

HYDRA

Istruzioni per l'uso

ITALIANO

Instructions for use

ENGLISH

0AHNI0001 Rev_3
17/04/2019

Fabbricante / Manufacturer

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ITALY

IT

In questo manuale di istruzioni il termine “autoclave” è equivalente a piccola sterilizzatrice a vapore (EN13060)

UK

In this instruction manual the term “autoclave” is equivalent to small steam sterilizer (EN13060).

CE
0425

Questo dispositivo è conforme alla Direttiva 93/42/CE. La dichiarazione originale di conformità è fornita in allegato al manuale.

This device compliance to Directive 93/42/CE. The original declaration of conformity is provided in attached to the manual.

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01 CONSULTING THE MANUAL

1.1 Glossary

CHAMBER	Cylindrical steel body that, during the cycle, is filled with saturated steam
TRAY	Drawer for holding the load to be sterilized
TRAY HOLDER	Structure for holding the trays in the sterilization chamber
DEMINERALIZER	Device for eliminating mineral salts in mains water
OVER PRESSURE	Pressure higher than the standard one for the cycle considered
OVER TEMPERATURE	Temperature higher than the standard one for the cycle considered
RESINES	Replaceable component (cartridge) of the demineralizer that eliminates all inorganic salts

1.2 Front view / Rear view description

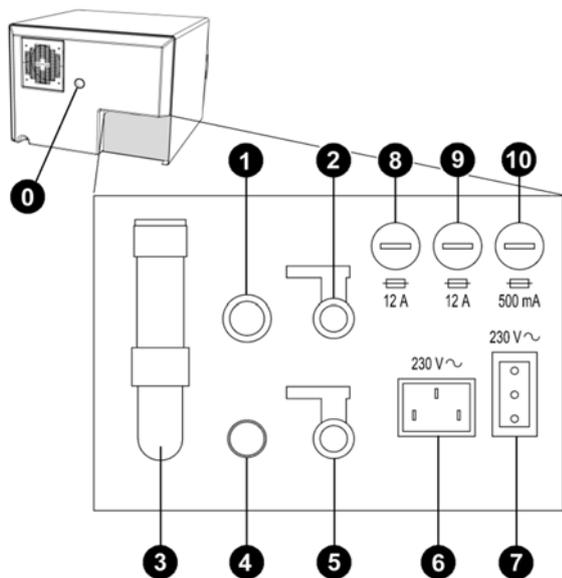


FIG.1

- 0** Spacer

- 1** Clean water overflow

- 2** Clean water drain tap (*Demineralizer tap*)

- 3** Safety Valve

- 4** Used water overflow - condensate drain

- 5** Used water drain tap

- 6** Main power supply

- 7** electrical socket *only* demineralizer

- 8** Fuse 12A

- 9** Fuse 12A

- 10** Fuse 500mA

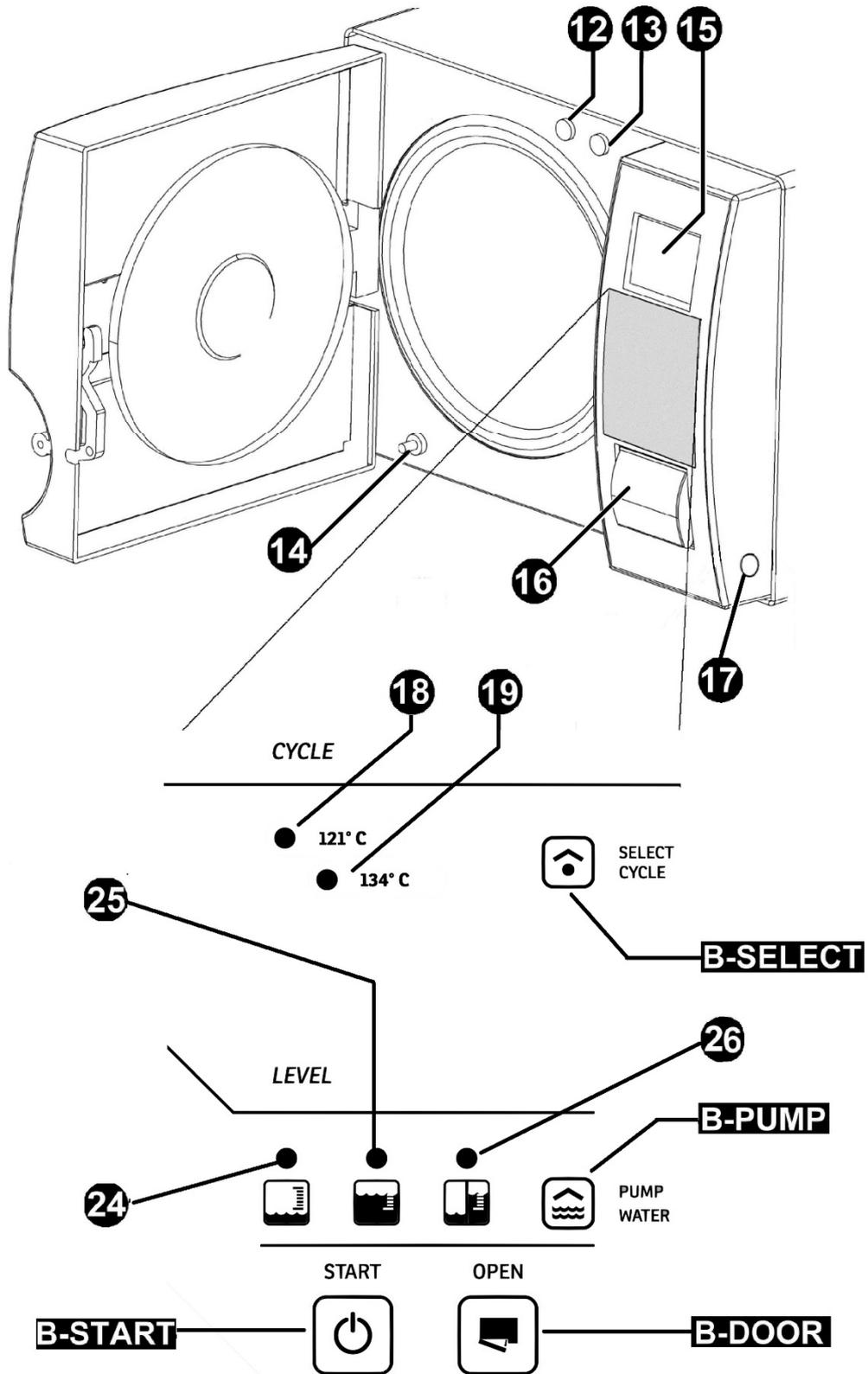
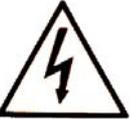


