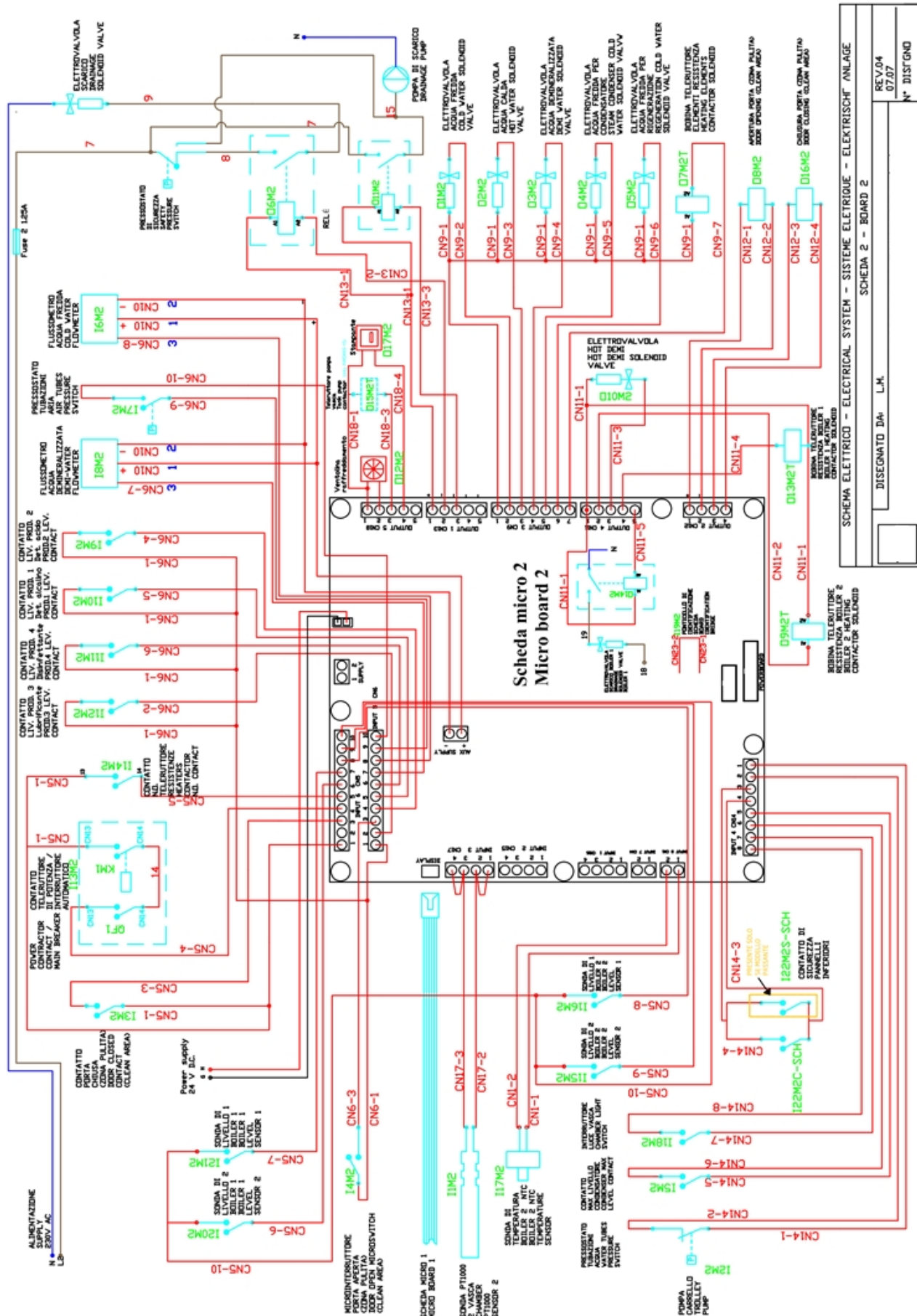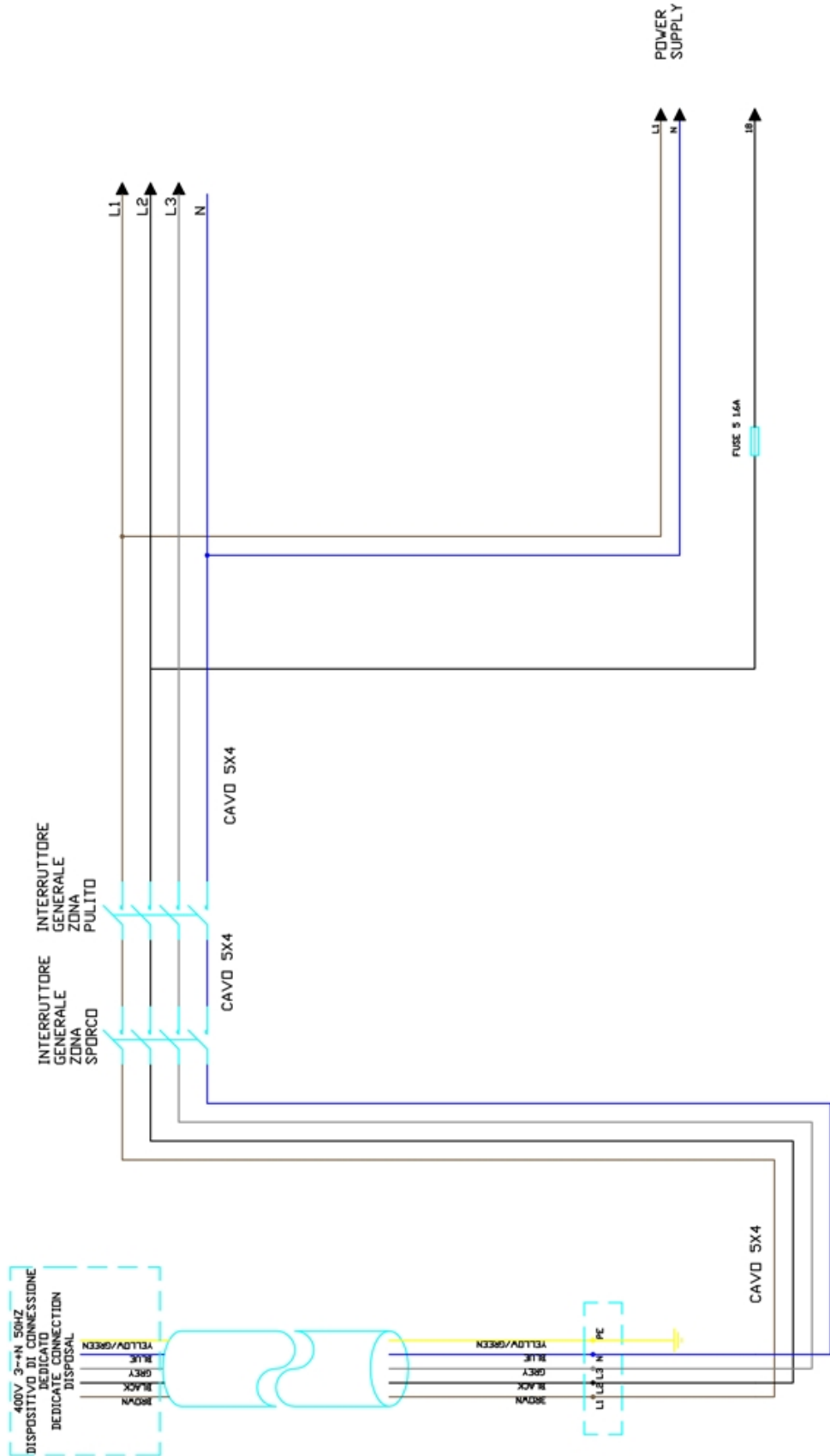