stomdevice

tethys
H10

OPERATOR'S MANUAL



CE
0051

надежный поставщик стоматологического оборудования
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REVISIONS

The following table lists subsequent editions/revisions of the manual.
The “Description” field brief explains the subject of the latest revision.

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FOREWORD

Dear Customer

Thank you for choosing this product. We hope that you will find it completely satisfactory. This manual describes all procedures for the correct use of the device and instructions for deriving the full benefit from its features. In any case, we will be available to provide explanations and to receive any suggestions you may have for improving our products or services.

SYMBOLS USED

	**NOTE** PAY PARTICULAR ATTENTION TO THE PARAGRAPHS MARKED WITH THE SYMBOL SHOWN.
	**WARNING** POTENTIAL DANGER TO PROPERTY. FOLLOW THE INSTRUCTIONS IN THE MANUAL TO PREVENT POTENTIAL DAMAGE TO MATERIALS, EQUIPMENT AND/OR OTHER PROPERTY.
	**HAZARD** **THIS SYMBOL INDICATES A POTENTIAL DANGER TO PERSONS. FOLLOW THE PROCEDURES DESCRIBED IN THE MANUAL IN ORDER TO AVOID INJURING THE USER AND/OR OTHERS.**
	**HAZARD** **THIS SYMBOL INDICATES A POTENTIAL DANGER DUE TO HIGH TEMPERATURE.**
	THE MATERIALS THE DEVICE IS COMPOSED OF MUST BE DISPOSED OF ACCORDING TO THE DIRECTIVE 2012/19/EU.

SYMBOLS ON THE EQUIPMENT

	Potential hazard due to high temperature.
	Equipment in accordance with applicable directives.
	Symbol for disposal in accordance with Directive 2012/19/EU.
	Consult the user manual.

RELEVANT EUROPEAN DIRECTIVES

The product described in this manual is manufactured in accordance with the highest safety standards and doesn't represent any danger for the operator if used according to the following instructions. The product **is in accordance with the** following **European Directives as applicable**:

93/42/CEE, and subsequent amendments and additions, concerning medical devices.

2011/65/UE, (Rohs II) on restriction of hazardous substances in electrical and electronic equipment.

TECHNICAL STANDARDS

The device complies with Standards ISO 15883-1 and ISO 15883-2 on Washers/Disinfectors and with Electric Safety Standards IEC 61010-1 and IEC 61010-2-040.

INTENDED USE

DEVICE FOR PROFESSIONAL USE ONLY NOT INTENDED FOR RETAIL SALE.

The product is intended only for the washing and/or thermal disinfection of re-usable surgical instruments able to resist to a temperature of at least 80°C.
It is not intended for the washing and thermal disinfection of thermolabile medical devices.
It is not intended for the washing of instruments having deep cavities with reduced opening (since cleaning and disinfection of the inner parts of cavities are not ensured).
It is not intended for the washing of rotary or electronic instruments, unless they are explicitly indicated as suitable for ultrasonic washing and thermal disinfection by the manufacturer.
It is not intended for the washing of instruments made of not protected aluminium or with decorative anodizing.

WARNING



THE DEVICE CAN BE USED BY SKILLED PERSONNEL ONLY. UNDER NO CIRCUMSTANCES IT CAN BE USED OR HANDLED BY UNSKILLED AND/OR UNAUTHORISED PERSONS.

WARNING



THE APPARATUS IS NOT A MOBILE OR PORTABLE DEVICE.

WARNING



THE TREATMENT IN THE INSTRUMENT WASHER CAN NEVER REPLACE STERILIZATION. DISINFECTION IN THE INSTRUMENT WASHER AIMS AT REDUCING THE RISK OF INFECTION OF PERSONNEL HANDLING THE INSTRUMENTS DURING RECONDITIONING PROCESS.

NOTE



INFORMATION CONTAINED IN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE.
THE MANUFACTURER IS NOT RESPONSIBLE FOR DIRECT, INDIRECT OR ACCIDENTAL DAMAGE RESULTING FROM OR RELATING TO THE PROVISION OR USE OF THIS INFORMATION.
THIS DOCUMENT MAY NOT BE REPRODUCED, ADAPTED OR TRANSLATED, IN PART OR IN FULL, WITHOUT THE PRIOR WRITTEN PERMISSION OF THE MANUFACTURER.

PURPOSE OF THE MANUAL

The purpose of this manual is to provide instructions for:
- becoming generally familiar with the product;
- its correct installation and configuration;
- its safe, efficient use;
- handling materials before and after washing and/or disinfection.

Its appendixes also provide:
- the product's general technical specifications;
- washing and/or disinfection programme specifications;
- maintenance operations;
- Troubleshooting.

GENERAL WARNINGS

When using this product, **always** follow the instructions in the manual and never use it for anything other than its intended purpose.

WARNING



USER IS RESPONSIBLE FOR THE CORRECT AND REGULAR INSTALLATION, USE AND MAINTENANCE OF THE DEVICE. IN CASE OF WRONG INSTALLATION OR USE OR IN CASE OF FAILED OR WRONG MAINTENANCE, THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY MALFUNCTION, FAILURE OR BREAKAGE, PROPERTY DAMAGE OR INJURIES.

Please observe the following precautions in order to avoid injury or property damage:

WARNING



THE USE OF WATER OF INADEQUATE QUALITY CAN SEVERELY DAMAGE THE DEVICE.
SEE TECHNICAL CHARACTERISTICS APPENDIX IN THIS REGARD.

- Do **not** pour water or other fluids on the device;
- Do **not** pour flammable substances on the device;
- Do **not** use the device in the presence of gases or explosive or inflammable vapours;
- Before performing any maintenance or cleaning intervention **ALWAYS DISCONNECT** power supply.
- Make sure the electrical system is **grounded** according to current laws and/or standards;
- Do **not** remove any label or nameplate from the device; request new ones, if necessary;
- Use **only original spare parts.**

WARNING



FAILURE TO COMPLY WITH THE ABOVE RELEASES THE MANUFACTURER FROM ALL LIABILITY.

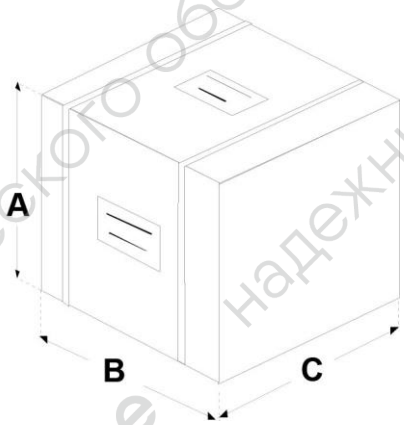
PACKAGE CONTENT

NOTE

CHECK THE INTEGRITY OF THE PACKAGE UPON RECEIPT.

DIMENSION AND WEIGHT

Once the package is opened, check that:
- the supply matches the specifications of the order (see the delivery note);
- there is no visible damage to the product;



Dimensions and weight	
A. Height	600 mm
B. Width	600 mm
C. Depth	700 mm
Total weight	47 kg

NOTE

IN CASE OF WRONG DELIVERY, MISSING PARTS OR ANY TYPE OF DAMAGE, INFORM IMMEDIATELY AND IN DETAIL THE RESELLER AND THE CARRIER THAT MADE THE DELIVERY.

DESCRIPTION OF THE CONTENT

In addition to the thermo-disinfector, the package contains:
1. Operating documentation (with CD-ROM)
2. Detergent package
3. Drainage pipe
4. Detergent filling funnel
5. Detergent reservoir filling container
6. Salt filling funnel
7. Allen wrench for HEPA filter replacement
8. Allen wrench for rotary nozzle maintenance
9. HEPA filter certificate of conformity
10. Basket for cutters
11. Baskets
12. instrument support kit
13. No.2 ties for drain pipe

PRODUCT HANDLING

Thermo-disinfector removal from package and lifting operations must be carried out by two persons. Handle the device with a truck or suitable means.

WARNING



WE RECOMMEND TO TRANSPORT AND STORE THE DEVICE AT A TEMPERATURE NOT BELOW 5°C. EXTENDED EXPOSURE TO LOW TEMPERATURES MAY DAMAGE THE PRODUCT.

NOTE



KEEP THE ORIGINAL PACKAGE AND USE IT WHENEVER THE DEVICE IS TO BE TRANSPORTED. THE USE OF A DIFFERENT PACKAGE MIGHT DAMAGE THE PRODUCT DURING SHIPMENT.

EMPTYING OF DETERGENT RESERVOIR AND WATER CIRCUIT

Before any transport following the first installation, it is necessary to empty the detergent reservoir.

WARNING



FOR FURTHER INFORMATION ABOUT RESERVOIR EMPTYING PROCEDURE, PLEASE CONTACT THE TECHNICAL SERVICE DEPARTMENT (SEE APPENDIX).

If salt is present inside resin regeneration reservoir, some salt solution could leak out of thermo-disinfector water filling pipe.
Water evaporation could result in the creation of salt crystals around water filling union. To eliminate salt deposits, rinse with water and dry.

PRODUCT PRESENTATION

Tethys H10 thermo-disinfector is the revolutionary proposal in the field of thermal disinfection, as well as the new point of reference in terms of safety, performance, efficiency and ease of use.

It is a sophisticated but, at the same time, easy to use device that, thanks to its wide range of configuration options, meets any need of washing and disinfection of medical equipment, ensuring the maximum performance in any conditions.

Thanks to its extreme ease of use, small size and pleasant appearance, it is the ideal partner for all professionals who require maximum functionality and safety of the washing and thermal-disinfection process.

GENERAL CHARACTERISTICS

Tethys H10 thermo-disinfector is an electronic thermo-disinfector, entirely operated by a micro-processor.
The exclusive disinfection system, the effective hydraulic circuit and the electronic management (integrated by high-precision sensors) ensure a high execution speed of the process and an excellent stability of thermodynamic parameters.
Moreover, its Process Evaluation System constantly monitors all the machine's “vital” parameters in real-time, guaranteeing absolute safety and a perfect result.
It offers users 6 programmes, some of which provided with customizable, optimized drying for the fast, effective disinfection of the various types of loads (instruments and materials) used in a medical environment.
All the cycles can immediately be selected on the clear LCD screen, which also allows extensive configuration of the device according to the user’s needs.

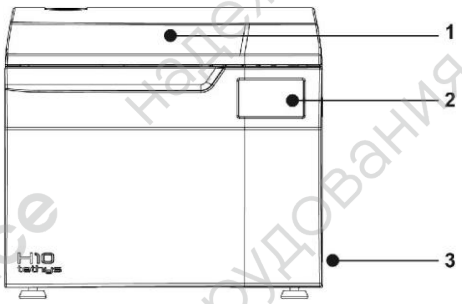
For further details please refer to **'Configuration'** chapter.

The new **Tethys H10** thermo-disinfector has the most complete, sophisticated and advanced safety systems available today, to ensure the user against any electrical, mechanical, thermal or functional fault.

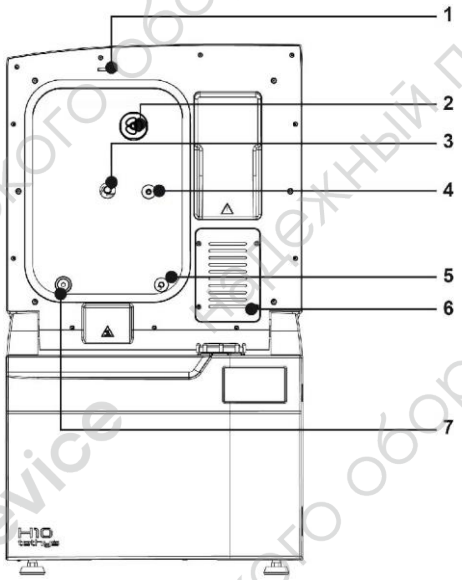


NOTE

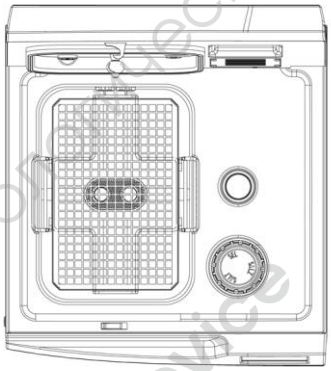
FOR THE DESCRIPTION OF SAFETY DEVICES, REFER TO TECHNICAL CHARACTERISTICS APPENDIX.



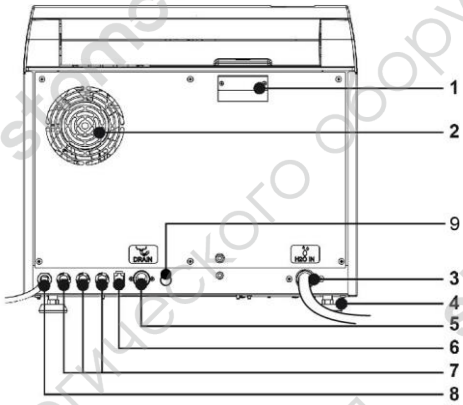
1. Door
2. Control panel and LCD screen
3. Power switch



1. Door locking system
2. Air inlet
3. Rotary nozzle
4. Detergent inlet
5. Decalcified water inlet
6. HEPA filter
7. Temperature probe input (process validation)

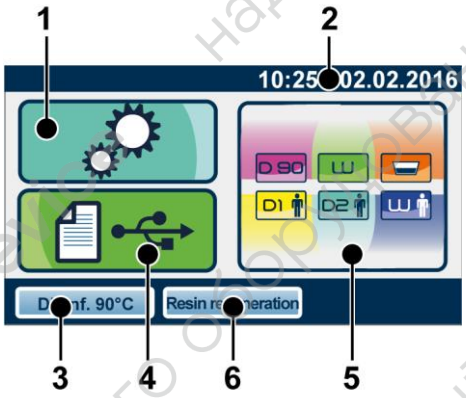


1. Stainless steel chamber
2. Stainless steel basket
3. Detergent reservoir
4. Salt reservoir
5. Chamber drainage filter



1. Air / vapour outlet
2. Cooling fan
3. Hose for connection to the mains water with "Aquastop" system
4. Foot
5. Water drainage connection
6. Ethernet connection
7. Network fuses
8. Power cable
9. Connection to external filling accessories

LCD ICONS



1. SETTINGS
2. TIME AND DATE
3. LAST CYCLE PERFORMED
4. DATA MANAGEMENT
5. WASHING AND DISINFECTION CYCLES
6. LAST STARTED CYCLE OF THE "OTHER CYCLES" MENU

	Management of thermo-disinfector settings
	Management of data and information
	Menu of washing and disinfection cycles

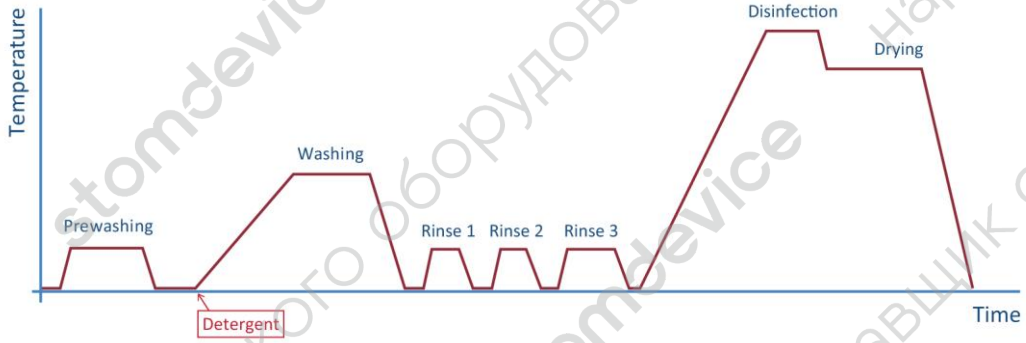
NOTE

OTHER PARTICULAR SYMBOLS RELATING TO THE VARIOUS CONDITIONS OF USE WILL BE DESCRIBED IN THE RELATIVE PARAGRAPHS.

EXAMPLE OF WORKING CYCLE

The disinfection programme of Tethys H10 series can be effectively described as a succession of phases, each one with a very precise purpose.

Example of washing cycle with ultrasounds and disinfection:



WASHING TIME means the period of time between the reaching of set washing temperature and drainage start.

NOTE

PLEASE REFER TO PROGRAMMES APPENDIX FOR MORE DETAILS ON PROGRAMMES.

WARNING

AT THE END OF THE CYCLE IT IS ESSENTIAL TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

SETTING UP THE DEVICE

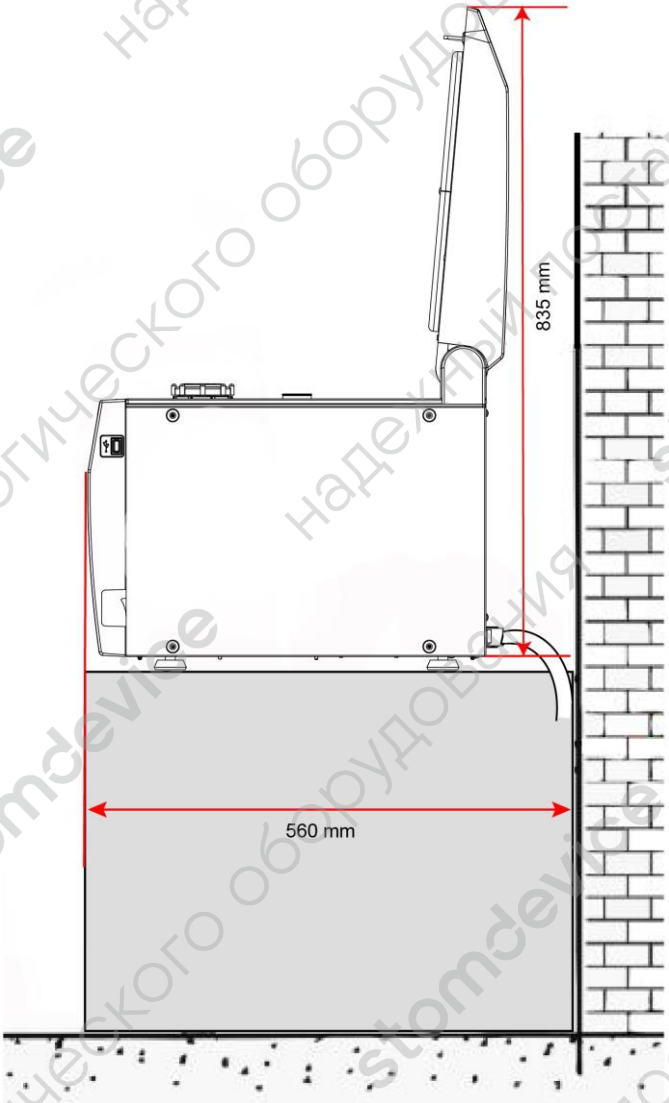
FOREWORD

The first and essential step for a proper and safe operation of the thermo-disinfector, its durability and complete use of its features is a correct installation, through the thorough compliance with these instructions.

NOTE

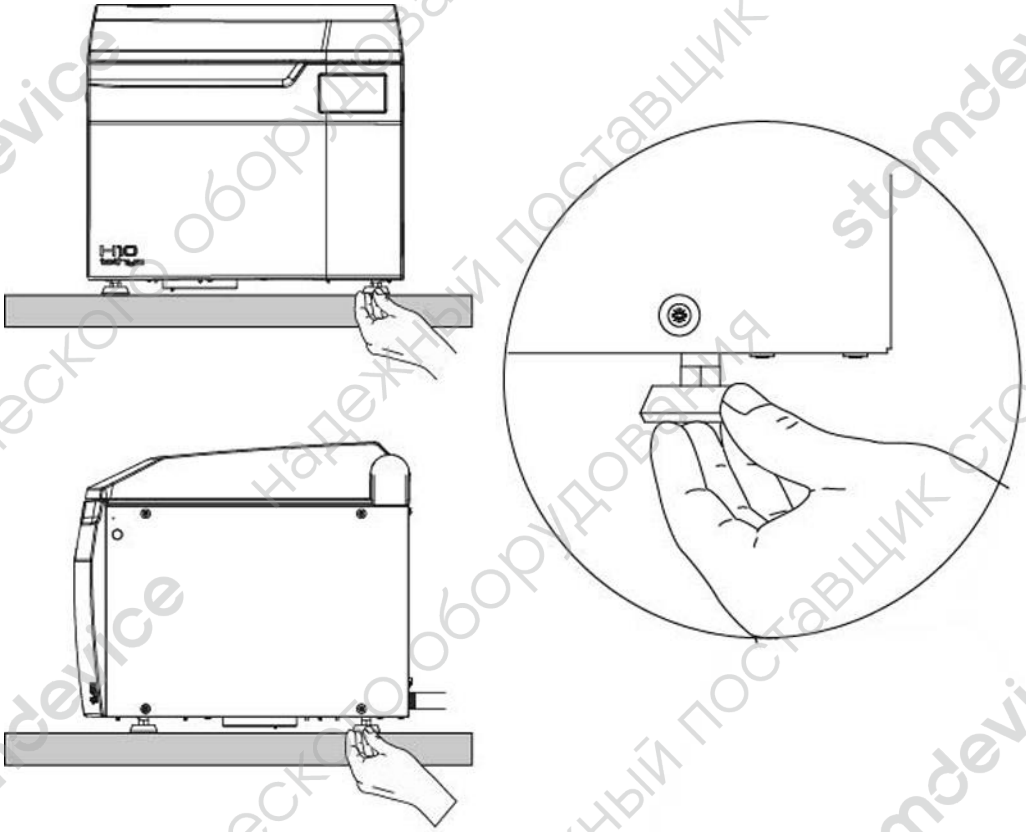
TECHNICAL SERVICE DEPARTMENT (SEE APPENDIX) IS AVAILABLE FOR ANY DOUBT OR FURTHER INFORMATION.