FIG.2

11	Bacteriological filter
12	Manual water filling with funnel
13	Water filling with pump
14	Used water draining
15	Display
16	Printer
17	General switch
18	121°C Cycle
19	134°C Cycle
24	Clean Water Minimum Level
25	Clean Water Maximum Level
26	Used Water Maximum Level
B-START	START-STOP Button
B-PUMP	Button for water filling with pump
B-SELECT	Cycle selection button
B-DOOR	Door opening button

02 SAFETY

2.1 Safety Marking

 <p>VOLTAGE</p>	 <p>ATTENZIONE ATTENTION ATTENTION ACHTUNG</p> <p>HIGH TEMPERATURE</p> <p>ALTA TEMPERATURA HIGH TEMPERATURES TEMPERATURES ELEVÉES HOHE TEMPERATUR</p>
 <p>ATTENZIONE TOGLIERE TENSIONE PRIMA DI RIMUOVERE IL COPERCHIO</p>  <p>WARNING DISCONNECT THE MAINS SUPPLY BEFORE REMOVING THIS COVER</p> <p>DISCONNECT THE MAINS SUPPLY BEFORE REMOVING THIS COVER</p>	 <p>EARTH CONNECTION</p>

2.2 Safety Devices

The following safety devices are installed:

1. Safety valve set at 2.4 bar 0/+10%
2. Electromagnetic lock to prevent the door from opening while the cycle is running
3. Resistance over temperature thermostats

2.3 Safety Notes

1. The manufacturer is liable for the marketed product in accordance with current regulations. The manufacturer's liability will expire when operations are carried out on the device, or a part of it, by unskilled personnel or using non-original spare parts.
2. There should be no potential risk of explosion and/or fire in the room where the autoclave is installed.
3. The autoclave should be installed in a special well-ventilated room.

2.4 Disposal

	<p>Refer to annex Cod. 0Z00H0004</p> 
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03

AUTOCLAVE USE AND APPLICATIONS

The autoclave is able to sterilize the “N” types of load provided for by the standard EN13060:

**METAL OR SOLID
MATERIALS**

Instruments with no cavities and no obstacles to the penetration of steam

This device has been certified for the sterilization of 5 kg of load



***The autoclave shall only have to be used for the sterilization of tools and materials being compatible with the steam sterilization system.
Always make sure that the loads that need to undergo sterilization can stand the temperatures scheduled for the selected cycle.***

04 TECHNICAL DATA
4.1 Mechanical Data

<i>Working temperature</i>	+5°C ÷ +40°C
<i>Maximum altitude</i>	2.000 m
<i>MAX relative humidity at 30°C</i>	80%
<i>MAX relative humidity at 40°C</i>	50%
<i>Dimensions of space occupied (L x H x P)</i>	510 X 390 X 590 mm
<i>Space occupied with open door</i>	300 mm
<i>Weight (tank empty)</i>	54 kg
<i>Weight (tank full)</i>	63 kg
<i>Weight of area of support</i>	2058 N/m ²
<i>Potential sound level</i>	< 70 db A