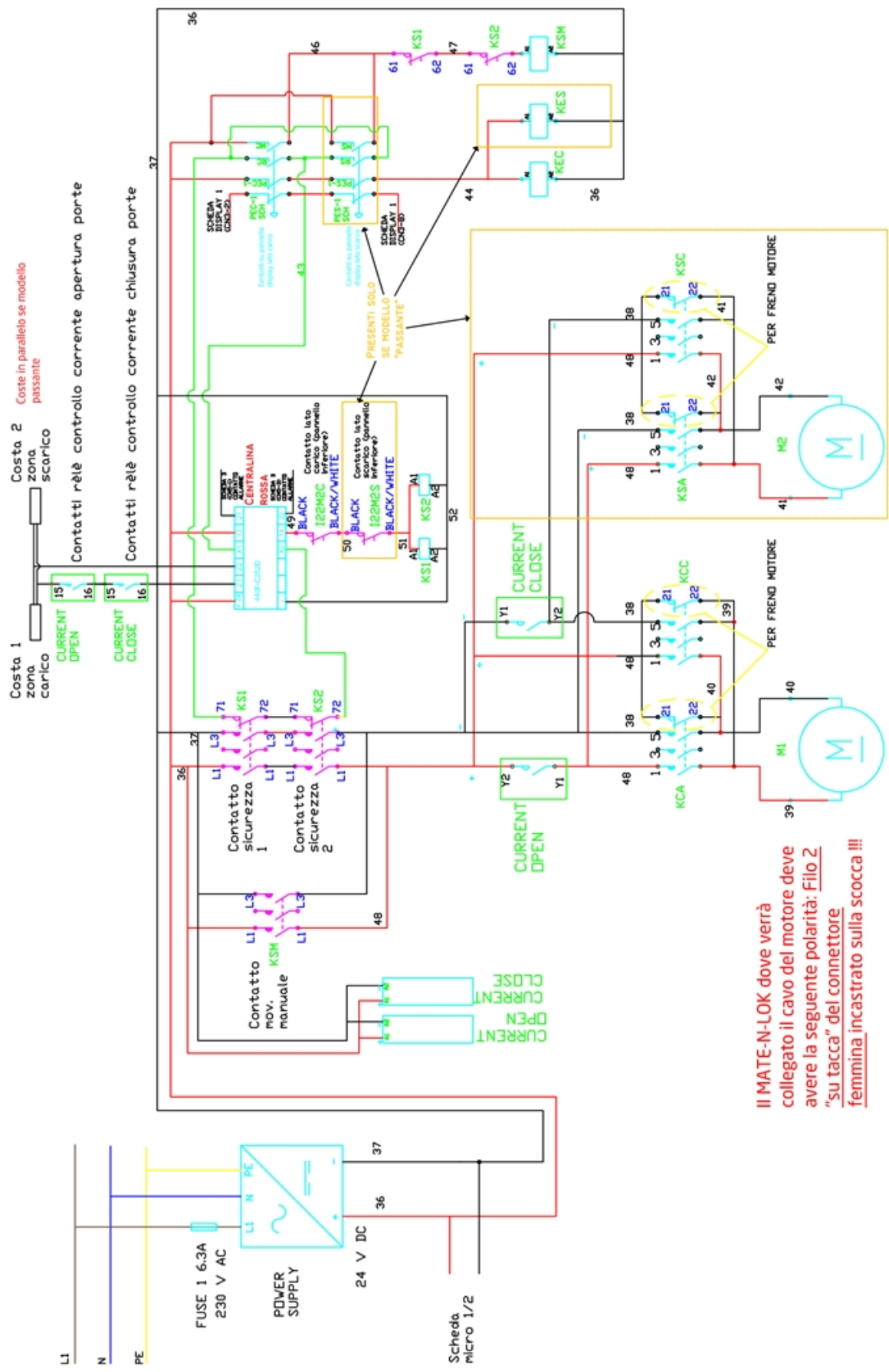
SCHEMA ELETTRICO – ELECTRICAL SYSTEM – SISTEME ELET
SCHEMA ELETTRICO ALIMENTAZIONE – ELECTRICAL SUPPLY SCHEME
DISEGNATO DA: L. M.
24.05.13