Installation dimensions	
Height (with door open)	835 mm
Width	600 mm
Installation depth	560 mm
Total weight under work conditions	50 kg



FOOT ADJUSTMENT

Thermo-disinfector Tethys H10 features four adjustable feet allowing to perfectly level it and compensate for any imperfection of the bearing surface. Feet can be adjusted by simply screwing or loosening them.



POWER SUPPLY

The electrical system to which the thermo-disinfector will be connected must be suitably dimensioned according to the electrical characteristics of the device. This information is shown on the **back of the machine**.

GENERAL PRECAUTIONS FOR INSTALLATION

To ensure a correct operation of the device and/or avoid risk situations, respect the following **warnings**:

- Install the thermo-disinfector on a flat and perfectly horizontal surface, work on the adjustable feet, if necessary.
- Check that the bearing surface is strong enough to support the weight of the device in operating conditions (about 50 kg);
- Leave adequate room for ventilation all around the thermo-disinfector, in particular in the rear area.
- Do not install the thermo-disinfector too close to chambers, sinks or similar places, avoiding contact with water or liquids. This could cause short circuits and/or potentially dangerous situations for the operator;
- Do not install the thermo-disinfector in excessively humid or poorly ventilated environments;
- Do not install the machine in environments with flammable and/or explosive **gases** or **vapours**;
- Install the device so that the supply cable is not bent or squeezed.
  It must freely run all the way to the electrical outlet.
- Install the device so that the filling/drainage pipes are not bent or squeezed. Place the pipes so as to avoid drainage water backflow.

ELECTRICAL CONNECTIONS

The thermo-disinfector must be connected to a socket of the electric system having adequate capacity for the absorption of the device and properly earthed, in accordance with laws and/or regulations in force.
The socket must be properly protected through magneto-thermal and differential circuit breakers having the following characteristics:

Rated current I_n	230-240V/50Hz	10 A
	220V/60Hz	10 A
	120V/60Hz	15 A
Residual current I_{Dn}	230-240V/50Hz	0.03 A
	220V/60Hz	
	120V/60Hz	

WARNING



THE MANUFACTURER IS NOT RESPONSIBLE FOR DAMAGES CAUSED BY THE INSTALLATION OF THE THERMO-DISINFECTOR WITH UNSUITED ELECTRIC SYSTEMS AND/OR NOT PROPERLY EARTHED.

NOTE



ALWAYS CONNECT THE POWER CORD DIRECTLY TO THE POWER OUTLET.
DO NOT USE EXTENSIONS, ADAPTERS OR OTHER ACCESSORIES.

WARNING



IT IS ESSENTIAL THAT THE ELECTRIC SYSTEM TO WHICH THE MACHINE IS CONNECTED COMPLIES WITH THE REGULATION IN FORCE.

WARNING



ANY ELECTRIC CHECKS AND PREPARATION OF SYSTEMS MUST BE WORKMANLIKE PERFORMED BY SKILLED PERSONNEL, HAVING PROVEN EXPERTISE AND AUTHORIZED TO OPERATE ON ELECTRIC SYSTEMS.
COMPETENT STAFF SHALL CHECK THAT EARTH CONNECTION IS EFFICIENT.

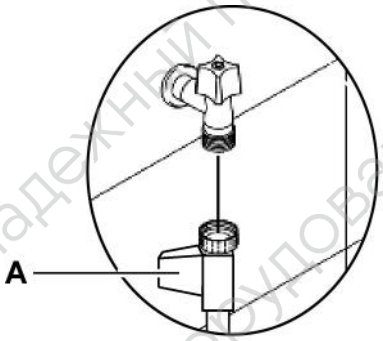
HYDRAULIC SET-UP
WATER FILLING

WATER INLET CONNECTION

The device is equipped with mains water filling pipe.
Pipe is pre-set for tap connection, with integrated "Aquastop" system serving as a protection against any water leak, with 3/4" gas threaded connector.

NOTE

TO AVOID BACK-SIPHONAGE TO THE WATER MAINS, INSTALL A NON-RETURN DEVICE ACCORDING TO PREVAILING STANDARDS.



NOTE

IF FILLING PIPE MUST CROSS A TOP, ARRANGE A D=75 mm HOLE. MINIMUM HOLE D=65 mm REQUIRES THE REMOVAL OF AQUASTOP SOLENOID VALVE SHELL (**A**).

POSITIONING OF FILLING TAPS

Filling taps must be positioned near the device, in a position accessible to the user.
For the positioning of filling taps there are no special constraints of height, except the length of the supplied pipes, approx. 2 metres.

NOTE

TO PREVENT THE RISK OF CLOGGING OR DAMAGE, IF WATER PIPELINE IS NEW OR HAS BEEN INACTIVE FOR A LONG PERIOD OF TIME, MAKE SURE THAT WATER IS CLEAR AND WITHOUT CONTAMINATION BEFORE CARRYING OUT WATER CONNECTION

HYDRAULIC SYSTEM REQUIREMENTS

Check that the water supply pressure is within the required limits:
- minimum pressure 2 bar
- maximum pressure 5 bar.

NOTE

TO AVOID ANY FLOODINGS DUE TO POSSIBLE FAILURES, WE RECOMMEND TO CLOSE THE MAINS WATER TAP WHEN THE DEVICE IS NOT OPERATING, IN PARTICULAR AT NIGHT.

MAINS WATER

For the operation of the machine it is necessary a connection to a 'drinkable' water mains providing water with maximum hardness of 54°f, and total dissolved iron content, Fe2+ and Fe3+, not exceeding 0.5 ppm.

NOTE

IF MAINS WATER CONTAINS A QUANTITY OF FE2+/FE3+ IRON EXCEEDING 0.5 PPM AND/OR MAINS WATER HARDNESS EXCEEDS 54°f (FRENCH DEGREES), A PRE-TREATMENT OF WATER MUST BE CARRIED OUT BY INSTALLING A DEFERRIZATION AND/OR SOFTENING SYSTEM UPWARDS.

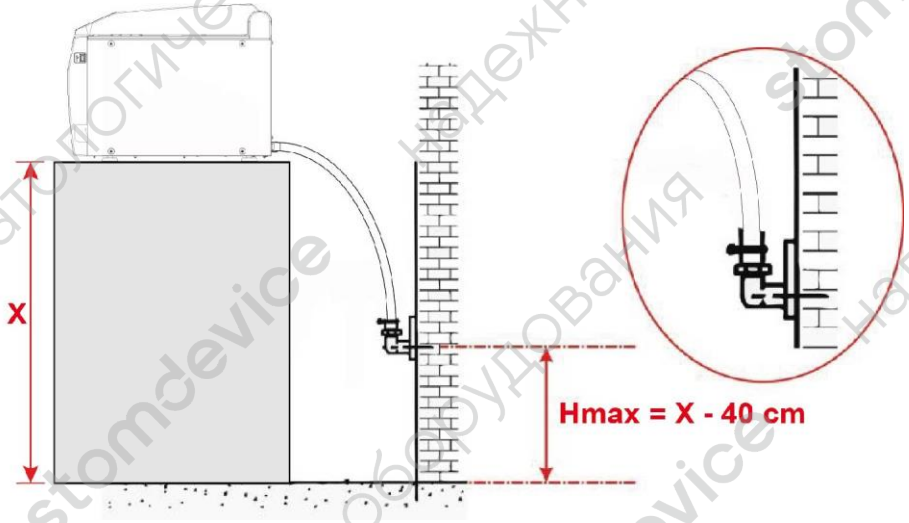
NOTE

IF A SOFTENING SYSTEM IS ALREADY AVAILABLE ON SITE, CONNECTED TO MAINS WATER AND ABLE TO SUPPLY WATER WITH MAXIMUM HARDNESS OF 10°f, MEASURE THE VALUE IN FRENCH DEGREES (°f) OF MAINS WATER HARDNESS AND SET THE CORRESPONDING HARDNESS VALUE IN THE RELEVANT MENU.
THERMO-DISINFECTOR DISABLES RESIN AUTOMATIC REGENERATION IF WATER HARDNESS SET VALUE IS LOWER THAN 10°f.
SEE INSTRUCTIONS IN "WATER HARDNESS" SECTION

WATER DRAINAGE

Drain pipe of the device:
rubber end for hose fitting diameter 19-22 mm (1/2").

WATER DRAINAGE CONNECTION
The device is equipped with a drain pipe.



WARNING

ARRANGE DRAIN PIPE SO AS TO AVOID DEPRESSIONS AND SHARP BENDS TO PREVENT THE TRAP EFFECT AS WELL AS OPERATING FAILURES.

WARNING

DRAINAGE MUST BE MADE IN COMPLIANCE WITH THE INTERNATIONAL AND NATIONAL STANDARDS AND UNDER THE EXCLUSIVE RESPONSIBILITY OF THE USER.

WARNING



IT IS ADVISABLE TO CONNECT THE DRAINAGE PIPE TO A SIPHON WITH A MINIMUM HEIGHT OF 50 MM THAT CAN BE INSPECTED FROM THE LOWER PART.

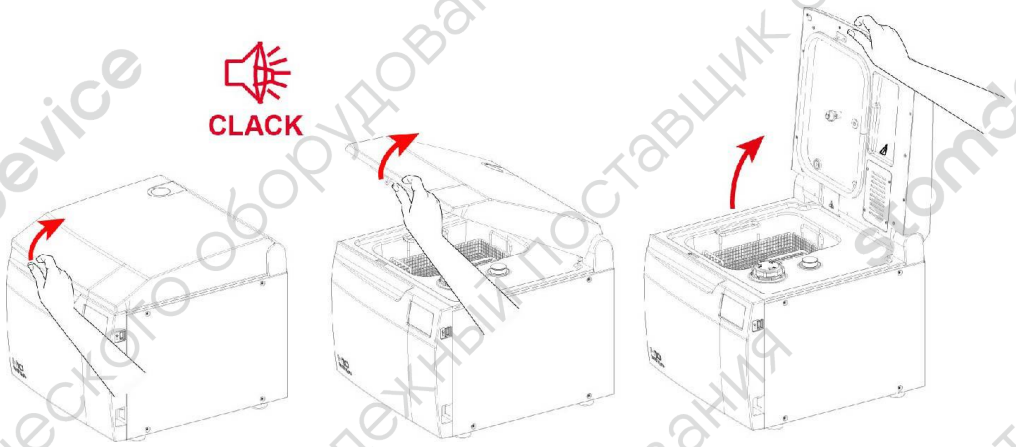
During installation operations please observe the following precautions:

- since the temperature of drainage water is 95°C, both drainage pipe ends must be fixed to the hose fitting and duly secured in place with the supplied clamp;
- the end of the drainage pipe must be placed at a height that complies with specifications, with respect to the support surface of the device;
- the inner diameter of the fixed drainage pipe shall be at least 40 mm;
- prolongations of the supplied drainage pipe shall not be carried out. Possible prolongations may cause drainage problems.

FIRST START-UP

DOOR OPENING

To open the thermo-disinfector it is necessary to release the door applying moderate force and take it to the vertical position.

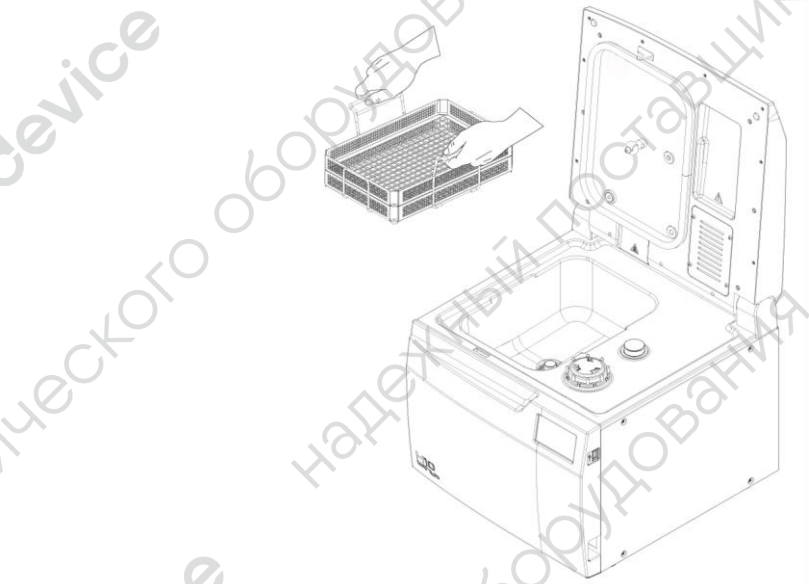


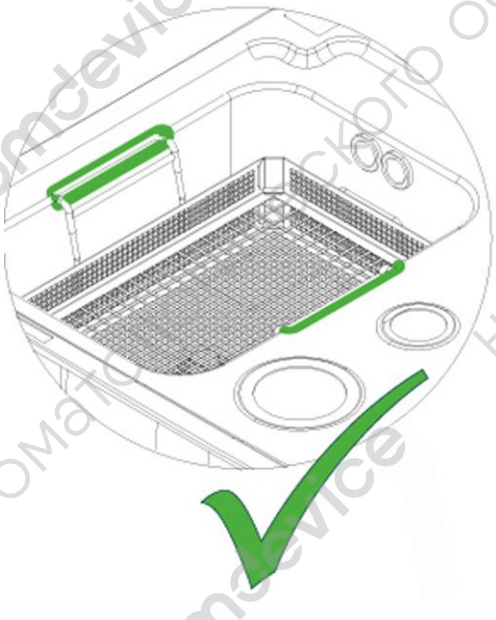
WARNING

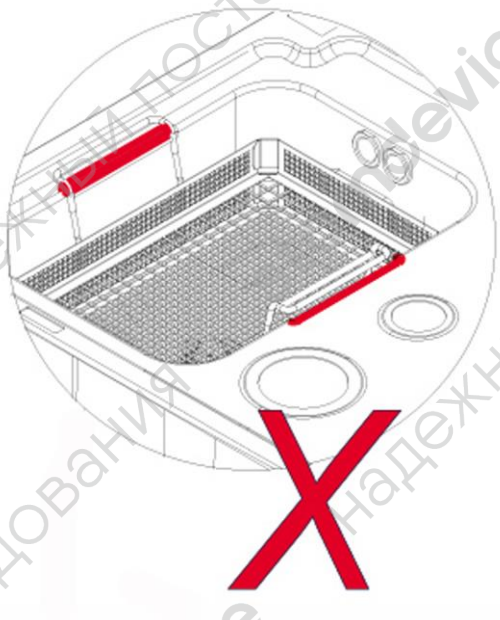
TO PREVENT THE RISK OF FINGER CRUSHING TAKE THE DOOR TO ITS COMPLETE OPENING.

BASKET EXTRACTION AND INSERTION

Remove the basket by seizing it through the proper handles as shown in the figure.
Once it is refitted inside the chamber, make sure that **both handles are correctly positioned in the proper seats on the chamber surface**.







NOTE

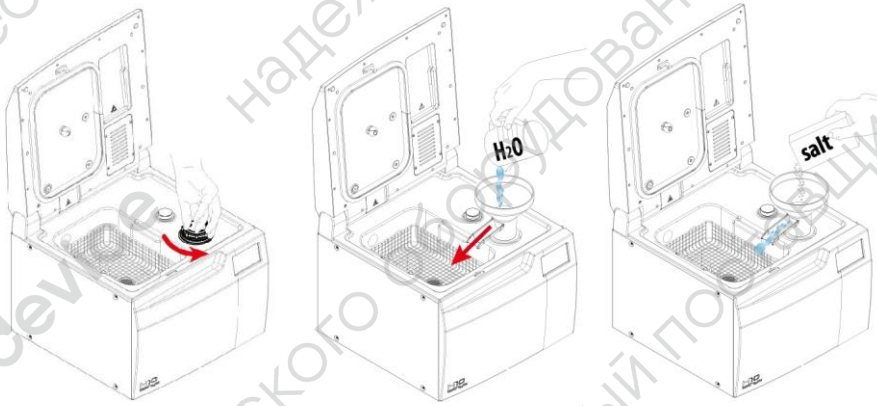
HANDLE WRONG POSITIONING MAY LEAD TO WATER LEAKAGE DURING CYCLES AND THE DEVICE COULD SHOW OPERATING MALFUNCTIONS.

FILLING OF SALT RESERVOIR

The thermo-disinfector is equipped with an inner salt reservoir, used for regeneration of ion exchange resins contained in the integrated water softening system.
At the first use after installation it is necessary to fill completely the reservoir with water, then with salt.
Unscrew the salt reservoir plug, insert the supplied funnel, fill reservoir with water, and slowly pour the salt up to the appearance of the salt at the plug level. Check that the maximum reservoir filling level is not exceeded. At the end of the operation screw the plug in its seat and wait for about 5 minutes until the salt is dissolved.

WARNING

USE NON-IODIZED COARSE SALT OR SALT FOR DISHWASHERS.
AT THE END OF THE FILLING OPERATION RINSE THE SURFACE WITH CLEAN WATER AND REMOVE ALL TRACES OF SALT AND WATER FROM THE SURFACE USING A CLOTH OR ABSORBENT PAPER.



WARNING

POSITION SALT FILLING FUNNEL SO THAT GUTTER IS FACING INSIDE THE CHAMBER IN ORDER TO PREVENT WATER FROM BEING SPILLED ON THE SURFACE.

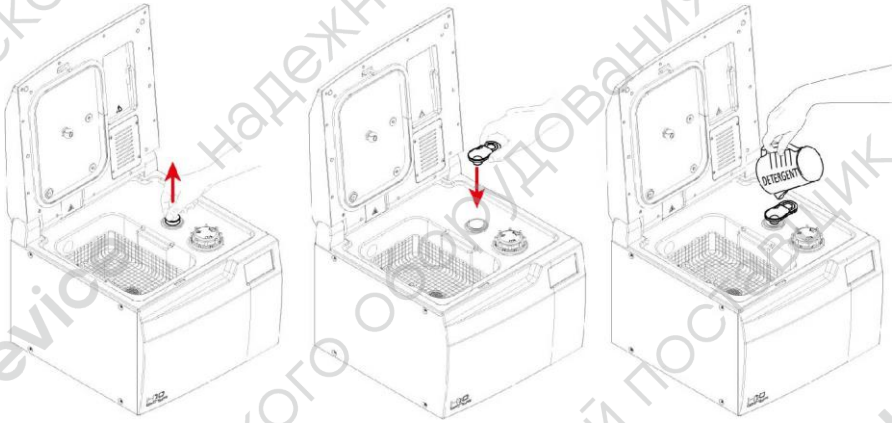
FILLING OF DETERGENT RESERVOIR

The thermo-disinfector is equipped with an inner reservoir for detergent to fill before the use.
Remove the reservoir plug and insert the supplied funnel.
Fill the supplied container and slowly pour the detergent.
Visually check that the maximum reservoir filling level is not exceeded.
At the end of the operation refit the detergent reservoir plug.



WARNING

WEAR PROTECTIVE GLOVES AND GOGGLES.
IF TOO MUCH DETERGENT IS FILLED IN, REMOVE FLUID FROM RESERVOIR SURFACE WITH A CLOTH OR ABSORBENT PAPER.



NOTE

AT THE FIRST FILLING IT IS POSSIBLE THAT DETERGENT AUTONOMY IS LOWER THAN STANDARD BECAUSE THE SUPPLY CIRCUIT MUST BE COMPLETELY FILLED.

VALIDATED DETERGENTS

We recommend using validated detergents, only.
To consult the detergent list, refer to the "VALIDATED DETERGENTS" document attached to supplied documentation.

NOTE

THERMO-DISINFECTOR IS VALIDATED FOR USE WITH SPECIFIC DETERGENTS, SPECIFIED IN THE ATTACHED ADDITIONAL SHEET 97050820 VALIDATED DETERGENTS.
SWITCHING FROM ONE VALIDATED DETERGENT TO ANOTHER REQUIRES A SPECIAL EMPTYING AND RESTORE PROCEDURE (CONTACT THE TECHNICAL SERVICE DEPARTMENT).
DO NOT MIX DIFFERENT DETERGENTS THAT MAY CREATE UNWANTED AND POTENTIALLY HARMFUL CHEMICAL REACTIONS.

NOTE

FOLLOW THE INSTRUCTIONS FOR USE OF THE DETERGENTS INDICATED IN THIS MANUAL.
THE EFFECTIVENESS OF THE WASHING AND THERMAL DISINFECTION HAS BEEN TESTED IN ACCORDANCE WITH THE APPLICABLE STANDARDS USING THE VALIDATED WASHING AGENTS ACCORDING TO PRECISE PARAMETERS OF DURATION, TEMPERATURE, EXTENSION AND DOSAGE.
THE USE OF DETERGENTS OTHER THAN THOSE VALIDATED BY THE MANUFACTURER OR A USE OTHER THAN THE INDICATED ONE CAN CAUSE MALFUNCTIONS AND/OR DAMAGE OF THE DEVICE AND OF THE TREATED MATERIALS.
UNDER THESE CIRCUMSTANCES, WASHING AND THERMAL DISINFECTION EFFECTIVENESS CANNOT BE ENSURED AND A SPECIFIC VALIDATION TO THE USER IS THUS REQUIRED.
IN CASE OF DOUBT CONTACT THE TECHNICAL SERVICE DEPARTMENT (SEE APPENDIX).

WARNING

DO NOT USE DETERGENTS THAT MAY EMIT TOXIC OR HARMFUL GASES.
DO NOT USE POTENTIALLY EXPLOSIVE OR FLAMMABLE DETERGENTS.
DO NOT MIX DIFFERENT DETERGENTS THAT MAY CREATE UNWANTED AND POTENTIALLY HARMFUL CHEMICAL REACTIONS.