4.2 Electrical Data

<i>Power voltage</i>	230 V a.c. +/-10 % single phase
<i>Power</i>	1.5 kW
<i>Frequency</i>	50 / 60 Hz
<i>Power cord</i>	2 + 1 x 1mm ²
<i>Fuses</i>	6.3 x 32 – 12A (x2) / 6.3 x 32 – 500mA (x1)
<i>Heat transmitted</i>	3.6 E ⁶ J / ora

4.3 Chamber

<i>MAX working pressure</i>	2.4 bar (related)
<i>MAX Temperature</i>	138 °C
<i>Material</i>	Inox AISI 304
<i>Size</i>	Ø 245 x 318 mm

4.4 Clean Water tank

<i>Volume</i>	4.5 l
<i>Usable cycles</i>	4
<i>Material</i>	polyethylene

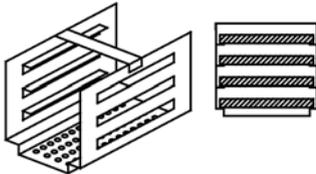
4.5 Used Water tank

<i>Volume</i>	4.5 l
<i>Usable cycles</i>	4
<i>Material</i>	polyethylene

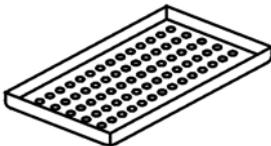
05

ACCESSORIES

TRAY HOLDER

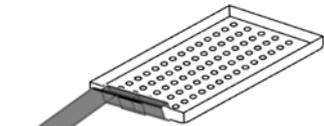
Material	Aluminium anodized
Size (L x H x P)	192 x 165 x 280 mm
Picture	 <p style="text-align: center;">FIG.3</p>
Envelope standard	1
Code	SXBA349

TRAYS

Material	Aluminium anodized
Size (L x H x P)	184 x 17 x 286 mm
Picture	 <p style="text-align: center;">FIG.7</p>
Envelope standard	4
Code	DANA049

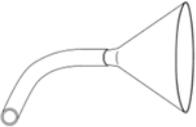
TRAY EXTRACTION AND DOOR ADJUSTMENT WRENCH

Use for extract the trays (FIG.11) and for door adjustment (*par. 14.4*)

Picture	 <p style="text-align: center;">FIG.11</p>	 <p style="text-align: center;">FIG.12</p>
Envelope standard	1	
Code	DANA008	

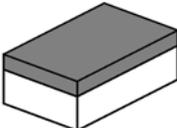
PLASTIC FUNNEL WITH PIPE

Use to charge water in manual metod (*par.8.2*)

Picture	 <p>FIG.13</p>
Envelope standard	1
Code	

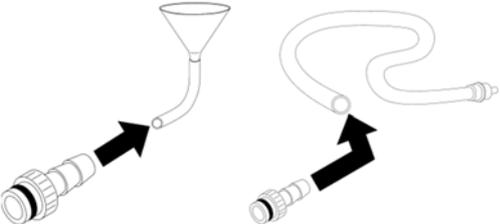
CHAMBER AND DOOR GASKET CLEARING SPONGE

Use to clean sterilization chamber and door gasket (*par.14.2-14.3*)

Picture	 <p>FIG.14</p>
Envelope standard	1
Code	CPMG004

CONNECTION FOR WATER FILLING PIPE AND PLASTIC FUNNEL

Use with plastic funnel and water filling pipe with filter

Picture	 <p>FIG.15</p>
Envelope standard	1
Code	

WATER FILLING PIPE WITH FILTER

Use to charge water with pump (*par.8.2*)

Picture	 <p>FIG.16</p>
Envelope standard	1
Code	

WATER DISCHARGE PIPE

Use to empty used water tank (par.8.9)

Picture	 <p style="text-align: center;">FIG.17</p>
Envelope standard	1
Code	

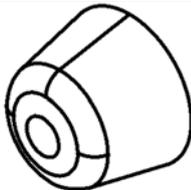
RILSAN PIPE

Connect one pipe end into the used water overflow - condensate drain pipe fitting (FIG.1 – pos. **4**), and put the other end in a tank

Picture	 <p style="text-align: center;">FIG.18</p>
Envelope standard	1
Code	SXBA002

REAR SPACER

Put the spacer in the autoclave's back panel (FIG.1–pos. **0**) It's necessary for guarantee a good ventilation if you place the autoclave near a wall.

Picture	 <p style="text-align: center;">FIG.19</p>
Envelope standard	1
Code	CPAP014

PIPES FOR DISCHARGE UTILITIES

1- Pipe for clean water overflow

2- Pipe for discharging used water

1- Connect one pipe end into the water overflow pipe fitting (FIG.1–pos. **1**), and put the other end in a tank or in the discharge (demineralizer version).