Tuttnauer
Your Sterilization & Infection Control Partners

Costa 2 zona scarico

Costa 1 zona carico

Coste in parallelo se modello passante

Contatti relè controllo corrente apertura porte

Contatti relè controllo corrente chiusura porte

CURRENT OPEN
CURRENT CLOSE

SCHEDA DISPLAY 1

PRESENTI SOLO SE MODELLO "PASSANTE"

CENTRALINA ROSSA

Contatto lato carico (pannello inferiore)
Contatto lato scarico (pannello inferiore)

BLACK 122M2C BLACK/WHITE
BLACK 122M2S BLACK/WHITE

KS1 KS2

KS1 KS2 KSM

KES KEC

KSC KSA

CURRENT CLOSE

PER FREN MOTORE

M2

Contatto sicurezza 1
Contatto sicurezza 2

KCC KCA

CURRENT OPEN

PER FREN MOTORE

M1

Contatto mov. manuale

KSM

CURRENT OPEN
CURRENT CLOSE

FUSE 1 6.3A 230 V AC

POWER SUPPLY

24 V DC

Scheda micro 1/2

Il MATE-N-LOK dove verrà collegato il cavo del motore deve avere la seguente polarità: Filo 2 "su tacca" del connettore femmina incastrato sulla scocca !!!
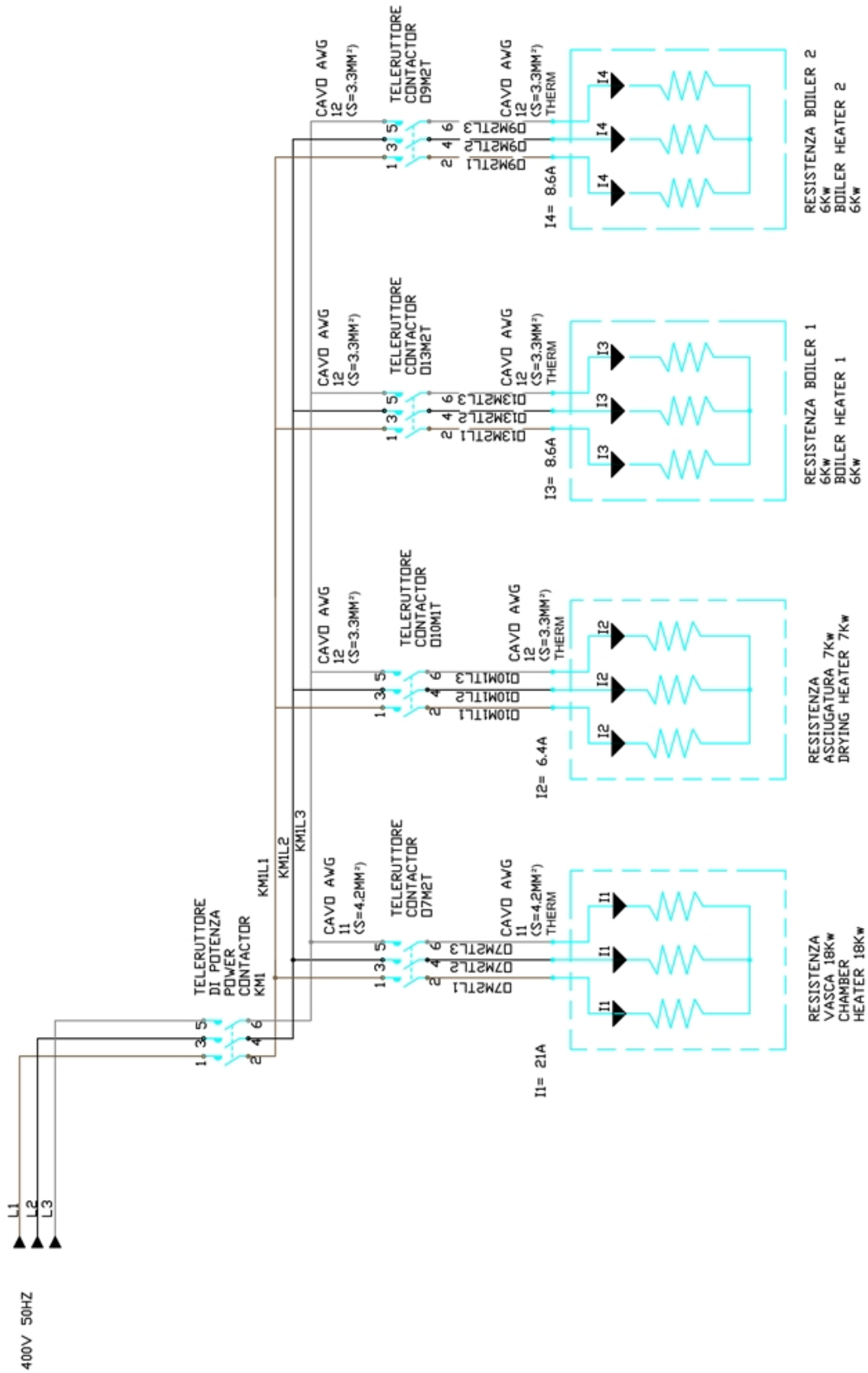
SCHEMA ELETTRICO – ELECTRICAL SYSTEM – SISTEME ELET
SCHEMA ELETTRICO ALIMENTAZIONE MOTORI – MOTOR SUPPLY ELECTRICAL SCHEME
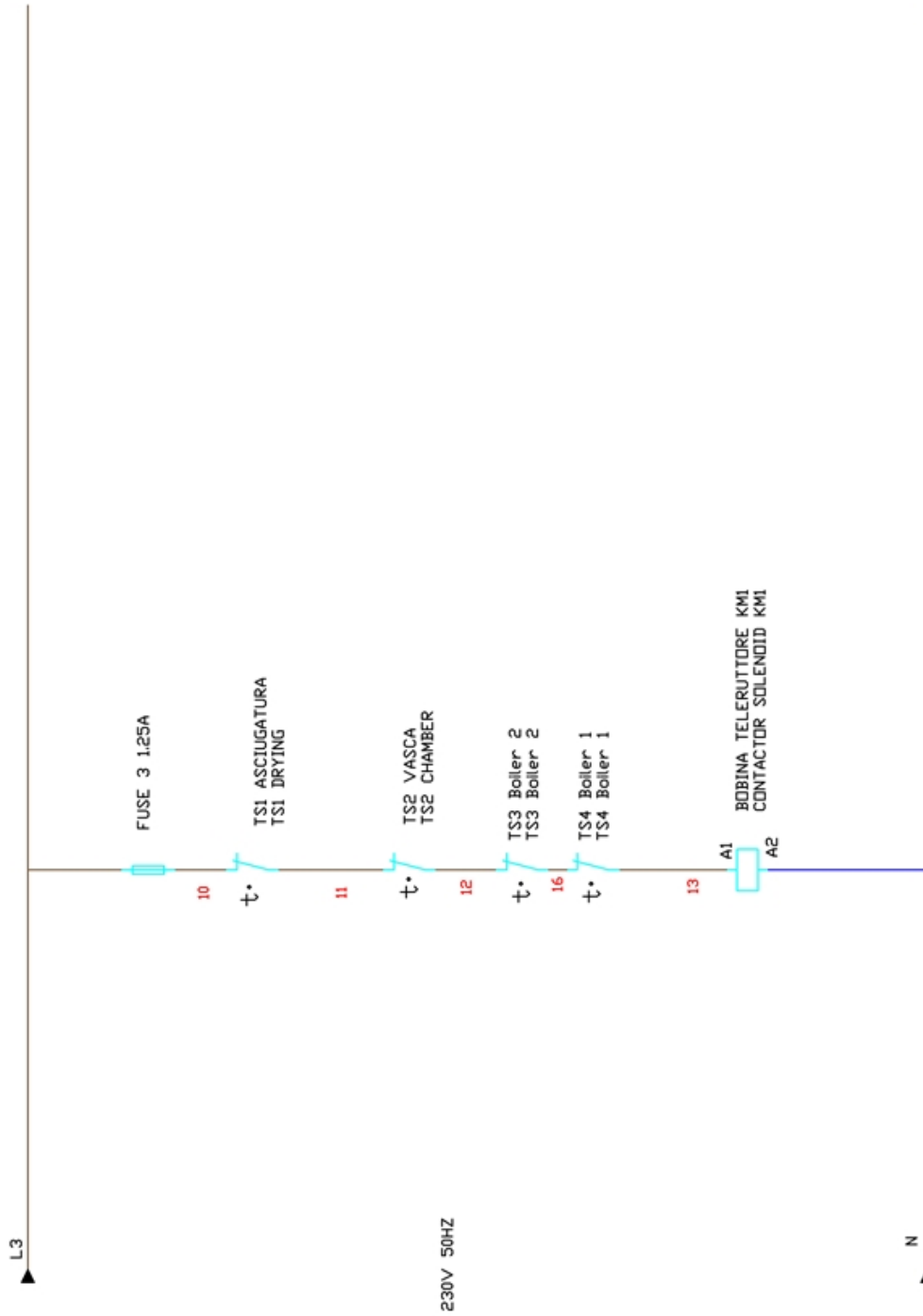DISEGNATO DA: L. M.
RFV.03
06.10.15