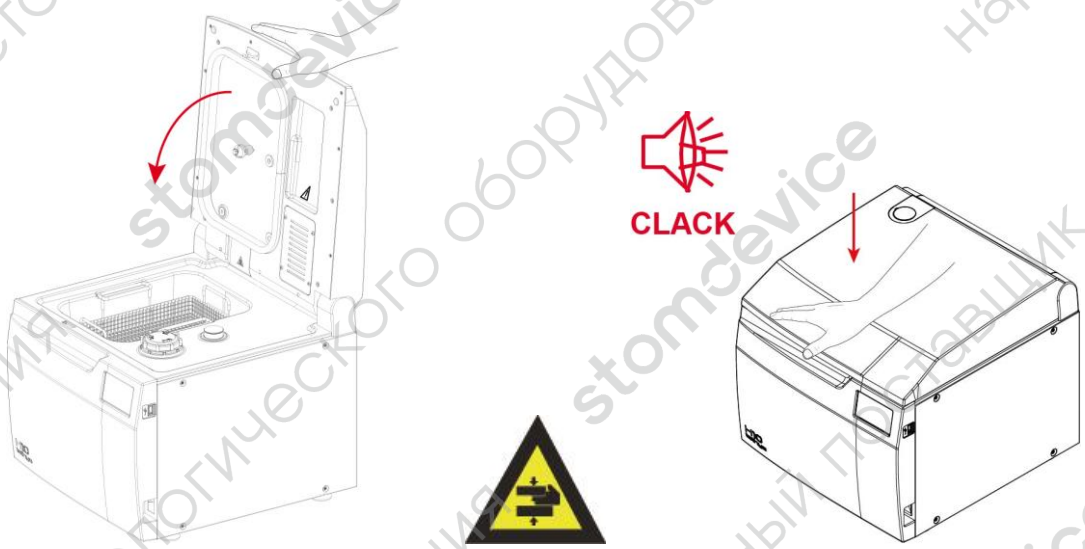
WARNING

DO NOT USE POWDER DETERGENTS: THIS OPERATION MAY DAMAGE INNER MECHANISMS AND CORRODE SURFACES.

DOOR CLOSING

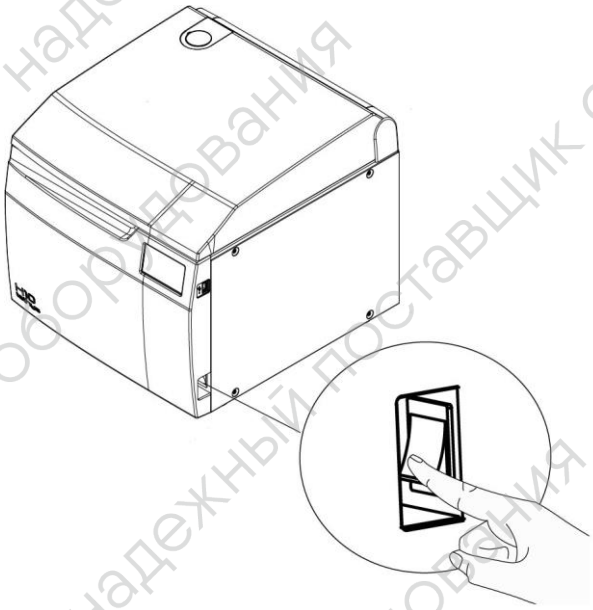
WARNING

TO PREVENT THE RISK OF FINGER CRUSHING TAKE THE DOOR TO ITS COMPLETE CLOSING.



To close the thermo-disinfector press the door with the palm of the hand until the device is closed.

STARTING

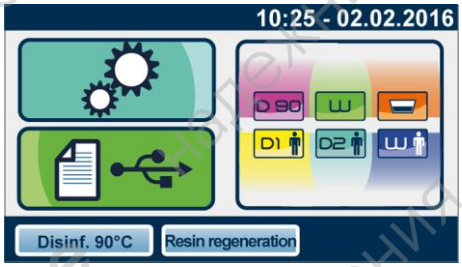


WARNING

DO NOT TURN ON THE THERMO-DISINFECTOR IF USB STICK IS INSERTED.

MAIN MENU

At the end of starting procedure the following main menu is displayed.



The device waits for the cycle selection.

WARNING

THE FIRST TIME THE DEVICE IS USED AFTER THE INSTALLATION AND AFTER A PERIOD OF INACTIVITY EXCEEDING 24 HOURS IT IS NECESSARY TO CARRY OUT AN EMPTY 90° CYCLE BEFORE USING THE DEVICE.

CONFIGURATION

The **Tethys H10** series offers a wide range of customizable options. The user can thus configure the device according to his/her own needs, adapting the performance based on, for example, the type of activity carried out, the type of material to be washed and disinfected and the frequency of use.
Using the configuration programme, the user can set a series of options available in user-friendly menus.

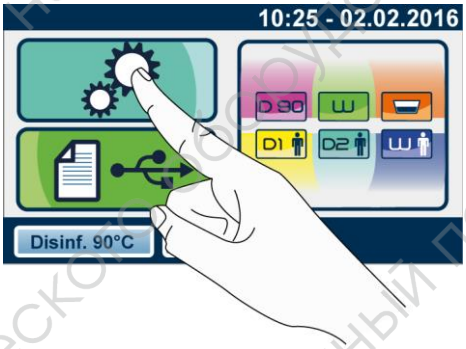
NOTE

A CORRECT CUSTOMIZATION OF THE DEVICE PROVIDES THE BEST PERFORMANCE AND THE MOST SATISFACTORY USE.

THE TECHNICAL SERVICE DEPARTMENT (SEE APPENDIX) IS AVAILABLE TO HELP USERS BY PROVIDING SUGGESTIONS OR ADVICE ON THE BEST WAY TO USE THE OPTIONS IN THE SETUP PROGRAMME.

SETTINGS

To access the configuration programme, press the key indicated in the figure:



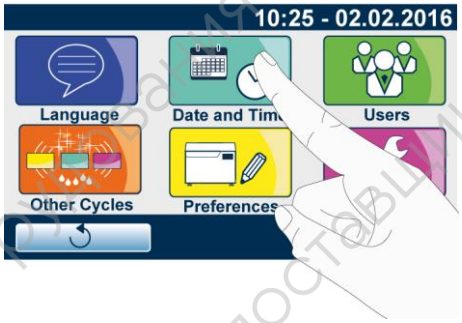
LANGUAGE





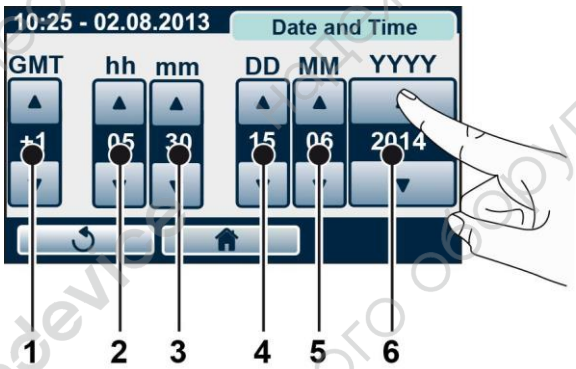
Select the desired language using the scroll arrows.

DATE AND TIME



Use the cursors shown in the figure to adjust date and time.

Press ENTER to confirm the selection.



1. time zone
2 hours
3 minutes
4 day
5 month
6 year

USER



The USER function allows limiting the use of the thermo-disinfector to a pre-defined number of users.
The first user defined on the device will be system administrator. This user will thus be able to define and edit the rights of all the other users working on thermo-disinfector.

When using the device for the first time create the ADMIN user (identified by *) following the indications in the figure below. Fill in the fields inserting ADMIN user name and PIN.

Press ENTER to confirm the selection.





After ADMIN user registration, the following screen is displayed when accessing user management.

Select the user from the list.





NOTE

IF ADMIN USER ENTERS THE PIN INCORRECTLY FOR 3 TIMES, IT IS NECESSARY TO USE THE UNLOCKING PROCEDURE DESCRIBED IN **APPENDIX - ADMIN USER PIN RESET**.

The ADMIN user can decide whether the device will ask for the generic user PIN at the cycle start (PIN START) and/or at the end of the cycle (PIN END).
Press ON to activate PIN request or OFF to deactivate it.



By pressing NEW USER the ADMIN user can create a new generic user, following the instructions described above.

By pressing USER LIST he/she can reach the list of users.

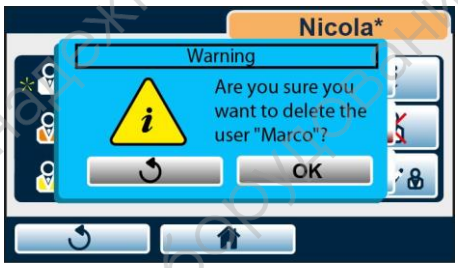


By pressing  button, the data of the highlighted user are displayed:



The ADMIN user can change the PIN of the user highlighted in the user list by inserting directly the new PIN or promoting him/her to ADMIN.

By pressing  button, the ADMIN user can delete the highlighted user from the list.



Confirm the deletion by pressing OK or press  button to go back.

By pressing  button the ADMIN user can choose the cycles that the selected user is enabled to perform, by pressing the related icons.



USER MANAGEMENT

After the registration of the users, the following screen is displayed when accessing user management.
Select your generic user from the list.



Enter the PIN.



The generic user can change his/her own PIN, by entering directly the new PIN, he/she can display the cycles he/she is enabled to perform and consult his/her data.



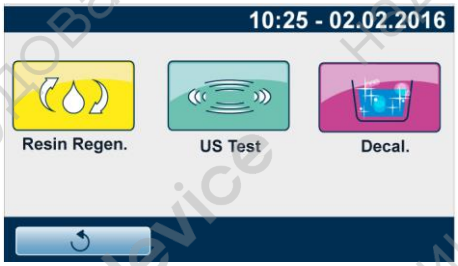
For the generic user (not ADMIN) the list of cycles is in read mode only.



OTHER CYCLES

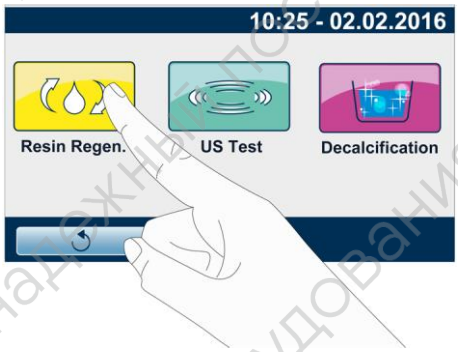
Press "Other Cycles" to select one of the following cycles:
- Resin regeneration
- Ultrasonic Test
- Decalcification

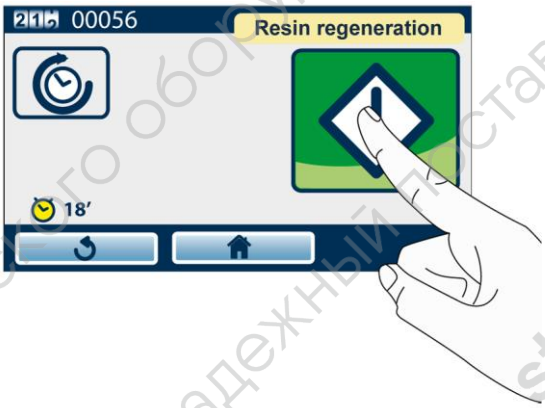




RESIN REGENERATION CYCLE

With a frequency programmed based on set water hardness, device automatically regenerates resins during the following cycles: "Disinf. 90°C", "Washing", "D1 Custom", "D2 Custom" and "W1 Custom".
In any case, the first time thermo-disinfector is used or after a period of inactivity exceeding 24 hours, it is recommended to manually run a "Resin Regeneration" cycle.
Set the device as explained in FIRST START-UP chapter and press the button shown in the figure.







At the end of regeneration process the following screen appears and the device is ready to be used.



ULTRASONIC TEST CYCLE

To test ultrasound operation, refer to the technical standard "Australian Standard™ AS 2773.2-1999 Ultrasonic cleaners for health care facilities" PART 2 - SECTION 6 - Point 6.2 - method ii) both for test execution and result.
Set the device as explained in the Standard and press the button shown in the Figure.

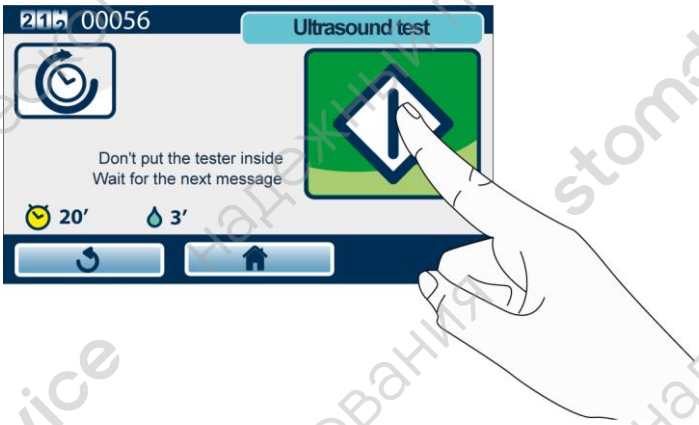


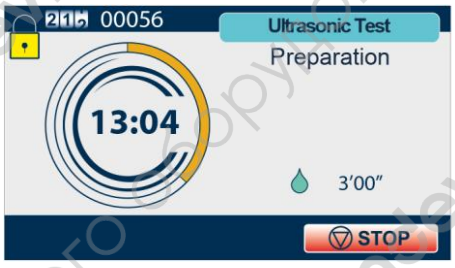
NOTE

USE ONE BASKET ONLY.

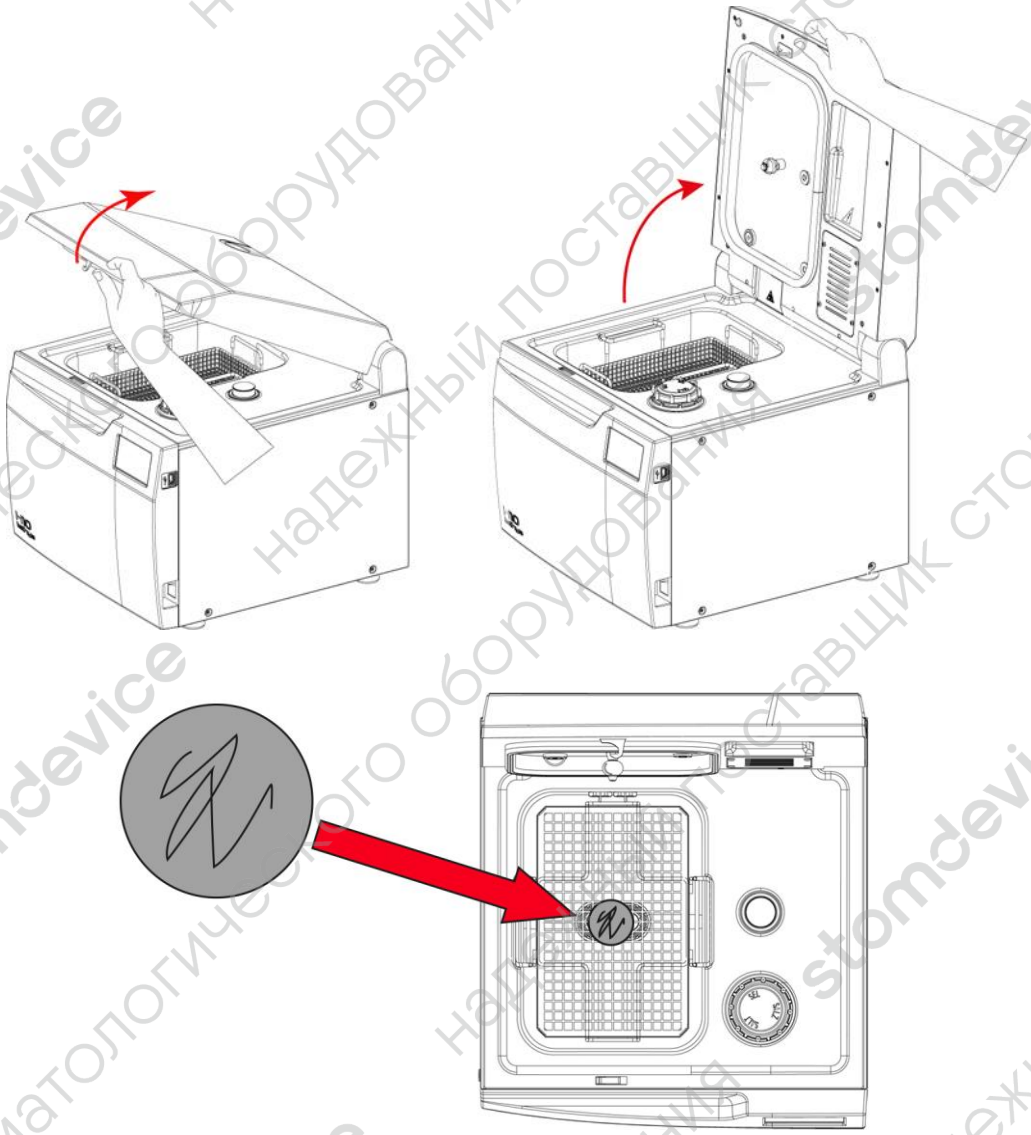
NOTE

DO NOT INSERT TESTER NOW, BUT AT A LATER STAGE, WHEN REQUESTED.



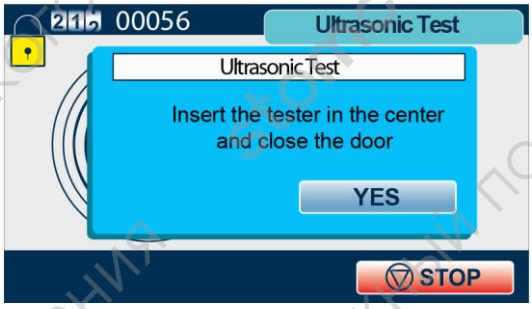


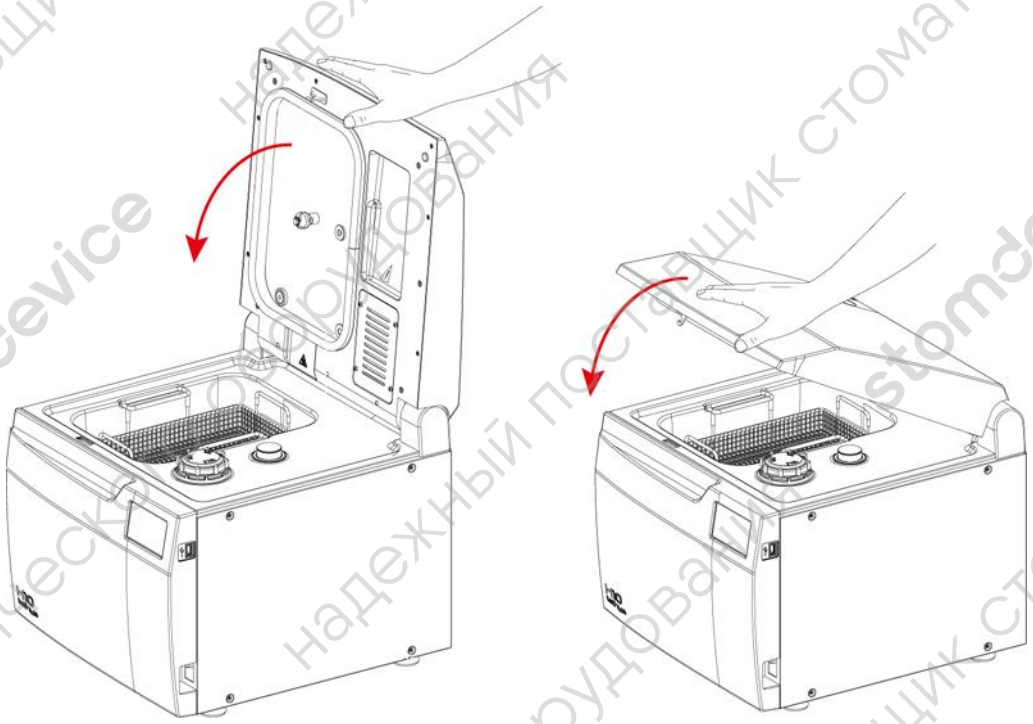
Insert tester in the centre of basket and close cover.



NOTE

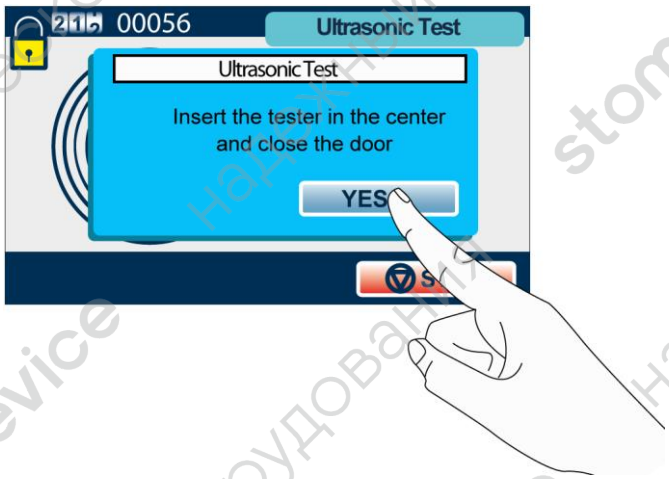
BEFORE PRESSING "YES", MAKE SURE THAT TESTER HAS BEEN INSERTED IN THE CENTRE OF BASKET AND THAT COVER HAS BEEN CLOSED





NOTE

INSERT THE TESTER WITHIN 20 MINUTES.



At the end of the ULTRASOUND TEST the following screen appears and the device is ready to be used.