2- Connect one pipe end at the pipe fitting PICT.20 and screw it into the used water tap (FIG.1–pos. **5**), then put the other end in a tank or in the discharge.

<p>Picture</p>	 <p>FIG.20</p>
<p>Envelope standard</p>	<p>2</p>
<p>Code</p>	<p>SXBA799</p>

PIPE FITTING FOR BACK DISCHARGE USED WATER

Connect the pipe for discharging used water into the pipe fitting for back discharge used water PICT.21 and screw into the used water tap (FIG.1-pos. **5**).

<p>Picture</p>	 <p>FIG.21</p>
<p>Envelope standard</p>	<p>1</p>
<p>Code</p>	<p>CPRG096</p>

POWER SUPPLY CORD

Take the power supply cord provided and insert the female plug (FIG.22–pos. **B**) in the socket of the back panel of the autoclave (FIG.1–pos. **6**). Then insert the male plug (FIG.22–pos. **A**) in the electric plug of the system.

IMPORTANT

Ask for and use only and exclusively original accessories.

06**UNPACKING**

The autoclave is shipped in a suitable package to be transported and moved easily and to protect its contents.

The package must not be jostled, it must be moved with care avoiding letting it turn over or fall from a height superior to 16 cm.

In case autonomous handling means are not available handle the packaged autoclave always in two persons.

Autoclave is placed on wooden pallet and packed with corrugated cardboard internal and external application.

For remove the autoclave to its pack please remove first the corrugated cardboard.
For lift the autoclave please use the belts.



The autoclave shall have to be handled by at least two people and by using belts only.



Do not lift the autoclave from the inferior part of the door or command panel, this incorrect operation can create problems of a mechanical nature.

ATTENTION: Always conserve original packaging.

Inside the package you will find:

- ***USER'S MANUAL*** : to be read with attention and kept in a place available to all operators assigned to sterilization.
- ***CERTIFICATION*** : which must be conserved.
- ***GUARANTEE LABEL***: which must be completed and send.

07 | INSTALLATION

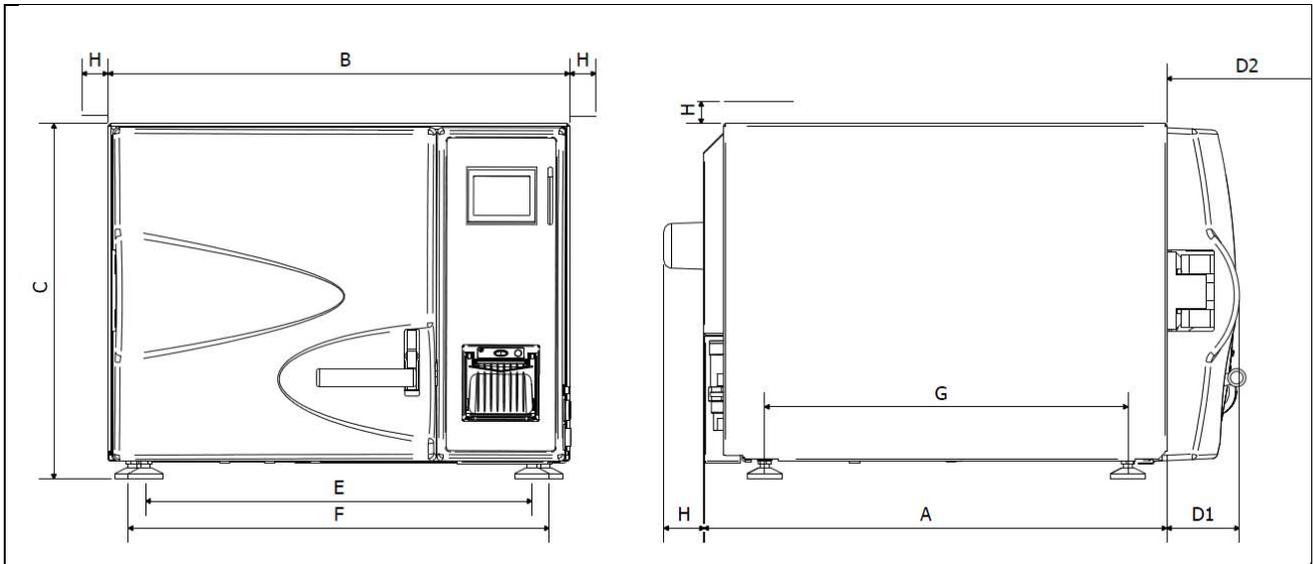


FIG.23

A	600 mm
B	510 mm
C	400 mm
D1 door closed	180 mm
D2 door open	370 mm
E	426 mm
F	455 mm
G	440 mm
H minimum distance to maintain	50 mm

1. Install the autoclave in an environment suitable for carrying out sterilization procedures.
2. The room must be adequately lit and ventilated, as provided for in the directives in force.
3. Install the autoclave away from heat sources and water splashes.