99
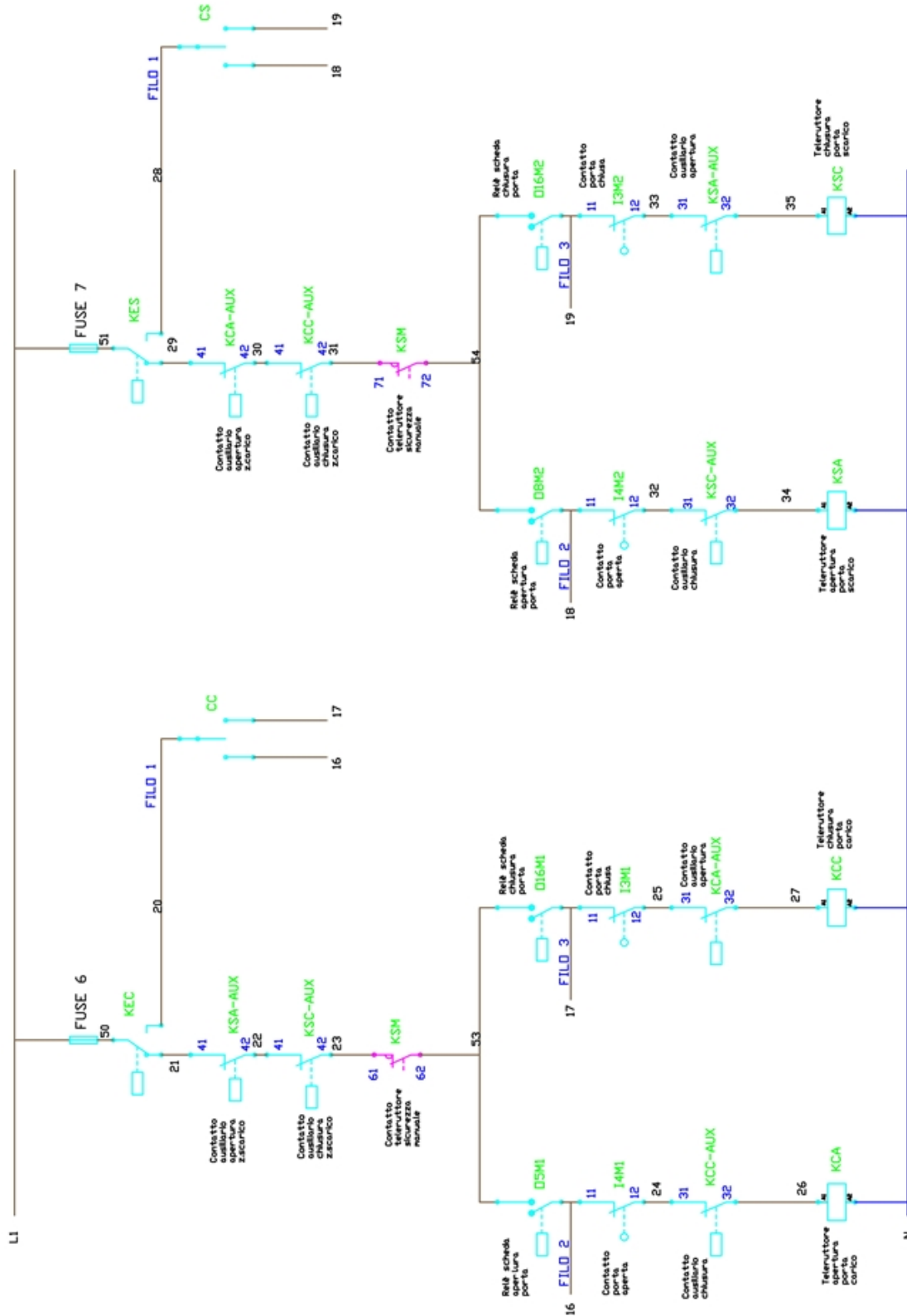
SCHEMA ELETTRICO – ELECTRICAL SYSTEM – SISTEME ELET

SCHEMA ELETTRICO MOTORI