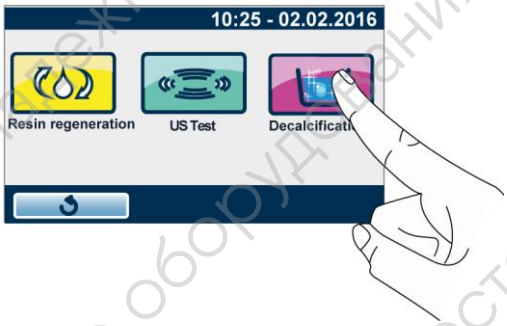
DECALCIFICATION CYCLE

A white thin layer could deposit on cover and chamber metal surfaces due to a high setting of water hardness value.
Machine can be cleaned running the special "Decalcification" cycle.

When carrying out this cycle, use a special limescale remover for water fittings, to be filled in manually. Use only limescale removers for water fittings based with Sulphamic Acid and/or Citric Acid and/or Phosphoric Acid.

WARNING

AVOID USING TOILET PRODUCTS CONTAINING HYDROCHLORIC ACID OR NITRIC ACID OR SULPHURIC ACID AS THEY COULD DAMAGE THE DEVICE.



Start the cycle without pouring product inside chamber. **Wait for the next message and pour product in**.



When requested, pour 50 ml of product inside chamber and close cover.



NOTE

BEFORE PRESSING "YES", MAKE SURE THAT PRODUCT HAS BEEN POURED INSIDE CHAMBER AND THAT COVER HAS BEEN CLOSED.



PREFERENCES

Press "PREFERENCES" to set:
- Water hardness
- Unit of meas.
- Display





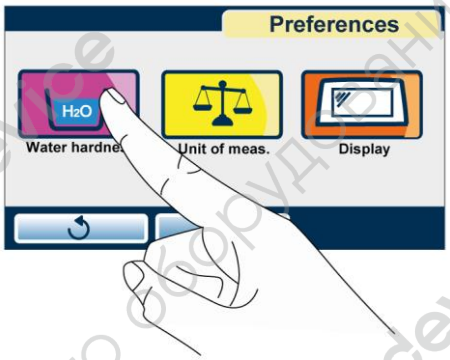
WATER HARDNESS

The device embeds a softening system allowing to reduce mains water hardness.
When device is started for the first time, user will be prompted to set water hardness value in French degrees (°f). Value can be edited also at a later stage through the "Water hardness" command.

NOTE

TO KNOW THE HARDNESS VALUE OF YOUR MAINS WATER, CHECK THE VALUE WRITTEN ON THE INVOICE OF YOUR WATER SUPPLY OPERATOR OR CONSULT THE TABLES AVAILABLE ON THE INTERNET.

The softening system carries out resin regeneration using the salt present inside reservoir. Regeneration is automatically carried out during cycle. Regeneration frequency and the number of cycles that can be performed with the salt reservoir at low level depend on set hardness value.



Use the cursors shown in the figure to set water hardness.
Press ENTER to confirm the selection.



The "resin regeneration" (ON/OFF) message signals whether resin regeneration management is active and depends on set hardness value.

The table below compares the hardness values that can be set (in °f) with the regeneration frequency and the number of allowed cycles with salt reservoir at low level.
The factory default value of the device is “21-30” °f

Water hardness (°f)	Enabling resin regeneration	Regeneration frequency	No. of cycles with empty salt reservoir
<10	OFF	OFF	OFF
10-20	ON	1 out of 8	7
21-30	ON	1 out of 6	5
31-40	ON	1 out of 4	3
41-50	ON	1 out of 2	2
51-54	ON	1 out of 1	1

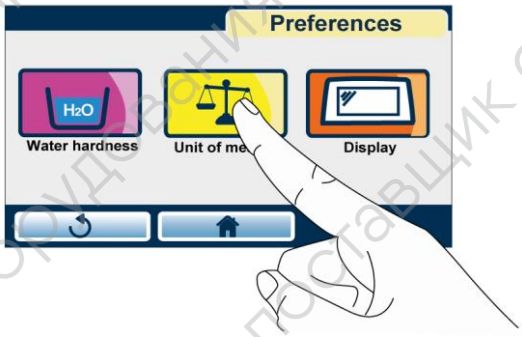
NOTE

THE CYCLES INTEGRATING RESIN REGENERATION ARE: RESIN REGENERATION (CYCLE OF "OTHER CYCLES" MENU), DISINF. 90°, WASHING, D1 CUSTOM, D2 CUSTOM AND W1 CUSTOM.
THE START OF CYCLES WITHOUT REGENERATION (PRE-WASHING, ULTRASONIC TEST, DECALCIFICATION) CAN BE INHIBITED IF THE TIME REQUIRED TO CARRY OUT A REGENERATION HAS ELAPSED. IN THIS CASE, THE DEVICE WILL SIGNAL THIS CONDITION BOTH UPON CYCLE START AND WHEN QUITTING THE PREVIOUS CYCLE. IN CASE OF SIGNAL OR BLOCK, A POP-UP WITH THE MESSAGE "START CYCLE WITH REGENERATION" (CODE E071) WILL APPEAR AND ONE OF THE CYCLES LISTED IN ITEM 1 WILL HAVE TO BE STARTED.



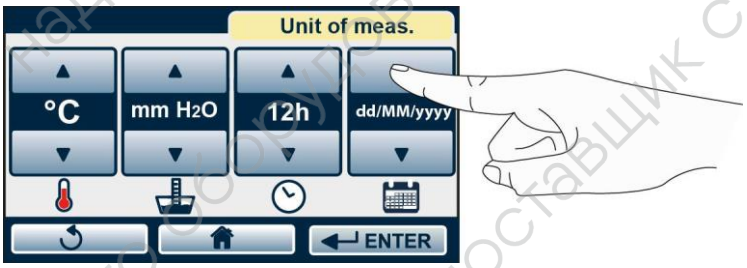
REGENERATION FREQUENCY DEPENDS ON THE SET HARDNESS VALUE: IN CASE OF "21-30" HARDNESS, FOR EXAMPLE, REGENERATION IS CARRIED OUT EVERY 6 CYCLES.
A CERTAIN NUMBER OF CYCLES CAN BE STARTED WHEN SALT RESERVOIR IS EMPTY. THE ALLOWED NUMBER OF CYCLES DEPENDS ON THE SET HARDNESS VALUE: IN CASE OF "21-30" HARDNESS, FOR EXAMPLE, 5 CYCLES CAN BE RUN WITH THE SALT RESERVOIR AT LOW LEVEL.
WITH THE MINIMUM HARDNESS VALUE (<10) RESIN REGENERATION IS DISABLED (OFF).
TO START "RESIN REGENERATION" CYCLE, SALT MUST BE PRESENT INSIDE THE SPECIAL RESERVOIR. THIS CONDITION APPLIES TO ANY WATER HARDNESS VALUE, EVEN "<10".

UNITS OF MEASUREMENT



Use the cursors shown in the figure to set temperature, water level conversion to 'inchH2O', time format (12 or 24 hours) and date.

Press ENTER to confirm the selection.

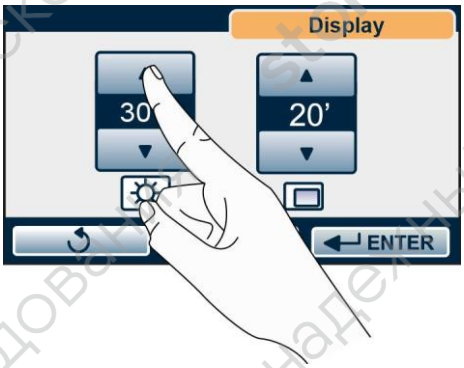


DISPLAY

Use the cursors shown in the figure to set:
- the desired screen brightness
- screen saver activation time out (the current time is displayed).

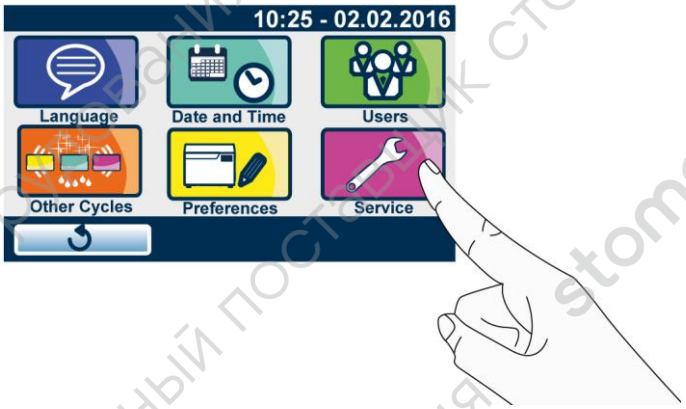
Press ENTER to confirm the selection.





SERVICE

This menu is intended for the technical service department.



PREPARATION OF THE MATERIAL



First of all it should be noted that, when **touching** and **handling** contaminated material, it is advisable to take the following precautions:

Wear a protective mask and goggles.

Wear rubber gloves of adequate thickness;

Clean your gloved hands with a germicide detergent;

Always carry the instruments on a tray;

Never carry instruments in your hands;

Protect your hands from contact with any sharp points or edges; this will avoid the risk of contracting a dangerous infection;

After material handling, carefully wash your still gloved hands.

The load to process shall be properly placed in the supplied basket.

Avoid to overload the instrument basket, using also the additional basket supplied.

In order to obtain an effective cleaning, articulated instruments (scissors, pliers, forceps) must be opened, to minimize overlapping surfaces.

Instruments that can be disassembled must be stored according to the indications of the manufacturer. Overlapping shall always be avoided.

Small instruments and objects (whose dimension is lower than the basket's mesh) must be inserted in the suitable closed basket.

Floating objects must be inserted in the suitable closed basket or, if their dimensions do not allow that, fixed to the basket through a thin stainless steel wire.



WARNING

AVOID DIRECT AND REPEATED CONTACT WITH DIRT MATERIALS. ALWAYS USE THE UTMOST CARE; USE ALL THE SUITABLE PERSONAL PROTECTIVE EQUIPMENT, BOTH BEFORE AND AFTER THE TREATMENT.

NOTE

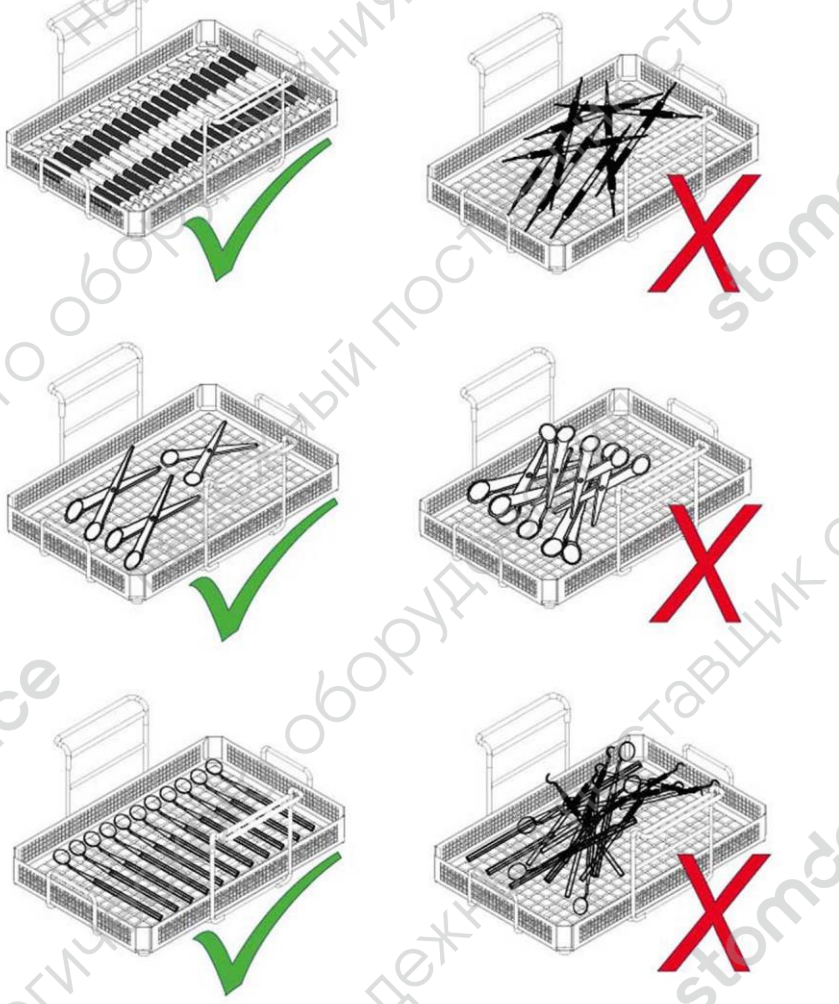
BEFORE PROCESSING ANY INSTRUMENT IN THE INSTRUMENT WASHER, CHECK IN THE MANUFACTURER'S INSTRUCTIONS THAT THEY ARE SUITABLE TO THE AUTOMATIC TREATMENT IN THE THERMO-DISINFECTOR AND CHECK THEIR COMPATIBILITY WITH THE MAXIMUM WASHING TEMPERATURE AND WITH CHEMICALS USED.

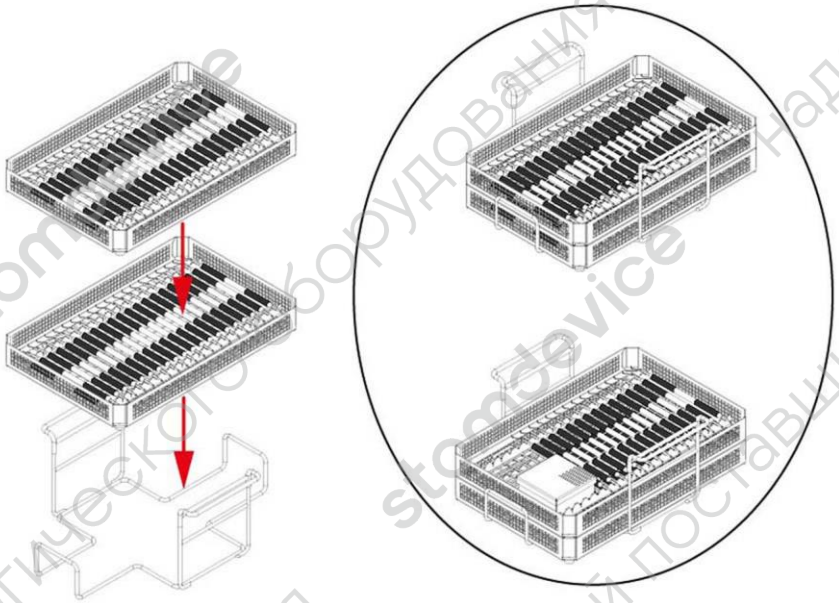
WARNING

REFER TO THE INDICATIONS PROVIDED BY THE MANUFACTURER OF THE INSTRUMENT/MATERIAL TO DISINFECT BEFORE PROCESSING IT IN THE THERMO-DISINFECTOR, CHECKING POSSIBLE INCOMPATIBILITY. STRICTLY FOLLOW INSTRUCTIONS FOR USE OF DETERGENTS OR DISINFECTANTS AND INSTRUCTIONS FOR USE OF AUTOMATIC DEVICES FOR WASHING AND/OR LUBRICATION.

To get the best effectiveness of the disinfection process and preserve the material over time, increasing its useful life, follow the instructions below.

- Make sure that all instruments are disinfected in an open position;
- Position cutting instruments, (scissors, scalpels, etc.) so they can**not** come into contact with each other during disinfection;
- Arrange recipients (glasses, cups, test tubes, etc.) resting on their side, or upended, thus avoiding pooling water;
- Do **not load trays beyond the limit indicated (see Appendix).**

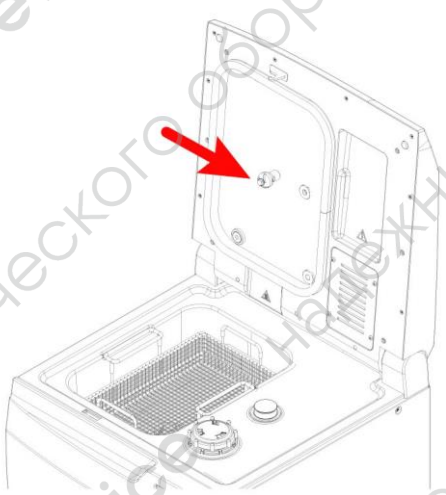


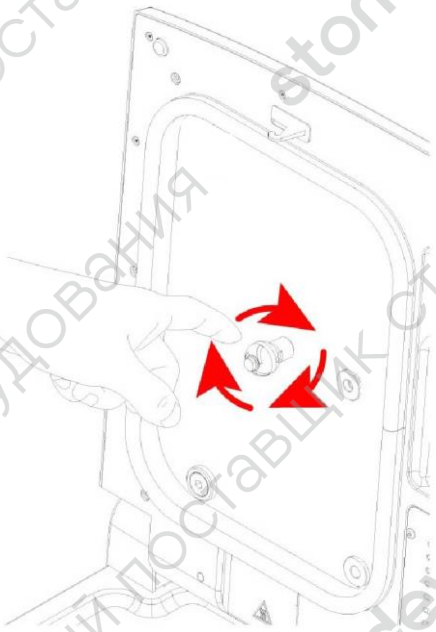


CYCLES

WARNING

BEFORE EACH CYCLE CHECK THAT THE ROTARY NOZZLE TURNS AND THAT THERE ARE NO INTERFERENCES WITH THE LOAD INSIDE THE WASHING CHAMBER.
IF THE ROTATION DOES NOT TAKE PLACE CORRECTLY AND FREELY, CARRY OUT THE NOZZLE MAINTENANCE (SEE MAINTENANCE APPENDIX).





THERMAL DISINFECTION CYCLE (D90)



Thermal disinfection treatment aims at reducing bioburden (bacteria, viruses, etc.) present on the instruments at the end of their use and allowing their safe handling by health professionals properly equipped with personal protective equipment (PPE).

Thermal disinfection is preceded by a washing phase to eliminate
organic and inorganic residues present on the instruments at the end of their use and is followed by a drying phase that eliminates traces of humidity from the load.

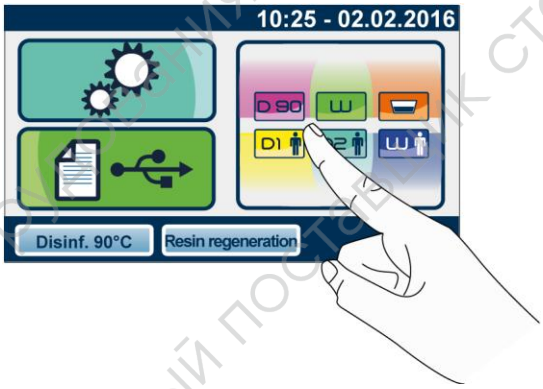
Thermal disinfection cycle is suitable for the treatment of the following materials:
- Stainless steel surgical/generic instruments;
- Carbon steel surgical/generic instruments;
- Glass items
- Mineral-based items;
- Heat resistant plastic items;
- Heat resistant rubber items;
- Other generic materials suitable for thermo-disinfector treatment.

Rotary instruments, instruments made of untreated aluminium or with decorative anodizing and instruments with ducts or cavities with reduced opening and high depth, are explicitly excluded from use.
Dental mirrors are extremely delicate and their reflective surfaces can deteriorate over time.

NOTE

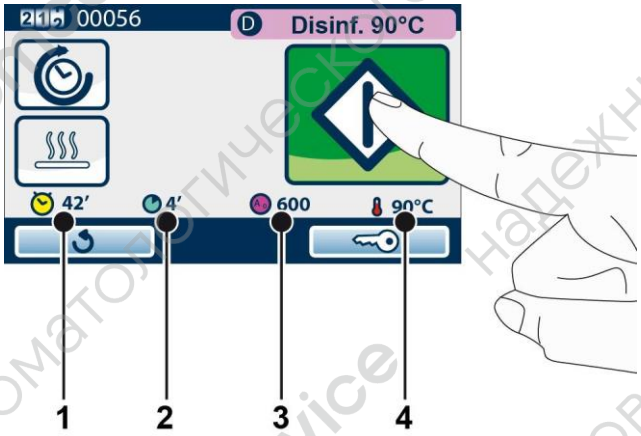
THERMAL DISINFECTION IS SUITABLE FOR ALMOST ALL THE MATERIALS AND INSTRUMENTS, PROVIDED THAT THEY CAN BEAR WITHOUT DAMAGE TEMPERATURE OF 80°C OR 90°C DEPENDING ON THE SELECTED CYCLE (IF THIS IS NOT THE CASE, OTHER LOW-TEMPERATURE DISINFECTING SYSTEMS MUST BE USED).

After having inserted the load in the thermo-disinfector basket (following the precautions indicated in **'Preparing the material'** chapter) select the desired cycle by pressing the button:





Start the cycle by pressing the button corresponding to THERMAL DISINFECTION.
The cycle counter appears in the upper left corner.



1. total cycle time
2. disinfection time
3. A0 (foreseen for the selected cycle)
4. Process nominal temperature

NOTE

A0 THERMAL DISINFECTION PARAMETER

A0 PARAMETER (INTRODUCED BY STANDARD EN 15883) ALLOWS TO ASSOCIATE A NUMERIC VALUE TO THE THERMAL DISINFECTION LEVEL REACHED.

A0 IS CALCULATED, STARTING FROM THE OVERCOMING OF 65°C DURING HEATING PHASE AND SHOWN STARTING FROM THERMAL DISINFECTION PHASE, BY STEPS OF 50 UNITS.

WARNING

AT THE END OF THE CYCLE IT IS **ESSENTIAL** TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

WARNING

THE FIRST TIME THE DEVICE IS USED AFTER THE INSTALLATION AND AFTER A PERIOD OF INACTIVITY EXCEEDING 24 HOURS IT IS NECESSARY TO CARRY OUT AN EMPTY 90 CYCLE (DISINFECTION 90°) BEFORE USING THE DEVICE.