4. Position the autoclave on a surface that is able to bear its weight. The minimum recommended load bearing capacity of the surface is 80 kg.
5. The supporting surface must be perfectly horizontal and must not have inclinations.
6. Place the autoclave at a height that allows the user to inspect and easily clean all parts of the sterilization chamber.
7. Open the door of the autoclave and remove from inside the sterilization chamber all packages which contain the single accessories.
8. Leave inside the sterilization chamber only the tray carrier with the trays. All other accessories should be positioned in a separate space available to operators.
9. Never place on the autoclave newspapers, trays, liquid containers, etc...
10. Do not lean on the door when it is open.
11. Leave a space of at least 5 cm in the rear of the autoclave, using the spacer (FIG.1–pos. **0** / FIG.18), and sides of the unit to ensure the ventilation required
12. Connect the overflow connectors to the special drains with the pipes provided (*chapter 5*)
13. Always make sure the electrical system to which the autoclave is to be connected is in conformity with the legislation in force and sized to suit the specifications of the said appliance.
14. Take the power supply cable supplied and plug the plug on the rear panel of the autoclave into the female socket (FIG.1 –pos. **6**)
15. Connect the electric plug to the system and make sure the power supply is 230 Vac - 2000 Va minimum

NOTE:

Do not make the connections using extensions, reducers or adapters as this could create micro outages with consequent generation of alarm signals.

16. Turn on the autoclave by pushing the general switch (FIG.2–pos. **17**) and open the door to the autoclave. Wait a few seconds, there will be two beeps which indicate the reaching of relative parameters for automatic atmospheric alignment, at the same time the display will indicate “open door”.

NOTE:

Never select a control before hearing the two acoustic signals: the autoclave will not accept the selected program

17. Load the pure water tank following the indications in the section entitled usage instructions (*chapter 8*).
18. If the autoclave is installed with the demineralizer system, follow the instructions contained in the packaging of this device and the demineralizer section (*chapter 16*).

08**USAGE INSTRUCTION**

After having installed the autoclave, proceed with preparations and use.

8.1 Turn on the autoclave

Press the general switch (FIG.2–pos. **17**)

8.2 Loading pure water tank

Connect the water filling pipe (provided) with the connection for water filling pipe and plastic funnel PICT.14. Then engage the connection in the charging hole (FIG.2–pos. **13**).

Insert the other end of the pipe with filter in the demineralized or distilled water container.

Press the button **B-PUMP** to start the water loading pump and press it until the countdown start.

The pump loads the tank inside the autoclave. If maximum level is not reached within 180 seconds the pump automatically stops, therefore it is necessary to press the button again.

The pump stops automatically when maximum level is reached.

If you wish to use this method of filling or in the event of malfunctioning of the pump, the filling of the tank can be carried out manually by the operator in the following way:

1. Turn on autoclave.
2. Remove the connection cover (FIG.2–pos. **12**)
3. Insert in this opening the hose connected to the funnel (FIG.15)
4. Pour distilled water in the funnel, keeping it higher than the loading top.
5. Add until the led of maximum level turns on (FIG.2–pos. **25**).
6. Loading completed, twist on the top.

With connection to a deionizer, if the maximum water level has not been reached, the functioning of the autoclave will be obstructed.

8.3 Characteristics of the water to be used

TABLE SHOWING THE QUALITY LEVELS LAID BY THE UNI EN 13060

CEN STANDARD UNI EN 13060			
Evaporation residue	≤	10	mg/l
Silicon oxide	≤	1	mg/l
Iron	≤	0.2	mg/l
Cadmium	≤	0.005	mg/l
Lead	≤	0.05	mg/l
mg/l Remains of heavy metals apart from iron, cadmium, lead	≤	0.1	mg/l
Chloride (Cl ⁻)	≤	2	mg/l
Phosphate (P ₂₀ s)	≤	0.5	mg/l
Conductivity (at 20°C)	≤	15	μs/cm
Ph value (acidity level)	5 ÷ 7,5		
Appearance	Transparent, clear, without deposits		
Hardness (and alkaline earth ions)	≤	0.02	mmol/l

8.4 Loading the material into the autoclave

Place the materials to be sterilized on the trays provided:

- never superpose the materials
- never bring the materials into contact with the sterilization chamber or the closing door
- put the scissors and dental forceps with the blade open