PORTE – ELECTRICAL DOOR MOTOR SCHEME

DISEGNATO DA: L. M.   28.04.15
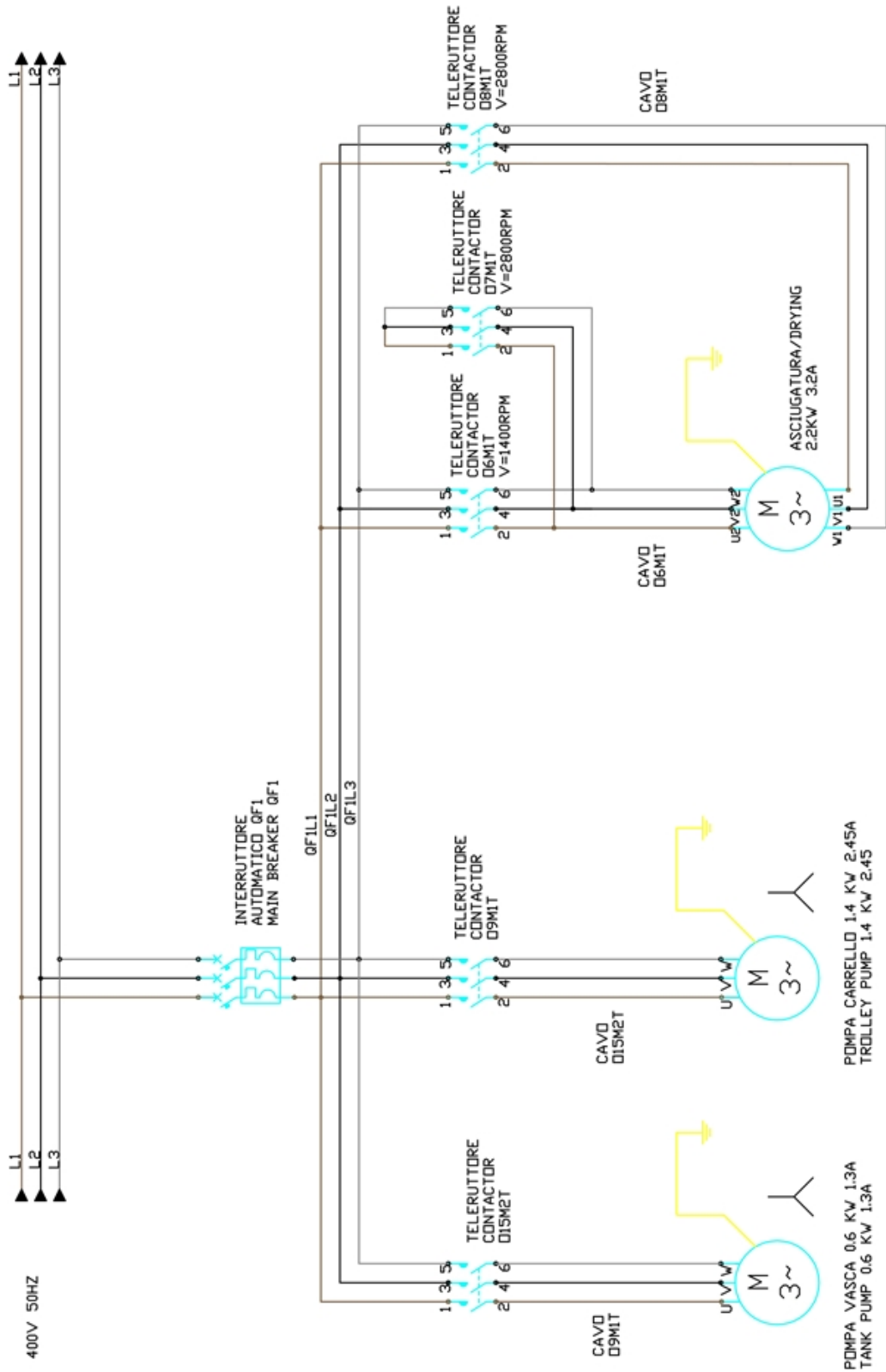
400V 50HZ