WASHING CYCLE (W)

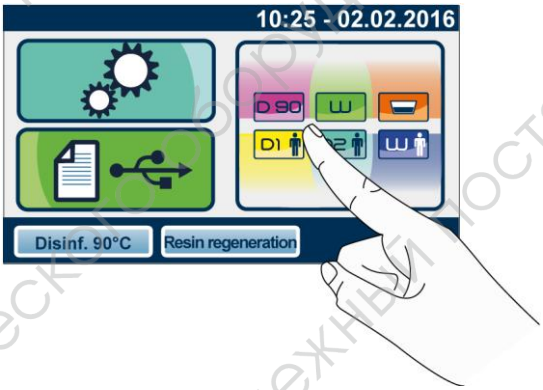
The washing process aims at eliminating organic and inorganic residues present on the instruments at the end of their use and is suitable for almost all materials, except for the porous, hygroscopic and water-soluble ones.

Rotary instruments, instruments made of untreated aluminium or with decorative anodizing and instruments with ducts or cavities with reduced opening and high depth, are explicitly excluded from use.
The reflective surfaces of mouth mirrors can be damaged by ultrasounds.



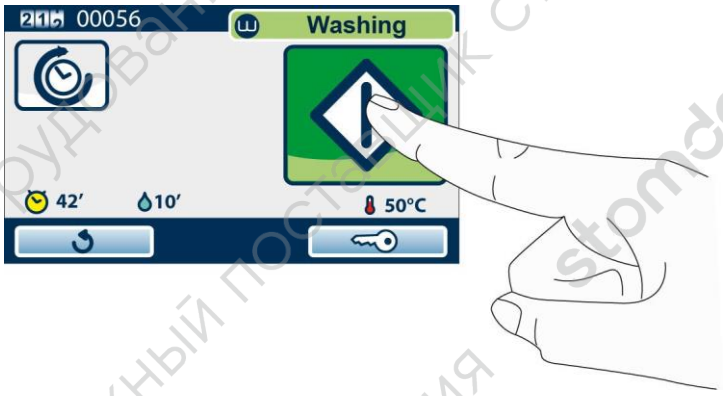
WARNING

THE LOAD TREATED WITH THIS PROGRAMME IS NOT DISINFECTED.
USE THE PRE-WASHING PROGRAMME ONLY AS A PREPARATION TO A SUBSEQUENT THERMAL DISINFECTION PROGRAMME OR IF THE LOAD TO TREAT CAN NOT BE TREATED AS A MINIMUM AT 80°C OR FOR MATERIALS NOT CONTAMINATED AND NOT INTENDED TO COME INTO CONTACT WITH PATIENTS.
AT THE END OF THIS PROGRAMME, HANDLE THE LOAD WITH CARE, USING THE SUITABLE PERSONAL PROTECTIVE EQUIPMENT.





Start the cycle by pressing the button corresponding to WASHING CYCLE.
The cycle counter appears in the upper left corner.



WARNING

AT THE END OF THE CYCLE IT IS **ESSENTIAL** TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

PRE-WASHING CYCLE

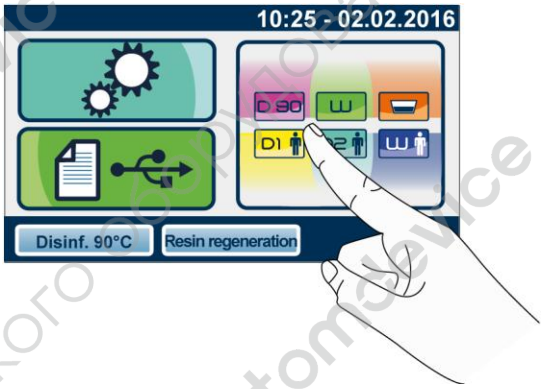


The pre-washing cycle is advised to avoid the drying of organic residues on the instruments and facilitate their removal during the following washing or thermal disinfection cycle.

Rotary instruments, instruments made of untreated aluminium or with decorative anodizing and instruments with ducts or cavities with reduced opening and high depth, are explicitly excluded from use.
The reflective surfaces of mouth mirrors can be damaged by ultrasounds.

WARNING

THE LOAD TREATED WITH THIS PROGRAMME IS NEITHER DISINFECTED NOR WASHED.
USE THIS CYCLE ONLY AS A PREPARATION TO A SUBSEQUENT THERMAL DISINFECTION OR WASHING PROGRAMME.
AT THE END OF THIS PROGRAMME, HANDLE THE LOAD WITH CARE, USING THE SUITABLE PERSONAL PROTECTIVE EQUIPMENT.





Start the cycle by pressing the button corresponding to PRE-WASHING CYCLE.
The cycle counter appears in the upper left corner.



CUSTOM CYCLES

In addition to preset programmes (**90° DISINFECTION, WASHING** and **PRE-WASHING**) that cannot be modified by the user, customizable programmes are available.
D1 CUSTOM and **D2 CUSTOM** are DISINFECTION programmes that can be set according to the needs of the user.
W CUSTOM is a WASHING programme that can be set according to the needs of the user.

THERMAL DISINFECTION CYCLES SET BY THE USER (D1 CUSTOM, D2 CUSTOM)

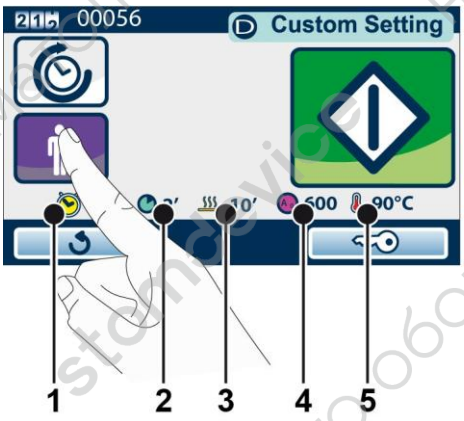


In thermal disinfection cycles set by the user the cycle can be customized by setting washing temperature, A0 value, washing duration and drying duration.
It is possible to set A0 to a value lower than the default one (3000), remaining within the limits of the prevailing standards.
Washing temperature can be set to 80°C or 90°C.
The duration of thermal disinfection cycle at 80°C with high A0 values increases of 10/15 minutes compared with D90 standard cycle.

To set parameters select the key shown:

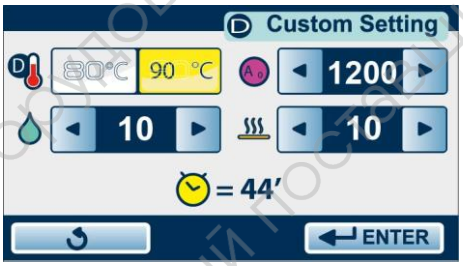


Hold down the key shown to access settings



1. Total cycle time
2. Disinfection time
3. Drying time
4. A0 value
5. Temperature set

For cycle correct setting, set thermal disinfection temperature (80°C or 90°C), A0 value, washing duration and drying duration.
A0 parameter can be set between 600 and 6000 with increments of 600, with thermal disinfection at 90°C.
If thermal disinfection at 80°C is selected, A0 parameter can be set between 600 and 1200, in steps of 300.



After all these selections the estimated total time appears.
Use ENTER key to save settings and go back to the previous screen.
Press START key to start the cycle defined by the user.

NOTE

THE A0 VALUE SET CORRESPONDS TO THE MINIMUM ENSURED FOR EACH DISINFECTION PROGRAMME.
ONCE CYCLE IS COMPLETED, THE REACHED AND DISPLAYED A0 VALUE WILL BE HIGHER THAN THE ONE SHOWN UPON CYCLE START.

NOTE

SETTINGS USED ARE STORED FOR A POSSIBLE FOLLOWING USE OF CUSTOM CYCLE.

WARNING

AT THE END OF THE CYCLE IT IS **ESSENTIAL** TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

WASHING CYCLE DEFINED BY THE USER (W1 CUSTOM)



In the washing cycle set by the customer it is possible to set the duration (time) of the washing cycle among the selectable options.

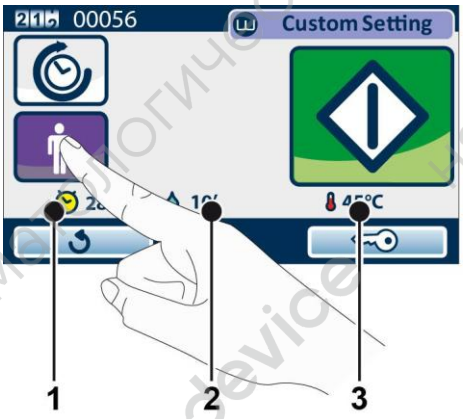
WARNING

THE LOAD TREATED WITH THIS PROGRAMME **IS NOT DISINFECTED.**
USE THIS CYCLE ONLY AS A PREPARATION TO A SUBSEQUENT THERMAL DISINFECTION PROGRAMME OR IF THE LOAD TO TREAT CAN NOT BE TREATED AS A MINIMUM AT 80°C OR FOR MATERIALS NOT CONTAMINATED AND NOT INTENDED TO COME INTO CONTACT WITH PATIENTS.
AT THE END OF THIS PROGRAMME, HANDLE THE LOAD WITH CARE, USING THE SUITABLE PERSONAL PROTECTIVE EQUIPMENT.

To set parameters select the key shown:



Hold down the key shown to access settings



>3 s

1. Total cycle time
2. Washing time
3. Temperature set
4. Drying time

Select washing time and drying time.



After all these selections the estimated total time appears.
Use ENTER key to save settings and go back to the previous screen.
Press START key to start the cycle defined by the user.

WARNING



AT THE END OF THE CYCLE IT IS **ESSENTIAL** TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

DRYING FUNCTION

A function allowing to adjust the drying time of each cycle is available.

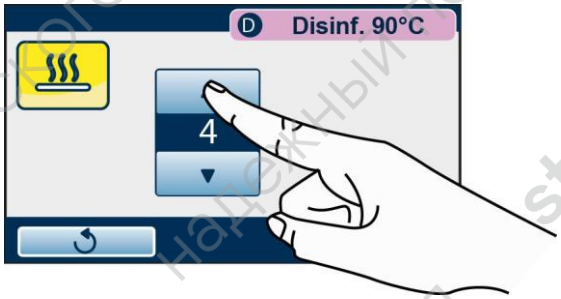
NOTE

"STANDARD" DRYING ALLOWS TO REMOVE WATER RESIDUES FROM A COMPLETE LOAD OF METAL INSTRUMENTS.
TO OBTAIN BETTER DRYING PERFORMANCE, IT IS RECOMMENDED TO SET A LONGER TIME DEPENDING ON THE TYPE OF LOAD.

After selecting the desired cycle, hold the following key pressed to set the drying time:



Set total drying minutes of the process. The minimum value that can be set is the standard value foreseen for the selected process; if 0 (zero) value is set, drying phase is deactivated.



The selected value appears near the key.
Press "Enter" to confirm the set value.
Activate the cycle.

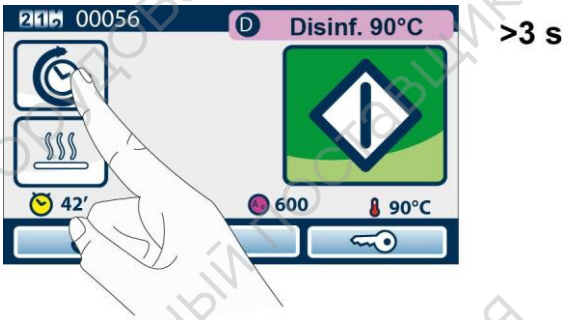


NOTE

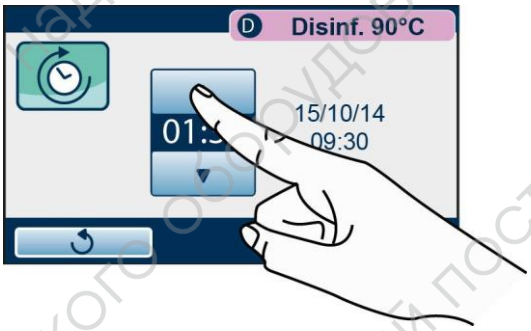
THE VALUE REMAINS STORED SO, IF UPON NEXT CYCLE RUN YOU DO NOT WISH TO ACTIVATE DRYING, PRESS THE DRYING ICON

DELAYED START FUNCTION

A function to set cycle delayed start is available.
After selecting the desired cycle, hold the following key pressed to set the delay time:"



Set delayed start time. The minimum value that can be set is 30 minutes. Cycle start time is displayed close to command. Press "Enter" to confirm setting.



Cycle start time will be displayed close to button.
Activate the cycle.



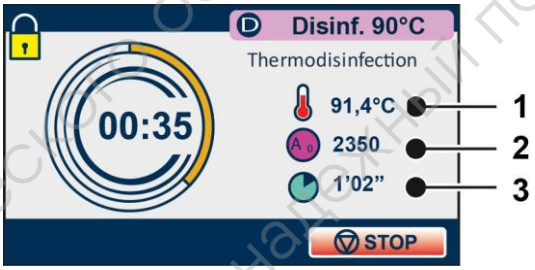
NOTE

THE TIME REMAIN STORED. AT THE FOLLOWING PROGRAMME EXECUTION, PRESS KEY TO ACTIVATE THE OPTION USING THE PREVIOUSLY SET VALUE.

EXECUTION OF THE CYCLE

Take, for example, the execution of **Thermal disinfection (D90)** cycle, which includes the following phases:

- Pre-washing
- Washing
- 3 Rinses
- Heating
- Thermal disinfection (from thermal disinfection temperature reaching to drainage included).
- Drying:



1. Temperature in the chamber
2. A0
3. Disinfection time (fixed until thermal disinfection start, then decreasing till the end)

The **Pre-washing** cycle has only the Pre-washing phase.

CYCLE OUTCOME

At the end of the cycle it is important to check the process outcome.
If message **"CYCLE COMPLETED"** is displayed, this means that the cycle ended correctly without interruptions due to any alarms, and the material **disinfection** is ensured.



If the cycle FAILED it did NOT end correctly and the code of the alarm that interrupted the cycle appears. Refer to 'Alarms' appendix.



NOTE

AT THE END OF THE CYCLE, IF THE DOOR IS NOT OPENED, AN ACTIVE VENTILATION PHASE OF THE WASHING CHAMBER IS ENABLED TO REMOVE HUMIDITY RESIDUES FROM THE LOAD.
SUCH FUNCTION AUTOMATICALLY ENDS AFTER ABOUT 2 HOURS OR WHEN THE DOOR IS OPENED.

DOOR OPENING AT THE END OF THE CYCLE

At the end of the cycle, in case of successful outcome, it is necessary to release the door locking mechanism by pressing the key shown in the figure, to allow door opening.

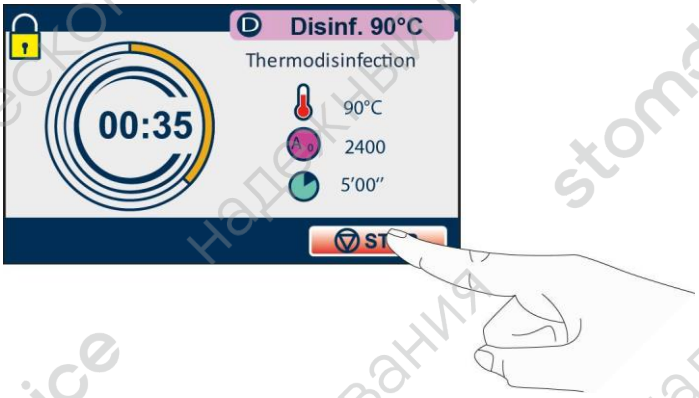


WARNING

AT THE END OF THE CYCLE IT IS **ESSENTIAL** TO VISUALLY INSPECT THE OBJECTS TO CHECK THEIR PROPER WASHING.

MANUAL INTERRUPTION

The cycle can be interrupted by the operator in any moment, by holding down the key indicated in the figure for about three seconds.



The command generates **E999 error** since the cycle could not end correctly.

NOTE

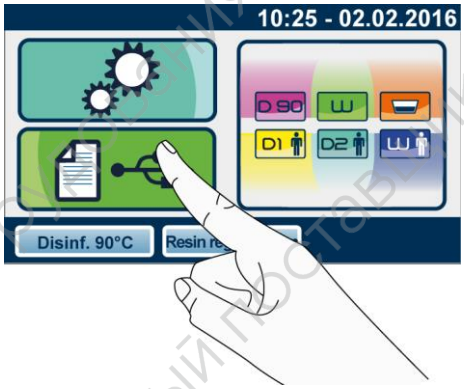
FOR THE COMPLETE DESCRIPTION OF THE ALARMS REFER TO 'ALARMS' APPENDIX.

WARNING

AFTER A MANUAL INTERRUPTION OF THE PROGRAMME THE LOAD MUST BE HANDLED WITH CARE SINCE THE DISINFECTION IS NOT ENSURED.

DATA MANAGEMENT

To access DATA MANAGEMENT section press the relevant icon.



SYSTEM INFORMATION

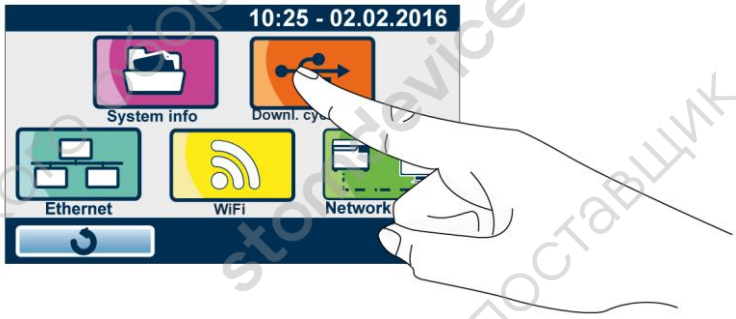
By selecting SYSTEM INFO all the information about the thermo-disinfector settings are displayed.





DOWNL. CYCLE DATA

It is possible to copy data about the cycles carried out, stored in the inner memory of the thermo-disinfector, on a USB stick.
To download the files of cycles select the following key:

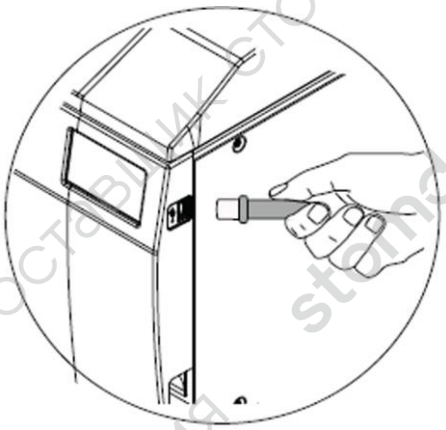


NOTE

THE USB FLASH DRIVE MUST BE FORMATTED ACCORDING TO THE INSTRUCTIONS SET FORTH IN THE APPENDIX - TECHNICAL CHARACTERISTICS SUMMARY TABLE.

Before carrying out the following operations insert the USB stick.
If the USB stick is not present, its insertion is required.





It is possible to select the number of cycles to download on the external storage device.
The available selections are "New", "Last 10", "Last 50", "Last 100" or "Custom Mode".
If you choose the Customized option set the cycle interval you want to download.







NOTE

CYCLE REPORT FILES ARE IN PDF FORMAT.

NOTE

WHEN A PRESET VALUE IS EXCEEDED THE SYSTEM GENERATES A NOTICE ABOUT THE NEED TO CARRY OUT THE DOWNLOAD OF DATA CONTAINED IN THE INTERNAL MEMORY.
IT IS POSSIBLE TO RESET THE NOTICE BY CARRYING OUT THE DOWNLOAD IN 'DOWNLOAD NEW CYCLES' MODE.

WARNING

DO NOT TURN ON THE THERMO-DISINFECTOR IF USB STICK IS INSERTED.

ETHERNET

The thermo-disinfector can be connected to an Ethernet local network through the proper connector placed on the rear of the machine.
Using a web browser (such as Internet Explorer, Chrome, Firefox, etc.) from a PC or another device connected to the local network (tablet, smartphone, etc.) it is possible, by inserting the TCP-IP number assigned to the machine, to query the latter to check its operating state. From the web page of the machine it is also possible to download the reports of the cycles performed, to consult or store them.

The thermo-disinfector supports the DHCP protocol.
DHCP (Dynamic Host Configuration Protocol) is a TCP-IP protocol that allows a device to communicate with a specific server and receive automatically configuration data required to communicate correctly on the network.

Very often, in small networks, DHCP Server functionalities are integrated in the Internet network router.
For the proper configuration of the thermo-disinfector the three use scenarios are described:

1) Connection to a local network equipped with DHCP server, with thermo-disinfector in automatic configuration.
2) Connection to a local network equipped with DHCP server, with thermo-disinfector configured with static IP.
3) Direct connection with Ethernet cable between thermo-disinfector and PC.

ETHERNET LOCAL NETWORK CONFIGURATIONS

To set parameters select the following item:

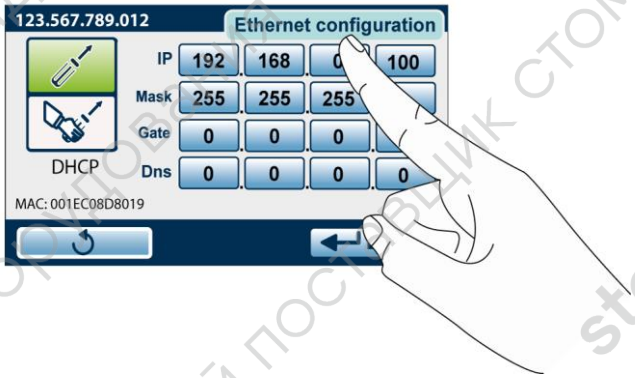


1) CONNECTION TO A LOCAL NETWORK EQUIPPED WITH DHCP SERVER, WITH THERMO-DISINFECTOR IN AUTOMATIC CONFIGURATION

Connect the thermo-disinfector to the Ethernet local network through a network cable.
In network config. screen a specific number for TPC port to communicate with thermo-disinfector can be selected; the default value is 10080.