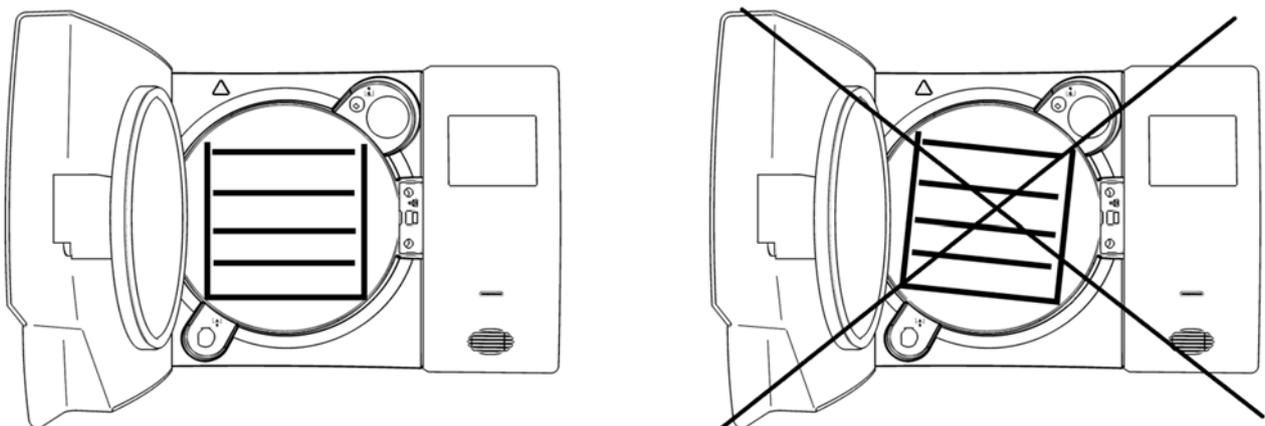


FIG.24

When you have placed all the instruments close the door and you can read DOOR CLOSED on the display.

8.5 Starting the sterilization cycle

Choose sterilization program most adaptable of load prepared (see Chapter 10 table) and press the button **B-SELECT**.

Each individual pressure changes program selection to the next.

After having chosen the program start the cycle by pressing the button **B-START**, the door will lock automatically and the cycle will begin.

During the cycle, the display will show all parameters and relative information.

8.6 End of cycle

An acoustic signal will warn the operators that the sterilization cycle has been completed and the "END OF CYCLE " message will be displayed.

When the acoustic signal stops, release the door by pressing the **B-DOOR** button. If there is pressure inside the chamber, the button will not activate the release device. Wait until the chamber is completely depressurized, then repeat the operation or, in emergency situations only, simultaneously press **B-DOOR** + **B-PUMP**. When the door is released, pull the door handle to open it.

8.7 Unloading, preserving and storing the sterilized materials

Wear personal protection equipment in accordance with the existing laws.

Extract the trays using the special spanner provided (FIG.10), and place the autoclave load on a clean, dry surface. Then store the treated instruments in the special, prepared compartments.

8.8 Discharging used water

When the led of used water level (FIG.2-pos. **26**) goes on, proceed with emptying. If not emptied, the autoclave function is inhibited.

Take the pipe provided (FIG.16), and insert it in the used water discharge plug, on the front of the autoclave (FIG.2-pos. **14**), unscrew the metal ring anticlockwise (to execute 2 complete turns), simultaneously place the other end of the pipe in a container, the water will descend into the same container.

IMPORTANT

A - The hose located in the receiving container, must not ever, touch or be immersed in the discharged water, otherwise there will be a situation of sucking up.