RESISTENZA VASCA 18Kw
CHAMBER HEATER 18Kw

RESISTENZA ASCIUGATURA 7Kw
DRYING HEATER 7Kw

RESISTENZA BOILER 1
6Kw
BOILER HEATER 1
6Kw

RESISTENZA BOILER 2
6Kw
BOILER HEATER 2
6Kw

TELERUTTORE DI POTENZA POWER CONTACTOR KM1

TELERUTTORE CONTACTOR D7M2T

TELERUTTORE CONTACTOR D10M1T

TELERUTTORE CONTACTOR D13M2T

TELERUTTORE CONTACTOR D9M2T

I1= 21A
I2= 6.4A
I3= 8.6A
I4= 8.6A

SCHEMA ELETTRICO – ELECTRICAL SYSTEM – SISTEME ELET
SCHEMA ELETTRICO RESISTENZE – HEATERS ELECTRICAL SCHEME
DISEGNATO DA: L. M.
15.03.13

DEVICES

I1M1	Temperature probe PT1000 1
I2M1	Temperature probe PT1000 2
I6M1	Flowmeter prod. 1
I5M1	Flowmeter prod. 2
I8M1	Flowmeter prod. 3
I7M1	Flowmeter prod. 4
I2M2	Water pipe pressostat
I10M1	Hepa filter pressostat
I7M2	Air pipe pressostat
I1M2	Temperature probe PT1000 3
P.S.	High level water tank pressostat
I2M2	Drain pressostat
I5M2	Max level contact condenser
I6M2	Cold water flowmeter
I11M1	Hot water flowmeter
I8M2	Demi water flowmeter
I9M2	Level contact chemical 1
I10M2	Level contact chemical 2
I11M2	Level contact chemical 3
I12M2	Level contact chemical 4
I15M2	Boiler2 level probe 1
I16M2	Boiler2 level probe 2
I17M2	Boiler temperature sensor NTC
I20M2	Boiler 1 level probe 2
I21M2	Boiler 1 level probe 1
O1M1	Peristaltic pump chemical 1
O2M1	Peristaltic pump chemical 2
O3M1	Peristaltic pump chemical 3
O4M1	Peristaltic pump chemical 4
O6M1T	Blower pump v=1400rpm
O7M1T	Blower pump v=2800rpm
O8M1T	Blower pump v=2800rpm
O9M1T	Water pump 600W
O10M1T	Air heater
O12M1	Drain electric valve boiler 2
O13M1	LED Light chamber
O14M1	Net steam electric valve
O1M2	Cold water electric valve
O2M2	Hot water electric valve
O3M2	Demi water electric valve
O4M2	Condensator electric valve
O5M2	Regeneration water electric valve
O6M2	Drain electric valve
O7M2T	Chamber heater 18000W
O9M2T	Boiler 2 heater
O10M2	Hot demi water electric valve
O11M2	Drain pump
O13M2T	Boiler 1 heater
O14M2	Drain electric valve boiler 1
O15M2T	Chamber wash pump
O1ME	Drain electric valve boiler 3
O2ME	Peristaltic pump chemical 5

E