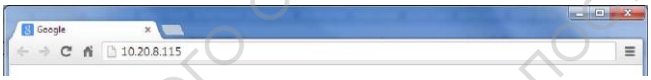


Display the Ethernet configuration page:



Make sure that Automatic DHCP 

configuration is selected.
With this selection all the numeric fields present on the screen are disabled (they get grey).
With this setting at each start the machine requires the network DHCP server its own configuration using the DHCP protocol.
According to DHCP server configuration the numbering received may change at each start.
The TCP-IP number assigned to the machine appears on the upper blue bar in the first screen (Home).
Type in the number present on the device followed by "." and by the TPC port number (default 10080) in the web browser address toolbar of your PC i.e.: 10.20.8.115:10080:



The programme will display the web page:



(in the example the URL is http://10.20.8.115:10080)

It is usually possible to set DHCP server in order to always assign the same IP number to a given device or to assign the same number to a given device for a predetermined period of time. For these settings refer to the instruction manuals of your DHCP Server or of the local network Internet router.
For these settings it is necessary to know the 'MAC Address' of the thermo-disinfector that appears in the lower left corner of the Ethernet setting screen.



2) CONNECTION TO A LOCAL NETWORK EQUIPPED WITH DHCP SERVER, WITH THERMO-DISINFECTOR CONFIGURED WITH STATIC IP.

In order to avoid checking often the TCP-IP number assigned dynamically from a DHCP Server, it is possible to assign manually a fixed number of the dynamic numbering of the local network.
To avoid conflicts it is essential to:

- configure DHCP Server so that it does not assign the selected number to other devices.

Or

- assign statically a number out of the range assigned by the DHCP server to the thermal-disinfector.

For the information needed for a correct configuration check DHCP server settings of the local network.
To assign statically an IP address to the thermal-disinfector:
Access 'Data management' menu.
Display the Ethernet configuration page
Make sure that Automatic DHCP configuration is selected.
With this selection all the numeric fields on the screen are disabled (they get grey).



Take the first three numbers of the local network numbering, in the example above the first three numbers are:

192.168.0

NOTE

AS AN ALTERNATIVE, IN WINDOWS SYSTEMS IT IS POSSIBLE TO USE IPCONFIG COMMAND FROM A 'COMMAND PROMPT' WINDOW (ACCESSIBLE FROM PROGRAMMES -> ACCESSORIES) TO DETECT THE LOCAL NETWORK CONFIGURATION.

Now it is necessary to set statically the new number as follows:

1) Select manual configuration .
2) Set the first three fields of the address with the values detected (e.g.: 192.168.0).
3) Assign the chosen number to the last value, e.g. 222 (out of the range assigned automatically, avoiding 0 and 255).
4) Check that Subnet Mask field is set to 255.255.255.0.
5) Gateway address is not important for communications inside the network (set 0.0.0.0).

Then the complete IP address (in this example) is: 192.168.0.100.
To connect to the thermal-disinfector enter the new number in the web browser address toolbar as shown above (http://192.168.0.100).
The programme will display the thermal-disinfector web page.

3) DIRECT CONNECTION WITH CABLE BETWEEN THERMO-DISINFECTOR AND PC

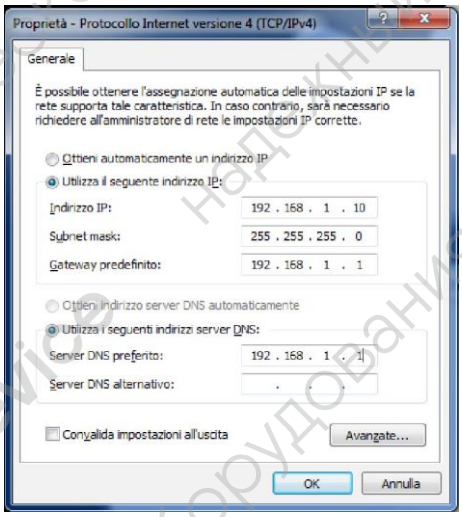
It is possible to connect a PC (e.g. a notebook) and a thermo-disinfector directly through a network cable, without having to connect them both to a local network.
To obtain the connection, PC and thermo-disinfector have to be configured in static mode, as shown in the previous example, taking care that the two devices have the first three fields with the same numbering (e.g. PC 192.168.1.10 thermo-disinfector 192.168.1.100).
Access 'Data management' menu. Display the Ethernet configuration page



Then make sure that manual configuration  is selected.

The thermo-disinfector proposes its default IP Address, i.e. 192.168.1.100.
Do not use 0 or 255 for the last address field.

Set the PC as per the following image:

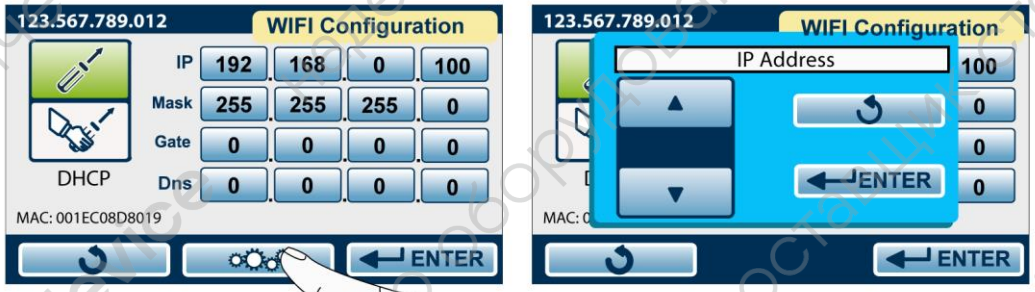




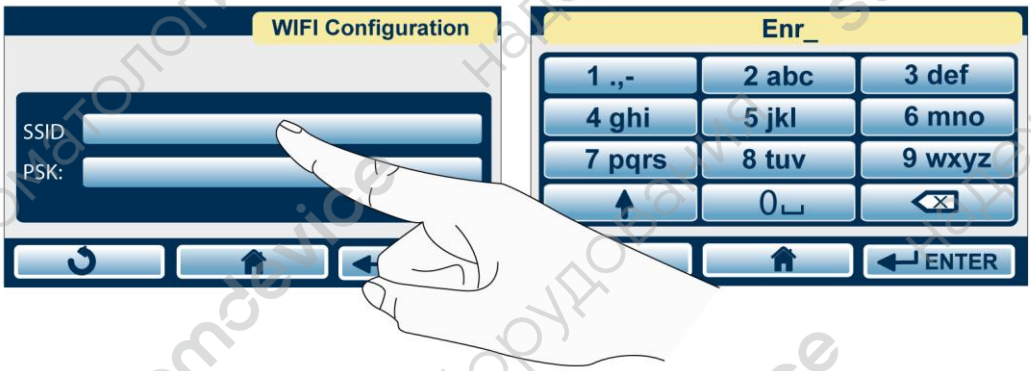
WIFI

For WIFI configuration, follow the instructions given above for Ethernet network configuration. Select the option as shown below:





Correctly configure the network by entering the WIFI network name (SSID) and the network password



APPENDIX - TECHNICAL CHARACTERISTICS SUMMARY TABLE

Device	THERMO-DISINFECTOR Tethys H10
Class (according to Directive 93/42/EEC and subsequent amendments)	IIb
Manufacturer	CEFLA s.c. Via Selice Prov.le 23/a 40026 Imola BO - Italy
Input voltage	220-240V 50 Hz 220-240V 60 Hz 120 V 60 Hz
Network fuses (6.3 x 32 mm)	F1: F15A 250V 6.3x32mm (mains power source) F2: F15A 250V (mains power source) F3: T5A 250V (water recirculation pump)
Electronic board fuse 97668148	220-240V F1: T3,15A (5x20 mm) 120 V F2: T3,15A (5x20 mm)
Electronic board fuse 97668145	F1: F5A 250 V (5x20 mm)
Nominal power	220-240V 50 Hz - 2300W 220-240V 60 Hz - 2300W 120 V 60 Hz - 1440W
Rated current	220-240V 50 Hz - 10A 220-240V 60 Hz - 10A 120 V 60 Hz - 12A
Insulation class	Class I
Installation category	Cat. II
Operational environment	Indoor use
Maximum sound level Average sound level Ultrasonic pressure	< 79 dB 70 dB 90 dB
Environmental operating conditions	Ambient temperature: between 5 °C and 40 °C Max. relative humidity: 80 % non-condensing up to 31°C. Linear decreasing maximum limit up to 50% at 40°C Altitude: max. 1500 m (a.s.l.)
Storage and transport conditions	Ambient temperature: between 5 °C and 40 °C Max. relative humidity: 80 % non-condensing
External dimensions (HxWxD) (rear connections excluded)	430 x 470 x 500 mm
Net weight	about 37 kg
Chamber dimensions (HxWxD)	125 x 224 x 314 mm
Chamber nominal volume	8 litres
Chamber usable volume	6 litres
Basket internal dimensions (HxWxD)	180 x 280 x 30 mm
Detergent reservoir capacity	0.6 litres (usable volume: 0.5 litres)
Washing and disinfection programmes	3 standard programmes + 3 programmes defined by the user
USB connection	Stick capacity lower than or equal to 2GB: FAT formatting with 16K/sector. Stick capacity higher than 2GB: FAT32 formatting with 16K/sector.
Ethernet connection	RJ45 (max. cable length 29 m)
Water pressure	200 kPa – 500 kPa (2 bar – 5 bar)
Required flow (min - max)	2 – 12 litres / min

Hardness of mains water (max)	54 °f NOTE: for values above 41° f, we recommend using an external softening system
Fe2+ / Fe3+ (max)	0.5 ppm
Inlet water temperature	max 30 °C
Limits according to water microbial contamination	Minimum microbiological quality required: "drinkable type water" (Ref. Directive 98/83/EC)
Maximum total heat in watts transmitted to the surrounding air when WD is operated at a room temperature of (23 ± 2) ° C in air	370 W

SAFETY DEVICES

The thermo-disinfector is equipped with the following safety devices, for which we provide a brief description of their function:

- **Mains fuses** (see data in summary table)
  User electrical system protection against excessive absorption due to a fault of the device.
  Action: power supply interruption.

- **Electronic circuits protection fuses** (*see data in summary table*)
  Protection against the excessive absorption due to circuit faults or loads downstream fuses.
  Action: interruption of one or more circuits.

- **Thermal circuit-breakers on mains voltage windings**
  Protection against possible overheating of pump motors or of transformer.
  Action: temporary cut-off (until cooling) of the winding.

- **Safety thermostat with manual reset on heaters**
  Protection against possible component overheating.
  Action: heating resistance power supply interruption.

- **Door locking mechanism safety micro-switch**
  Striker for the correct locking position of door locking system.
  Action: signalling of failed or wrong operation of door locking mechanism.

- **Double temperature sensor of washing chamber**
  Redundant check of disinfection process parameters
  Action: immediate interruption of the programme (in case of malfunction) and generation of alarms.

- **Detergent dosage flowmeter**
  It ensures a proper and repeatable supply of detergent during washing phases.
  Action: immediate interruption of the programme if an unsuitable supply is detected.

SUMMARY TABLE OF CYCLES

CYCLE DESCRIPTION	°C WASHING TEMPERATURE	WASHING TIME	ULTRASOUND TIME	°C DISINFECTION TEMPERATURE	A0	DISINFECTION TIME	DRYING TIME	TOTAL CYCLE TIME	MAX TOTAL MASS (kg)
DISINFECTION D90	45	6’	7’	90	3,000	4’	0’ 6’ ÷ 25’	36’	2
W WASHING	45	6’	7’	-	-	-	0’ 6’ ÷ 25’	20’	
PRE-WASHING	25	5’	-	-	-	-	-	7’	
DISINFECTION D1 CUSTOM	45	6’ ÷ 15’	7’÷16’	80	600÷ 1,200 (at 80 °C)	10’-20’ (at 80 °C)	0’ 6’ ÷ 25’	According to settings	
DISINFECTION D2 CUSTOM				90	600 ÷ 6,000 (at 90°C)	1’-9’ (at 90°C)			
WASHING W1 CUSTOM	45	6’ ÷ 15’	7’÷16’	-	-	-	0’ 6’ ÷ 25’		

NOTE

ACCEPTANCE LIMITS OF PROCESS VARIABLES ARE THOSE LAID DOWN BY STANDARDS EN 15883-1 AND EN 15883-2.

NOTE

THE EXECUTION TIMES INDICATED REFER TO AVERAGE CONDITIONS.
TIMES MAY VARY ACCORDING TO LOAD, MAINS WATER TEMPERATURE AND SETTINGS SELECTED BY THE USER.

WARNING

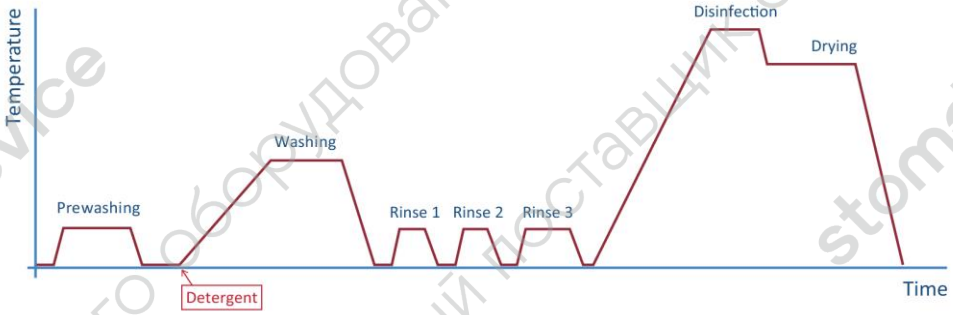


THE DEVICE IS INTENDED EXCLUSIVELY FOR WASHING AND/OR THERMAL DISINFECTION OF
REUSABLE SURGICAL INSTRUMENTS ABLE TO WITHSTAND A TEMPERATURE OF AT LEAST 80 °C OR 90°C, BASED ON SELECTED CYCLE.
IT IS NOT INTENDED FOR THE WASHING AND THERMAL DISINFECTION OF THERMOLABILE MEDICAL DEVICES.
IT IS NOT INTENDED FOR THE WASHING OF INSTRUMENTS HAVING DEEP CAVITIES WITH REDUCED OPENING (SINCE CLEANING AND DISINFECTION OF THE INNER PARTS OF CAVITIES ARE NOT ENSURED).
IT IS NOT INTENDED FOR THE WASHING OF ROTARY OR ELECTRONIC INSTRUMENTS, UNLESS THEY ARE EXPLICITLY INDICATED AS SUITABLE BY THE MANUFACTURER.
IT IS NOT INTENDED FOR THE WASHING OF INSTRUMENTS MADE OF NOT PROTECTED ALUMINIUM OR WITH DECORATIVE ANODIZING.

CYCLES	WATER CONSUMPTION DURING CYCLE PHASES			
	PRE-WASHING	WASHING	RINSING	THERMAL DISINFECTION
D90 DISINFECTION	2 l	6lt	no. 3 x 2 l	1.5 l
W WASHING	2 l	6lt	no. 3 x 2 l	/
PRE-WASHING	2 l	/	/	/

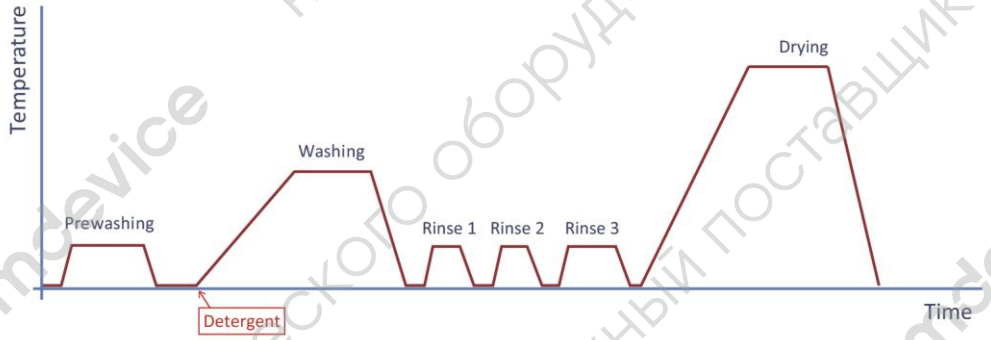
PROGRAMMES SCHEME

DISINFECTION



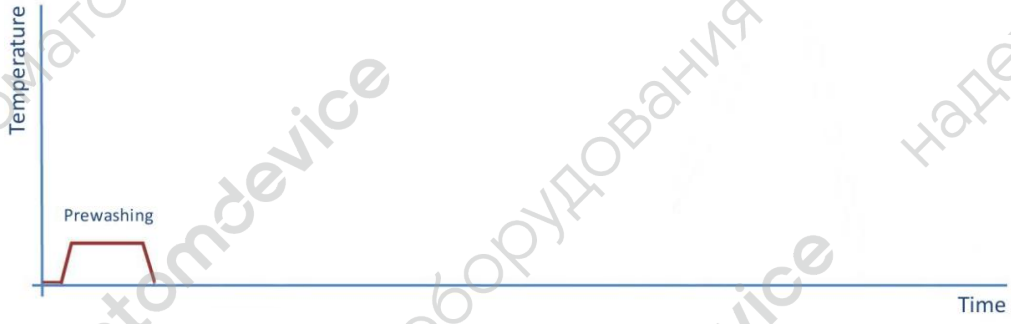
WASHING TIME means the period of time between the reaching of set washing temperature and drainage start.

WASHING



WASHING TIME means the period of time between the reaching of set washing temperature and drainage start.

PRE-WASHING



APPENDIX - MAINTENANCE

FOREWORD

In addition to correct use, the user needs to perform ordinary maintenance in order to guarantee safe, efficient operation over the device's entire life.

For better quality of maintenance, supplement routine checks with regular periodic check-ups that can be performed by Technical Service Department (*see Appendix*).

It is also fundamental to perform a **periodic thermo-disinfector validation**, i.e. a check of process parameters and their comparison with the reference values.

Refer to 'Thermo-disinfector periodic validation' in the next part of this Appendix.

The ordinary maintenance described below consists in easy manual operations and preventive interventions involving simple instruments.

WARNING

IN THE EVENT OF REPLACEMENT OF COMPONENTS OR PARTS OF THE DEVICE REQUIRE AND/OR USE ORIGINAL SPARE PARTS ONLY.

ORDINARY MAINTENANCE PROGRAMME

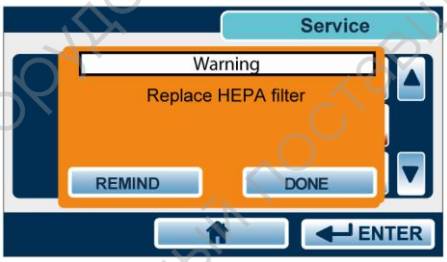
The table summarizes the maintenance interventions required to maintain the thermo-disinfector in good working order.

In case of **heavy use,** we recommend to **shorten** maintenance intervals:

DAILY	Clean the filter at the bottom of the chamber Clean external surfaces Clean chamber surface from possible residues of detergent Clean residues of water or salt from the surface when filling with salt
WEEKLY	Clean the washing chamber and its accessories Disinfect external surfaces
PERIODIC	See Scheduled Maintenance messages
ANNUALLY	Thermo-disinfector validation (***see dedicated paragraph***)

SCHEDULED MAINTENANCE MESSAGES

The thermo-disinfector periodically displays warning messages relevant to 'routine' maintenance operations that must be carried out in order to ensure the proper operation of the device.



Press DONE to confirm that the envisaged maintenance operation has been performed.

Press REMIND to postpone the operation.

In this case, the warning message will reappear the next time the thermo-disinfector is used.

WARNING MESSAGE
HEPA FILTER CLEANING
DRAINAGE FILTER CLEANING
GENERAL SERVICE

NOTE

TO ACHIEVE THE BEST PERFORMANCE OF THE DEVICE, REGULAR MAINTENANCE MUST BE CARRIED OUT ON A REGULAR BASIS.
PERIODICALLY A MESSAGE WILL BE DISPLAYED REQUESTING THAT THE ABOVE MAINTENANCE CHECKS BE PERFORMED.
FOR FURTHER INFORMATION OR IN CASE OF DOUBT, CONTACT THE TECHNICAL SERVICE: IF THEY HAVE PERFORMED REGULAR MAINTENANCE ON THE DEVICE, THE TECHNICIAN MIGHT HAVE ALREADY CARRIED OUT SOME OF THESE OPERATIONS.

- Do **not** wash the thermo-disinfector with direct jets of water, neither under pressure nor sprinkled. Seepage into electrical and electronic components could damage the functioning of the device or its internal parts, even irreparably;
- **Do not** use abrasive cloths, metal brushes (or other aggressive materials) or products for metal cleaning, both solid and liquid, other than the recommended ones to clean the device or the washing chamber;
- Do **not** use unsuitable chemicals or inadequate disinfectants to clean plastic components and the washing chamber. In fact, these products can damage the washing chamber, even irreparably;
- **Do not** allow limescale or residues of other substances to accumulate in the washing chamber, on the door and on the gasket, but remove them periodically. Such residues may damage these parts, besides compromising the operation of the hydraulic circuit components.
  To remove any limescale deposit, run the DECALCIFICATION CYCLE by thoroughly following the relevant indications.