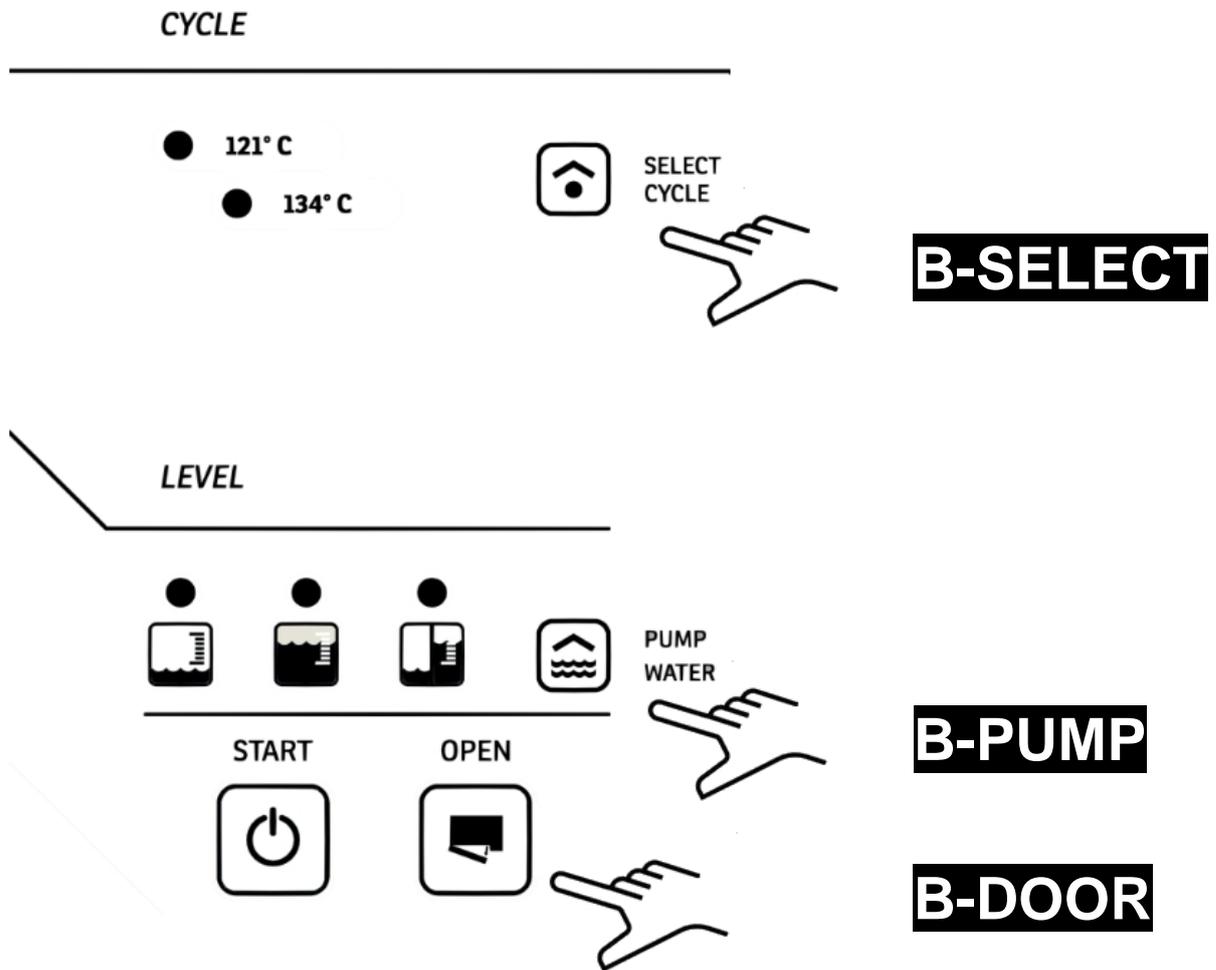
B - Always wait until the unloading water is totally emptied. The led of maximum used water level will turn off when there is still water in the tank, therefore do not use as a reference for this operation.

To the term of the drainage to screw the metal ring and remove the tube.

8.9 | Interruption of sterilization cycle

A sterilization cycle can be voluntarily interrupted by pressing the button **B-START** for at least 2 seconds. The autoclave will emit a beep, go into decompression and on the display will appear the message ALLARM 001 (INTERRUPTED CYCLE).

To reset error, maintain pressed simultaneously the buttons below indicated, until the intervention of an acoustic signal:



ATTENTION:
You can't reset the alarm if the printer works

09**STERILIZATION CYCLES****9.1 Descriptions cycles**

The autoclave has three series of cycles:

- A - operation cycles
- B - night cycles
- C - test cycles

9.2 Operation cycles

Temperatures can be selected from 121°C – 134°C.

Normally the cycles of 121°C are used for thermoplastics or sensitive materials, while the 134°C cycles are used for all other materials.

In all cases always follow the indications given by the manufacturer of the instruments or devices to be sterilized.

9.3 Night cycles

The autoclave is provided with a special economizer device.

This device allows the execution of sterilization cycles without the presence of an operator.

At cycle end, if the door is not opened, the autoclave stabilizes and then shuts off automatically, only the general switch remains on (FIG.2-pos. **17**)

Upon the operator's arrival it is sufficient to press any button to re-start the autoclave and read the cycle result on the display. Besides that the printer will have regularly prepared the written report relative to the same cycle.

STERILIZATION TABLE

CYCLES	EXPOSED TIME T4 (Minutes)	DRYING TIME T5 (Minutes)	PRESS.WORK MIN AND MAX (relative bar)	TEMPERATURE WORK MIN AND MAX (°C)
121°C Continuous LED	18	17	1.04 ÷ 1.30	121 ÷ 125
121°C Without drying Flashing LED	18	0	1.04 ÷ 1.30	121 ÷ 125
134°C Continuous LED	4	17	2.02 ÷ 2.38	134 ÷ 138
134 °C Without drying Flashing LED	4	0	2.02 ÷ 2.38	134 ÷ 138

The pre-heating time can vary depending on the conditions of the autoclave from 15 – 25 minutes that will add up with the times of the cycles shown in table. All sterilization cycles have 3 stages of vacuum.