HAZARD

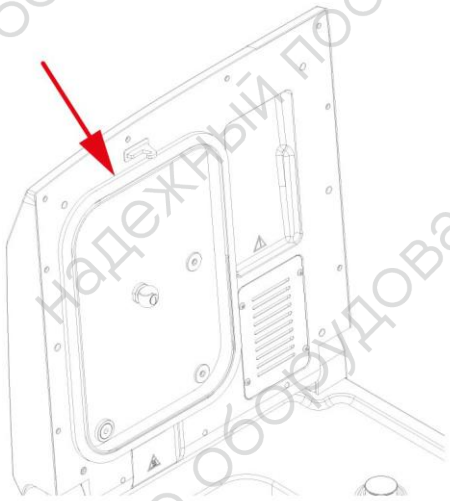
BEFORE PERFORMING ORDINARY MAINTENANCE, MAKE SURE THAT THE POWER SUPPLY CORD IS REMOVED FROM THE MAINS SOCKET.

DESCRIPTION OF MAINTENANCE INTERVENTIONS

Let's now look at the various operations to be carried out.

CLEAN THE GASKET

To eliminate any traces of limestone or dirt, clean the gasket with a cotton cloth soaked in a soft solution of water and vinegar (or a similar product, checking the contents on the label before using).
Dry the surfaces and remove any residues before using the device.



CLEAN EXTERNAL SURFACES

Clean all the external parts using a clean cotton cloth dampened with water and, possibly, the addition of a neutral detergent.
Dry the surfaces and remove any residues before using the device.

CLEAN WASHING CHAMBER

Clean the washing chamber (and internal surfaces in general) with a clean cotton cloth soaked in water and, possibly, a small amount of neutral detergent.
Rinse carefully with distilled water, taking care not to leave any type of residue in the washing chamber .

NOTE

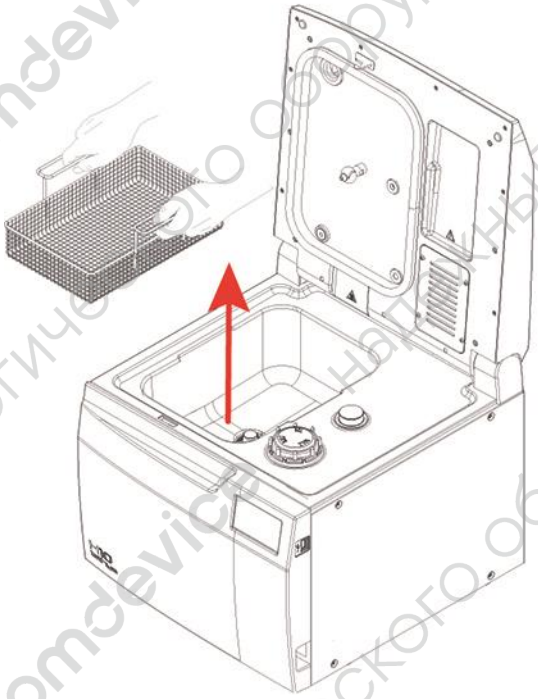
DO NOT USE POINTED OR SHARP TOOLS TO REMOVE POSSIBLE LIMESCALE FROM THE WASHING CHAMBER. IF THERE ARE VISIBLE DEPOSITS, CHECK IMMEDIATELY THE PRESENCE OF SALT IN THE DECALCIFICATION SYSTEM.

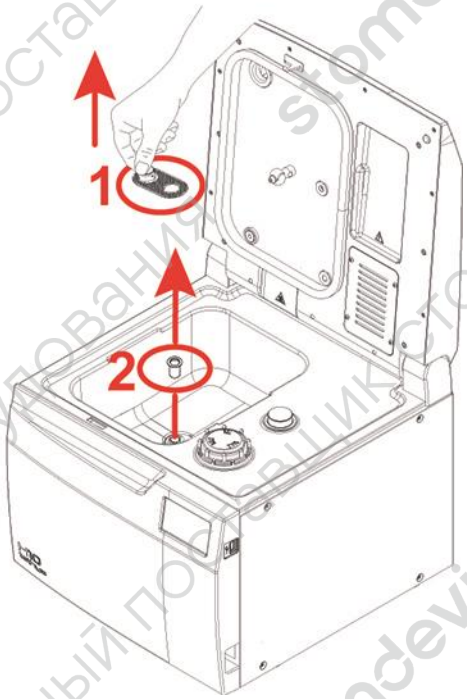
NOTE

THE PRESENCE OF BLACK SIGNS OF WEAR ON THE BOTTOM OF THE CHAMBER IS A KNOWN PHENOMENON DUE TO THE USE OF ULTRASOUND TECHNOLOGY FOR WASHING AND IT DOES NOT INDICATE FAULTS OR MALFUNCTIONS.

CLEAN CHAMBER FILTERS

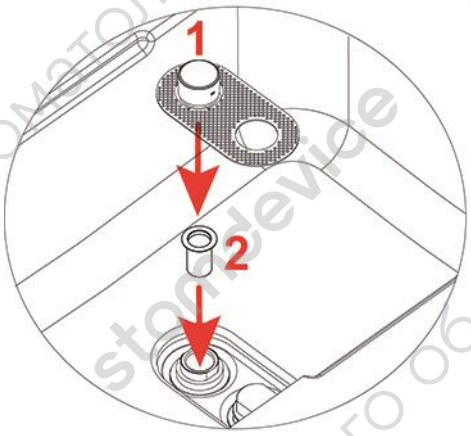
Remove the basket from the washing chamber.
Remove the filters (1) and (2) on the bottom of the chamber ensuring that possible residues do not drop inside the hole.
Rinse thoroughly the parts that compose filters (1) and (2) under running water and reposition them in their housings.





NOTE

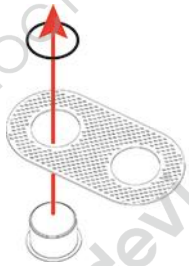
CORRECTLY PLACE FILTERS (1) AND (2) BACK IN THEIR RELEVANT HOUSINGS.





NOTE

TO BE CLEANED, FILTER (1) DOES NOT HAVE TO BE COMPLETELY DISASSEMBLED. SHOULD FILTER BE DISASSEMBLED, RE-ASSEMBLE THE O-RING AS SHOWN IN THE FIGURE.

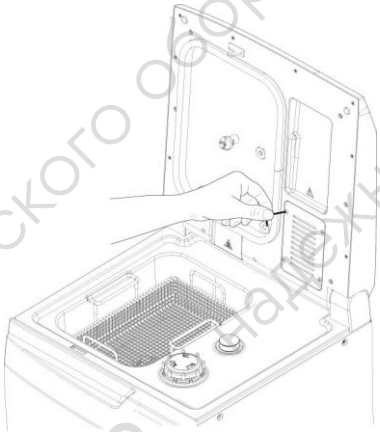


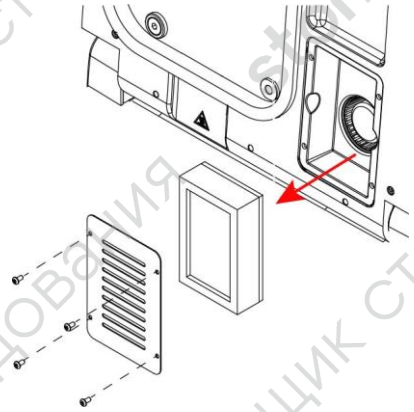
HEPA FILTER REPLACEMENT

To remove HEPA filter, unscrew the 4 screws using the supplied Allen wrench. Disassemble the grid and replace the filter with a new one, then reassemble the grid.

NOTE

REQUEST HEPA FILTER DIRECTLY FROM THE TECHNICAL SERVICE DEPARTMENT OF THE DEALER OR RESELLER THAT SUPPLIED THE PRODUCT.

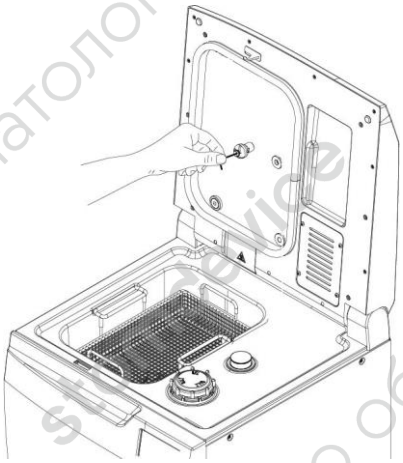


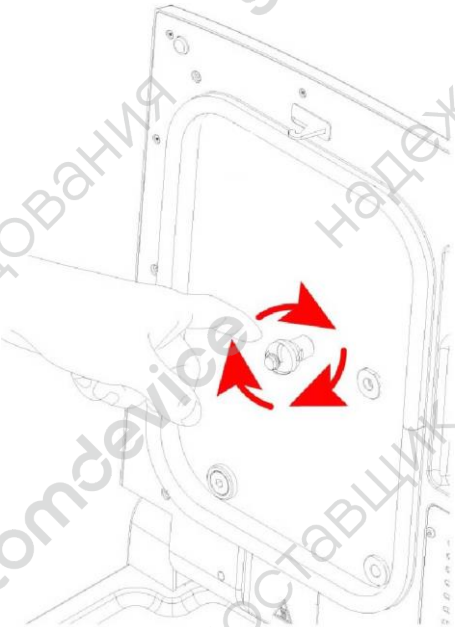


CLEAN THE ROTARY NOZZLE

Remove the rotary nozzle using the Allen wrench supplied.
Carefully clean the nozzle under running water and, in case of limescale, use a specific limescale remover with a composition similar to the products recommended in chapter "DECALCIFICATION CYCLE".

Rinse thoroughly and reposition it in its housing using the Allen wrench supplied.





WARNING

AT THE END OF THE ASSEMBLY CHECK THAT THE NOZZLE IS FREE TO ROTATE.

PERIODIC THERMO-DISINFECTOR VALIDATION

The reference Standard for a thermo-disinfector performance is UNI EN ISO 15883.

Referring to par. 6 of EN ISO 15883-1, in addition to the conformity to the device 'as supplied', borne by the manufacturer, the regulations require further checks on the device 'as installed' through a process called 'validation'. The validation process is borne by the user (responsible authority).

VALIDATION

The validation process of a thermo-disinfector in accordance with EN ISO 15883-1 is composed of 3 different phases:

1. Installation qualification - IQ
2. Operational qualification - OQ
3. Performance qualification - PQ

Installation qualification

IQ - Process to obtain and document the evidence that the device has been supplied and installed in accordance with the relevant specification.

Operational qualification

OQ - Process to obtain and document the evidence that the device installed operates within the predefined limits when it is used according to its operational procedures.

Performance qualification

PQ - Process to obtain and document the evidence that the device, as installed and operated according to the operational procedures, works coherently as per predefined criteria and then the product meets its specifications.

NOTE

PERFORMANCE QUALIFICATION MUST BE CARRIED OUT AFTER THE COMPLETION OF INSTALLATION QUALIFICATION AND OPERATIONAL QUALIFICATION.

PERFORMANCE QUALIFICATION MUST BE CARRIED OUT WHEN INTRODUCING NEW OR MODIFIED OBJECTS TO CLEAN AND DISINFECT, OR NEW LOADING SYSTEMS, UNLESS THE EQUIVALENCE WITH A VALIDATED REFERENCE LOAD OR AN OBJECT OR A LOADING SYSTEM PREVIOUSLY VALIDATED HAS BEEN PROVEN.

PERFORMANCE QUALIFICATION MUST BE CARRIED OUT WHEN INTRODUCING NEW PROCESS PARAMETERS (INCLUDING PROCESS CHEMICALS).

Operational qualification should be repeated at predetermined intervals to check periodically the proper operation of the device.

We suggest to carry out performance qualification of the machine every year.

DEVICE USEFUL LIFE

Ultrasound thermo-disinfector service life is of 10 years (average use: 5 cycles/day, for 220 days/year), in compliance with the routine maintenance prescriptions set forth in the use and maintenance manual.
This lapse of time, which is obviously not linked to an intrinsic "expiry date" of the product, is established based on the data inferred by the following evaluations:
- Average replacement ratio of the device by the user (turn-over);
- Device technological progress (availability of new technologies, publication of updated standards, launch of competitor's product defining a new "state of the art").

DISPOSING THE EQUIPMENT WHEN NO LONGER USED

In compliance with Directives (2011/65/EU) ROHS II and 2012/19/EU regarding restriction of the use of certain hazardous substances in electrical and electronic equipment along with waste electrical and electronic equipment, it is forbidden to dispose of this equipment in the municipal waste stream as unsorted municipal waste. When purchasing a new, equivalent piece of equipment, the old piece of equipment that has reached its end-of-life must be handed over to the reseller for proper disposal. As regards reuse, recycling and other forms of recovery of waste electrical and electronic equipment, the manufacturer carries out the functions set forth by laws and regulations currently in force in the individual countries.
The proper collection and separation of such equipment for recycling, treatment and disposal helps avoid any possible negative effects on the environment and health and facilitates the recycling of the materials of which the equipment is made. The symbol indicating separate collection for electrical and electronic equipment consists of the crossed out bin marked on the equipment.

WARNING

IMPROPER DISPOSAL OF THE PRODUCT MAY RESULT IN THE APPLICATION OF SANCTIONS WHICH ARE DEFINED BY INDIVIDUAL NATIONAL LAWS.

APPENDIX - GENERAL PROBLEMS FOREWORD

If while using the device a problem or an alarm occurs, this **DOES NOT** mean that the device is out of order.
It may not, in fact, be related to a breakdown but, more probably to an anomalous situation, often merely transitory (such as a blackout), or incorrect use.

In any case, it is important to first identify the cause of the failure and then take suitable corrective actions, either autonomously or with the intervention of the **Technical Service Department (see Appendix)**.

For this purpose, below, we provide instructions for diagnosing and resolving general problems, in addition to a precise description of the alarm codes, their meaning and their solution.

TROUBLESHOOTING

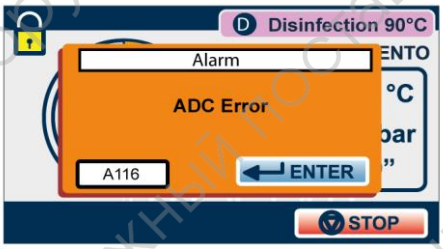
If your thermo-disinfector is **not** working correctly, please make the following checks **before** contacting the Technical Service Department:

TROUBLE	POSSIBLE CAUSE	PROPOSED SOLUTION
The thermo-disinfector does not turn on.	The power cord is not plugged-in.	Plug it in.
	There is no voltage at the socket.	Check the cause of the lack of voltage at socket and fix it.
	The main switch and/or differential switch are turned to OFF.	Turn the switch to ON.
	The mains fuses are blown.	Replace with good fuses of equal nominal value. (See the Summary Table **in Appendix, Technical Characteristics**).
Presence of water on the support surface of the thermo-disinfector.	Drainage pipe not properly connected.	Check the tightness of the union and, if necessary, reassemble it more carefully. Check that the pipe is completely inserted in the union; check the presence of hose clamps.
	Filling pipe not properly connected.	Check the proper tightening of the ring nut and the presence of the gasket between ring nut and union on machine side (for safety's sake, carry out the same check on the filling tap side as well).
Excessive humidity on the material and/or instruments at the end of the programme.	Excessive load in the basket	Check that the load does not exceed the maximum values allowed (See the Summary Table in **Appendix "Technical Characteristics"**).
	Load not correctly positioned.	Position the load as per the indications. (See **Chapter "Preparing the material"**).
	Accidental deactivation of drying	Check that drying is activated. If the problem occurs again, it is possible to increase the drying time (See **Chapter "Disinfection cycles"**).
	HEPA filter clogged.	Replace HEPA filter. (See **Appendix "Maintenance"**).
Traces of oxidation or spots on instruments	Compatibility of the instruments not adequate	Check the compatibility of instruments, making sure that the material they are made of is suitable to tolerate the thermal disinfection and the type of detergent.
	Ignored signalling of lack of salt	Add salt in the reservoir of the integrated water softening system. (See **paragraph Filling**).
	Organic or inorganic residues on the instruments	Position the load as per the indications. If the material is particularly dirty, it is possible to extend the washing phase (See **Chapter "Custom cycles"**). If necessary, remove manually stubborn dirt.
	Presence of ferrous residues on the washing chamber side.	Check that the hardness and the presence of iron ions in the water are within the prescribed limits. Clean the basket and the accessories as prescribed. (See **Appendix "Maintenance"**).

APPENDIX – ALARMS

NOTE

IF THE PROBLEM PERSISTS, ADDRESS TO TECHNICAL SERVICE DEPARTMENT (SEE APPENDIX) COMMUNICATING THE MODEL AND SERIAL NUMBER OF THE THERMO-DISINFECTOR.
THESE DATA ARE INDICATED IN THE REGISTRATION PLATE, ON THE REAR PART OF THE DEVICE.



FOREWORD

Every time an **anomalous condition** occurs during the operation of the thermo-disinfector, an alarm is generated, identified by a specific code (consisting of a letter followed by a 3-digit number).
Alarm codes are divided into **three categories**:

E= ERROR/WARNING
Incorrect handling and/or use or a cause outside the device.
The problem can normally be solved by the user.
Code format: **Exxx** **(xxx = identification number 000 ÷ 999)**

A = ALARM
First level fault
The problem can normally be solved on site by a specialised technician.
Code format: **Axxx** **(xxx = identification number 000 ÷ 999)**

H = HAZARD
Second level fault
The problem can normally be solved by the Technical Service Centre.
Code format: **Hxxx** **(xxx = identification number 000 ÷ 999)**

S = SYSTEM ERROR
Electronic system error (HW-FW).
Code format: **Sxxx** **(xxx = identification number 000 ÷ 999)**

NOTE

IN CASE OF ALARM, SWITCH OFF THE DEVICE ONLY AFTER HAVING FOLLOWED THE INDICATIONS DISPLAYED AND HAVING CARRIED OUT THE RESET (SEE 'RESETTING THE SYSTEM' PARAGRAPH).

ALARM INTERVENTION

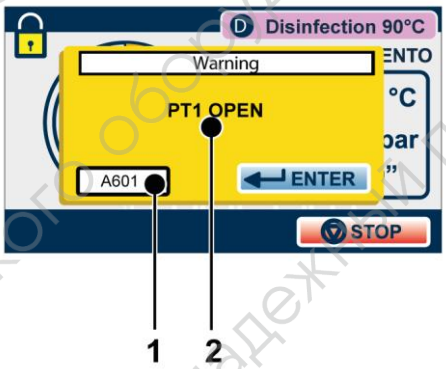
The alarm intervention causes the **cycle interruption** (or the normal operation interruption), the display of the relevant **alarm code** and **message** and an **audible warning**.
The alarm procedure is designed in order not to give the user any possibility to **confuse** an anomalous cycle with an efficiently carried out one, and therefore **to unintentionally use not disinfected materials**; it is structured to guide the user up to the **RESET** of the thermo-disinfector and the following use.

SYSTEM RESET

The system can be reset in two alternative ways, depending on the type of alarm occurred (see the List of alarm codes below in this appendix):

a) Pressing the OK button.

b) Following the instructions displayed and holding down the RESET button for about 3 seconds:

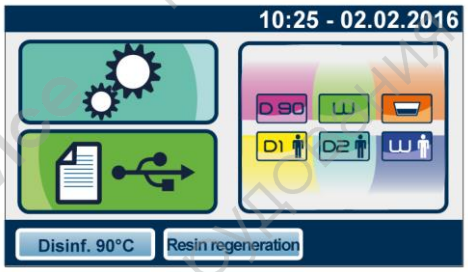


1) Error Code
2) Error Description

Once alarm procedure is completed, the indication of the following image is displayed. Pressing the RESET button for 3 seconds, the door is released and the device goes back to the initial menu.



After the RESET and any technical operation necessary to eliminate the fault, the device will be ready to perform a new programme.



WARNING

NEVER TURN OFF THE DEVICE BEFORE CARRYING OUT THE RESET. IF THE PROBLEM NEEDS THE INTERVENTION OF AN AUTHORIZED TECHNICIAN, AFTER THE RESET TURN OFF THE DEVICE AND CLOSE THE MAINS WATER TAP.

TROUBLESHOOTING

ALARM CODES

The **list** of alarm codes, the relevant messages displayed and RESET modes, are indicated in the following table:

ERRORS (CATEGORY A)

CODE	MESSAGE ON THE DISPLAY	DESCRIPTION	EXIT
A025	DOOR LOCK PROBLEM	Micro-switch state inconsistent with door state	3 (in cycle) 2 (stand-by)
A070	RESIN REGENERATION PROBLEM	Lack of water flow from brine to resins during regeneration phase	3
A116	ADC ERROR	Electronic system ADC error	3 (in cycle) 2 (stand-by)
A120	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A121	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A122	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A123	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A124	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A125	REFERENCE HEATING ELEMENT FAULT	Reference heating element acquisition chain fault.	3 (in cycle) 2 (stand-by)
A500	WATER FILLING PROBLEM	Water flow rate problem during water filling	3
A501	WATER LEVEL ABOVE MAX	Water presence above the foreseen maximum level.	3
A502	WATER FILLING SLOW	Water filling time over the maximum limit.	3
A503	WATER FILLING FAST	Water filling time over the minimum limit.	3
A504	AQUASTOP PROBLEM	"Aquastop" solenoid valve (EV3) malfunction	3
A551	DRAIN PROBLEM	Chamber emptying failed.	3
A552	TANK FULL PROBLEM	Presence of water in the chamber when not required or level sensor fault.	1
A601	PT1 OPEN	Temperature sensor PT1 failed.	3 (in cycle) 2 (stand-by)
A602	PT2 OPEN	Temperature sensor PT2 failed.	3 (in cycle) 2 (stand-by)
A603	PT3 OPEN	Temperature sensor PT3 failed	3 (in cycle) 2 (stand-by)
A606	MPX INTERRUPTED	Pressure sensor for detection of water level in the chamber failed.	3 (in cycle) 2 (stand-by)
A611	PT1 SHORT-CIRCUITED	Temperature sensor PT1 short-circuited.	3 (in cycle) 2 (stand-by)
A612	PT2 SHORT-CIRCUITED	Temperature sensor PT2 short-circuited.	3 (in cycle) 2 (stand-by)
A613	PT3 SHORT-CIRCUITED	Temperature sensor PT3 short-circuited	3 (in cycle) 2 (stand-by)
A616	MPX SHORT-CIRCUITED	Pressure sensor for detection of water level short-circuited	3 (in cycle) 2 (stand-by)
A700	HEATING SYSTEM PROBLEM	Lack of water heating in the recirculation system or recirculation pump failed.	3
A701	DRYING PROBLEM	The fan does not work properly or the filter is clogged.	3
A702	MISSING HEPA FILTER	It indicates the lack of HEPA filter.	3
A703	DRYING PROBLEM	Drying heater malfunction	2

CODE	MESSAGE ON THE DISPLAY	DESCRIPTION	EXIT
A957	US UPDATE TRANSMISSION ERROR	Ultrasound board update error	2 (stand-by)
A958	US VOLTAGE PROBLEM	Incorrect US board power supply voltage	3

1 = OK (warning) + chamber emptying
2 = OK (warning)
3 = cycle interruption + ok + door unlock + reset 3

ERRORS (CATEGORY E)

CODE	MESSAGE ON THE DISPLAY	DESCRIPTION	EXIT
E000	BLACKOUT	Black-Out.	3
E001	OVERVOLTAGE	Overvoltage.	3
E004	NETWORK FREQUENCY ERROR	Network frequency reading problem	3
E011	LID OPEN!	Attempt to start a cycle with lid open.	2
E552	WAIT!	Attempt to start a cycle with chamber drainage in progress after full chamber alarm	2
E070	MIN SALT LEVEL	Signal of salt float minimum level. It locks the machine after a number of cycles depending on set water hardness	2
E071	START CYCLE WITH REGENERATION	Signal to start a cycle with resin regeneration (Resin regeneration, Disinf. 90°C, Washing, D1 Custom, D2 Custom and W1 Custom)	2
E800	MIN DETERGENT LEVEL	Detergent fluid level under the minimum level	2
E900	NO SET PW US	Power read by US board memory other than requested value	3
E901	POWER ABOVE / UNDER THRESHOLD	Power detected by US board other than set value	3
E957	UPDATING US IN PROGRESS	Ultrasound update in progress	2
E999	MANUAL INTERRUPTION	Manually interrupting the cycle	3

1 = OK (warning) + chamber emptying
2 = OK (warning)
3 = cycle interruption + ok + door unlock + reset 3

ERRORS (CATEGORY H)

CODE	MESSAGE ON THE DISPLAY	DESCRIPTION	EXIT
H410	TIMER ERROR	Error in time information (align with autoclave).	3
H560	DELTA PT1-PT2 ERROR	Difference of temperature over the limit between Pt1 (regulation probe) and Pt2 (control probe) during washing phase	3
H561	TEMPERATURE ABOVE MAX LIMIT	Temperature PT1 over the limit permitted for washing phase.	3
H562	TEMPERATURE BELOW MIN LIMIT	Temperature PT1 below the permitted value for the washing phase	3
H650	LEVEL ABNORMAL DECREASE	Anomalous reduction of water level during washing phase.	3
H651	LEVEL ABNORMAL INCREASE	Anomalous increase of water level during washing phase.	3
H652	LEVEL ABNORMAL DECREASE	Anomalous reduction of water level during disinfection phase.	3
H653	LEVEL ABNORMAL INCREASE	Anomalous increase of water level during disinfection phase.	3
H750	DELTA PT1-PT2 ERROR	Difference of temperature above the limit between Pt1 (regulation probe) and Pt2 (control probe) during thermal disinfection phase.	3
H751	TEMPERATURE ABOVE MAX LIMIT	Temperature PT1 over the limit permitted for thermal disinfection phase.	3
H752	TEMPERATURE BELOW MIN LIMIT	Temperature PT1 under the limit permitted for thermal disinfection phase.	3
H801	DETERGENT FLUID DOSING DEVICE PROBLEM	Excessive detergent dosing time.	3
H950	US - COMMUNICATION INTERRUPTED	Ultrasounds switching off because of a temporary lack of communication.	3
H951	US – SONOTRODE DISCONNECTED	Malfunction of one or more sonotrodes of the ultrasound system	3
H952	US - MAX CURRENT	Excess of current in the ultrasound system	3
H953	US - RESONANCE FREQUENCY	Lack of tuning in the ultrasound system	3
H954	US - COMMUNICATION ERROR	No communication between control board and ultrasound board	3 (in cycle) 2 (stand-by)
H955	US - POWER LOW	Low power of ultrasounds during washing phase.	3
H956	US - CRC ERROR	Ultrasound board software CRC check failed	3 (in cycle) 2 (stand-by)

1 = OK (warning) + chamber emptying
2 = OK (warning)
3 = cycle interruption + ok + door unlock + reset 3

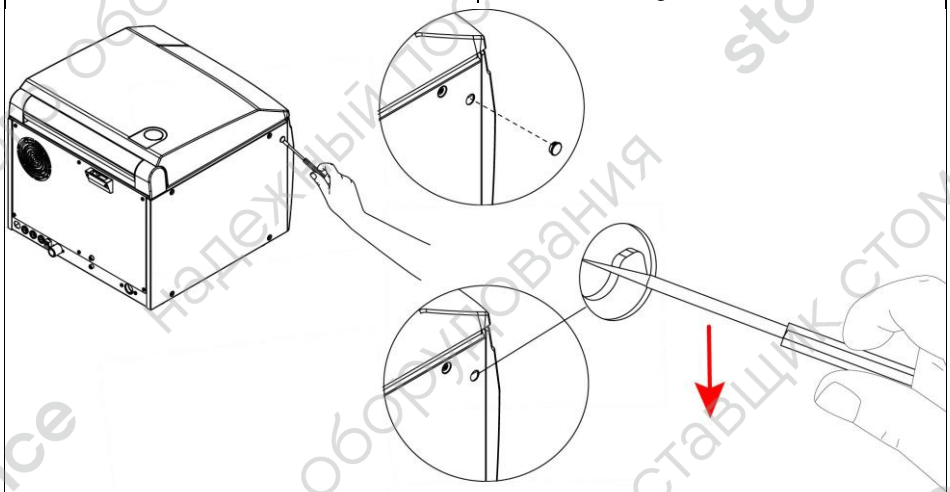
ERRORS (CATEGORY S)

CODE	MESSAGE ON THE DISPLAY	DESCRIPTION	EXIT
S001	FLASH NOT ACCESSIBLE	Flash memory not accessible	2
S002	FLASH FULL	Flash memory full.	2
S003	SD CARD NOT ACCESSIBLE	Micro SD card not accessible for data storage in start-up phase.	2
S004	SD CARD FULL	Micro SD Card full	2
S005	USB STICK ERROR	USB stick not accessible (interruption of communication after download started successfully).	2
S006	USB STICK NOT ACCESSIBLE	USB Stick not accessible (before download start)	2
S007	USB STICK FULL	USB stick full	2
S008	SD CARD NOT ACCESSIBLE	Micro SD not accessible during data storage phase	2
S018	IMPOSSIBLE TO OPEN CRC FILE	CRC file inside SD card cannot be opened	2
S020	RUN BACKUP	Cycle report to be downloaded recommended limit has been reached.	2
S021	OVERWRITE DATA	Cycle report to be downloaded limit in case of SD Card malfunction has been reached.	2
S030	SYSTEM ERROR	Malfunction in software running.	2 (out of cycle) 3 (in cycle)
S031	SYSTEM ERROR	Malfunction in software running.	2 (out of cycle) 3 (in cycle)
S032	SYSTEM ERROR	Malfunction in software running.	2 (out of cycle) 3 (in cycle)
S033	SYSTEM ERROR	Malfunction in software running	2 (out of cycle) 3 (in cycle)
S100	INCONSISTENT STATUS	Software problem in management of the correct sequence of events	3

1 = OK (warning) + chamber emptying
2 = OK (warning)
3 = cycle interruption + ok + door unlock + reset 3

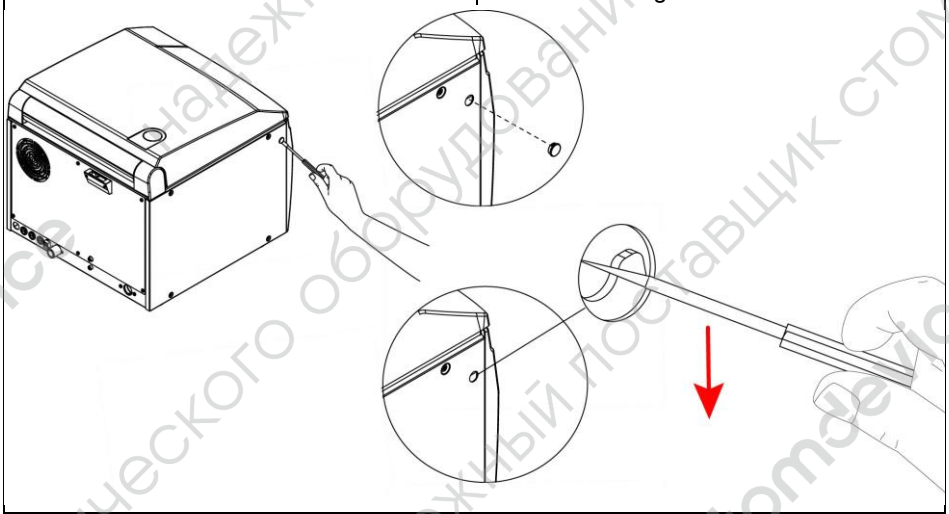
TROUBLESHOOTING

According to the **type of alarm** occurred, please find below the indications to detect the possible causes and restore the proper operation:

ERRORS (CATEGORY A)		
CODE	**POSSIBLE CAUSE**	**SOLUTION**
A025	Failure to the micro-switch or to the door locking system magneto.	Contact Technical Service Department. If the instruments need to be removed, it is possible to manually open the door as shown in the figure: 
A070	Obstruction to water circuit. Failure or obstruction to SV1.	Open water filling tap. Check mains water pressure. If the problem persists, contact Technical Service Department.
	Mains water pressure or flow insufficient.	
A116	Failure to control board.	If the problem persists, contact Technical Service Department.
A120	Failure to control board.	If the problem persists, contact Technical Service Department.
A121	Failure to control board.	If the problem persists, contact Technical Service Department.
A122	Failure to control board.	If the problem persists, contact Technical Service Department.
A123	Failure to control board.	If the problem persists, contact Technical Service Department.
A124	Failure to control board.	If the problem persists, contact Technical Service Department.
A125	Failure to control board.	If the problem persists, contact Technical Service Department.
A500	Mains water pressure or flow insufficient.	Check pressure and flow of mains water. If they are insufficient (see technical data table), check the filter condition in the connection union to the tap. Check if a connection point to the mains with adequate characteristics is available or contact your trustworthy plumber. If the problem persists, contact Technical Service Department.
	Filter clogging in filling union on tap side.	
	Partial clogging of SV2.	
	Failure of SV2 flow limiter.	
A501	Failure of level sensor or leakage in SV2 or SV1. Failure in flow reducers.	Close the water filling tap and contact Technical Service Department.

ERRORS (CATEGORY A)		
CODE	POSSIBLE CAUSE	SOLUTION
A502	Mains water pressure or flow insufficient. Partial clogging of internal water circuit. Partial clogging of SV2. EV3 clogging. Filter clogging in filling union on tap side Water filling tap closed.	Check that filling water tap is open. Check pressure and flow of mains water. If too low (see technical data table), check filter condition in connection union to tap. Check if a connection point to the mains with suitable characteristics is available or contact your trustworthy plumber. If the problem persists, contact Technical Service Department.
A503	Failure to level sensor. Breakage of SV2 pressure reducer.	Contact Technical Service Department.
A504	EV3 malfunction	Contact Technical Service Department.
A551	Pipe clogged or presence of a back pressure in the drainage circuit or a siphon in the pipe. Failure or malfunction in drainage pump. Drainage opening in chamber clogged.	Check that the drainage pipe does not have narrow passages or crushing. Check that the drainage is in working order and that there are no siphons. Check drainage opening in the chamber. If the problem persists, contact Technical Service Department.
A552	Insertion of fluids in the chamber during stand-by phase or with machine off.	The chamber is automatically emptied by the drainage pump. Perform a pre-washing cycle to rinse any residues of aggressive chemicals.
	Failure to level sensor. Solenoid valve leakage.	Close the tap and contact Technical Service Department.
A601	Temperature sensor PT1 failed.	Contact Technical Service Department.
A602	Temperature sensor PT2 failed.	Contact Technical Service Department.
A603	Temperature sensor PT3 failed	Contact Technical Service Department
A606	Pressure sensor for detection of water level in the chamber failed.	Contact Technical Service Department.
A611	Temperature sensor PT1 short-circuited.	Contact Technical Service Department.
A612	Temperature sensor PT2 short-circuited.	Contact Technical Service Department.
A613	Temperature sensor PT3 short-circuited	Contact Technical Service Department
A616	Pressure sensor for detection of water level short-circuited.	Contact Technical Service Department.
A700	Clogging of rotary nozzle.	Check that rotary nozzle is free to rotate and without foulings. If necessary, disassemble and clean it (see 'Ordinary maintenance' section). If the problem persists, contact Technical Service Department.
	Heater failure or safety thermostat intervention. Clogging or failure in recirculation pump.	Contact Technical Service Department.
A701	Reduced efficiency or drying fan failure. HEPA filter clogged. Air leakage in ducts.	Remove any foreign objects that clog the filter grid. Replace HEPA filter (see 'Ordinary maintenance' section). If the problem persists, contact Technical Service Department.
A702	HEPA filter not inserted.	Check that HEPA filter is inserted and in case assemble it (see 'Ordinary maintenance' section). If the problem persists, contact Technical Service Department.
A703	Drying heater malfunction	Contact Technical Service Department.
A957	Corrupted ultrasound board update files	Contact Technical Service Department.

ERRORS (CATEGORY A)		
CODE	POSSIBLE CAUSE	SOLUTION
A958	Power supply voltage: <100Vac; ranging between 150Vac and 180Vac; > 270Vac.	Contact your trustworthy plumber to check the system. If the problem persists, contact Technical Service Department.

ERRORS (CATEGORY E)		
CODE	POSSIBLE CAUSE	SOLUTION
E000	Interruption of power supply during the cycle.	Check the continuous presence of power supply. If the blackout continues and the instruments need to be removed, it is possible to manually open the door as shown in the figure: 
	Power plug disconnected during the cycle.	Check that the plug is correctly plugged in.
	Main switch turned to OFF during the cycle.	Do not turn off the machine during a cycle.
E001	Voltage too high in power supply system.	Contact your trustworthy plumber to check the system.
E004	No network voltage frequency detection.	Contact Technical Service Department.
E011	Attempt to start a cycle with lid open.	Close the lid.
E552	Attempt to start a cycle with chamber drainage in progress after full chamber alarm.	Wait for the end of chamber drainage phase after full chamber alarm.
E070	Lack of salt in the suitable container. Failure to salt level sensor.	Add salt (see 'Adding salt' section). If the problem persists, contact Technical Service Department.
E071	Signal to start a cycle with resin regeneration as the number of performed cycles without regeneration has been reached	Start a cycle with resin regeneration (Resin regeneration, Disinf. 90°C, Washing, D1 Custom, D2 Custom and W1 Custom)
E800	Lack of sufficient amount of detergent to perform a cycle.	Failure to detergent level sensor. Add detergent (see 'Detergent reservoir filling' section). If the problem persists, contact Technical Service Department.
E900	Power read by US board memory other than set value.	Repeat cycle, if the problem persists contact Technical Service Department
E901	Power detected by US board other than set value.	Repeat cycle, if the problem persists contact Technical Service Department
E957	UPDATING US IN PROGRESS	
E999	Voluntary manual interruption of a programme using 'STOP' button.	

ERRORS (CATEGORY H)		
CODE	POSSIBLE CAUSE	SOLUTION
H410	Malfunction of electronic control board.	If the problem persists, contact Technical Service Department.
H560	Malfunction in temperature detection during washing.	If the problem persists, contact Technical Service Department.
H561	Too high temperature during washing.	If the problem persists, contact Technical Service Department.
H562	Too low temperature during washing. Presence of excessive load.	Repeat the cycle removing a part of the load. If the problem persists, contact Technical Service Department
H650	Presence of water leakage in the internal water circuit or malfunction in level detection during washing phase. Wrong drainage system connection.	In case of leakage close the water filling tap and contact Technical Service Department. Make sure that drainage system is correctly connected.
H651	Solenoid valves leakage or malfunction in level detection during washing phase.	Close the water filling tap and contact Technical Service Department.
H652	Presence of water leakage in the internal water circuit or malfunction in level detection during thermal disinfection phase. Wrong drainage system connection.	In case of leakage close the water filling tap and contact Technical Service Department. Make sure that drainage system is correctly connected.
H653	Solenoid valves leakage or malfunction in level detection during thermal disinfection phase.	Close the water filling tap and contact Technical Service Department.
H750	Malfunction in temperature detection during thermal disinfection.	If the problem persists, contact Technical Service Department.
H751	Too high temperature during thermal disinfection.	If the problem persists, contact Technical Service Department.
H752	Too low temperature during thermal disinfection. Presence of excessive load.	Repeat the cycle removing a part of the load. If the problem persists, contact Technical Service Department.
H801	'Detergent circuit clogging. Failure or malfunction of detergent pump. Detergent flowmeter failure. Presence of air inside the circuit'.	If the problem persists, contact Technical Service Department.
H950	Unstable communication between control board and ultrasound board.	If the problem persists, contact Technical Service Department.
H951	Lack of power supply or one or more sonotrodes failed or damaged connection between transducers and ultrasound board.	If the problem persists, contact Technical Service Department.
H952	Malfunction or failure of ultrasound board or of one or more transducers.	If the problem persists, contact Technical Service Department.
H953	Malfunction or failure of ultrasound board or of one or more transducers.	If the problem persists, contact Technical Service Department.
H954	Lack of communication between control board and ultrasound board.	If the problem persists, contact Technical Service Department.
H955	Too low machine power supply voltage. Insufficient ultrasound power.	If the problem persists, contact Technical Service Department.
H956	Ultrasound board internal memory corruption. Update attempt with corrupted file.	Update ultrasound board software. If the problem persists, contact Technical Service Department.

ERRORS (CATEGORY S)		
CODE	POSSIBLE CAUSE	SOLUTION
S001	Failure to control board.	If the problem persists, contact Technical Service Department.
S002	Failure to control board.	If the problem persists, contact Technical Service Department.
S003	Failure to control board.	If the problem persists, contact Technical Service Department.
S004	Failure to control board.	If the problem persists, contact Technical Service Department.
S005	USB stick failure.	Replace the USB stick and repeat the download operation.
S006	Non-compatible or failed USB stick.	Ensure that the USB stick is operative, by inserting it in a PC. Check that formatting is correct (see 'Technical data' section). If the problem persists, try with a different USB stick. If the problem still persists, contact Technical Service Department.
S007	USB stick with insufficient space or write-protected. Too many files in the main directory.	Remove writing protection or free up memory (at least in part) on USB stick.
S008	Failure to control board	If the problem persists, contact Technical Service Department.
S018	Failure to control board.	If the problem persists contact Technical Service Department.
S020	Cycle report to be downloaded recommended limit has been reached.	Download cycle report through the "New" option.
S021	Cycle report to be downloaded limit (500) in case of SD Card malfunction has been reached. If reports are not downloaded, data will be overwritten and permanently lost.	Download cycle report through the "New" option. If the problem persists, contact Technical Service Department.
S030	Malfunction in software running. Check, using a watchdog, that one of main processes is not in lock condition.	If the problem persists, contact Technical Service Department.
S031	Malfunction in software running. Check, using a hardware watchdog, that one peripheral is not in lock condition.	If the problem persists, contact Technical Service Department.
S032	Malfunction in software running. Check, using a watchdog, that one of main processes is not in lock condition (e.g. infinite loop).	If the problem persists, contact Technical Service Department.
S033	Malfunction in software running	If the problem persists, contact Technical Service Department.
S100	Malfunction in software running.	Restart the thermo-disinfector, if the problem persists contact Technical Service Department.

APPENDIX - ADMIN USER PIN RESET

IF ADMIN USER ENTERS THE PIN INCORRECTLY FOR 3 TIMES, IT IS NECESSARY TO ENTER THE FOLLOWING UNLOCK PIN WHEN YOU WILL BE PROMPTED TO ENTER PIN AGAIN:

9999

APPENDIX - TECHNICAL SERVICE

FOR ANY REQUEST OF

TECHNICAL INTERVENTION ON THE PRODUCT,

BOTH UNDER WARRANTY AND OUT OF WARRANTY,

APPLY DIRECTLY

TO THE TECHNICAL SERVICE DEPARTMENT

OF THE DEALER OR RESELLER

THAT SUPPLIED THE PRODUCT.

We will gladly provide any information you may need on the product as well as give you suggestions and advice on the washing and thermal disinfection procedures.

In this regard, please refer to the following address:

Manufactured by

CEFLA s.c.
Sede Legale ed Amministrativa / Head Quarter
Via Selice Provinciale, 23/a – 40026 Imola (BO) Italy
Stabilimento / Plant
Via Bicocca, 14/c – 40026 Imola (BO) Italy

http://www.anthos.it

http://www.sternweber.it

http://www.castellini.it

http://www.mocom.it