11 CYCLE PRINTOUT READING

```

-----
1  N° Seriale: 0000 000000 1.23|
      Data: 01-01-2000
      Ciclo:
      134°C 2.12Bar 22:00m |
2
4  START
   HH:MM:SS  Gradi  Bar
   14:11:28  046.7  +0.028
7
   STERILIZZAZIONE
   14:44:23  135.3  +2.228
   14:45:22  135.9  +2.278
   14:46:22  135.7  +2.255
   14:47:22  135.6  +2.255
   14:48:22  135.8  +2.273
8  FINE CICLO OK
      Ciclo Nr. 00000
10 Operatore:
  
```

- 1** Software release

- 2** Serial number

- 3** Date and Description of the selected cycle

- 4** Hours – Minutes – Seconds

- 5** Chamber pressure

- 6** Chamber main temperature

- 7** Cycle phase

- 8** End of cycle (OK means that the cycle has been correctly completed)

- 9** Cycle number

- 10** Operator (blank for signature)

12

MESSAGES OF ERROR OR ALARMS

Messages of error are emphasized through an Alfa-numerical code, consisting in a letter and three numbers.

The “E” code is relative to errors of the operator, which can be corrected by same operator. The “A” code is relative to alarms, irregularities of the autoclave, after having carried out the remedy, if the problem persists it is necessary to request telephonic assistance.



If an alarm message is displayed (CODE “A”) the cycle is to be considered aborted: it will be necessary to repeat all the preparation and sterilization operations.

To reset alarms and errors, maintain pressed the buttons here indicated until the intervention of a “BEEP”

B-DOOR + B-PUMP + B-SELECT

ERROR	CAUSE	REMEDY
E 200	Low water level	• Fill tank
E 250	Low level water cleaned up with loading from demineralizer	• Fill tank
E 300	Maximum level used water	• Empty tank
E 401	Door open	• Close door with attention
E 451	Door unlocked	• Open door and close again
A 250	Cycle begins without water	• Control demineralizer device
A 001	Interrupted cycle	• Reset and restart cycle
A 011	Irregular pc display	• Shut off and restart autoclave
A 401	Hatch opened during the cycle or problem closing	• Check the closing system
A 501	Pressure not maintained	• Reset and restart cycle
A 551	Irregular 1° temperature sensor	• Reset and restart cycle
A 552	Irregular 2° temperature sensor	• Reset and restart cycle

A 641	Overly high pressure	<ul style="list-style-type: none"> • Reset and restart cycle
A 651	Overlay high temperature	<ul style="list-style-type: none"> • Reset and restart cycle
A 661	Irregular temperature comparison	<ul style="list-style-type: none"> • Reset and restart cycle
A 701	Working pressure not reached	<ul style="list-style-type: none"> • Reset and restart cycle
A 751	Low temperature	<ul style="list-style-type: none"> • Reset and restart cycle
A 761	Irregular pressor sensor	<ul style="list-style-type: none"> • Reset and restart cycle
A 801	Irregular unloading pressure	<ul style="list-style-type: none"> • Reset and restart cycle
A 901	Main voltage too low - Temporary lack of electric energy	<ul style="list-style-type: none"> • Reset and restart cycle, • Inform electric Energy provider

REPLACE RESINS → Resins IONIC SYSTEM exhaust

Replacement of resins; refer to paragraph 16.3

REPLACE FILTER → Resins OSMOSI SYSTEM exhaust

Replacement of filter; refer to paragraph 16.3

D	The printer's door is not closed	Try to close the printer's door
P	Paper is missing	Insert paper
Lo	There is low voltage on the line	Try to connect the machine to the net electrical worker in another point; if the problem persists to contact a electrician

*In the event of one of the alarms persisting after some time, consult **technical assistance**.*

13**PROGRAMMING DISPLAY**

Please, see the FIG.2.

13.1 Language selection

Press simultaneously **B-START** and **MAINS** switch. Hold down **B-START** until on the display appears the name of the language programmed.

Press **B-SELECT** to modify the language [forward].

Press to **B-PUMP** modify the language [backwards].

13.2 Hours selection

Press **B-START** the hours appears.

Press **B-SELECT** to modify hour [forward].

Press **B-PUMP** to modify hour [backwards].

13.3 Minuts selection

Press **B-DOOR** minutes appear.

Press **B-SELECT** to modify minutes [forward].

Press **B-PUMP** to modify minutes [backwards].

13.4 Seconds selection

Press **B-DOOR** seconds appear. Do not modify.

13.5 Date selection

Press **B-START** day appears (flashing).

Press **B-SELECT** to modify day [forward].

Press **B-PUMP** to modify day [backwards].

13.6 Month selection

Press **B-DOOR** month appears (flashing).

Press **B-SELECT** to modify month [forward].

Press **B-PUMP** to modify day [backwards].

13.7 Year selection

Press **B-DOOR** year appears.

Press **B-SELECT** to modify year [forward].

Press **B-PUMP** to modify year [backwards].

13.8 Visualize atmospheric pressure

Press **B-START** and compare memorized atmospheric pressure appears.

DO NOT MODIFY!

13.9 Water loading selection

Press and release **B-START** to select next screen until you see setting the water load:

- CHARGING BY PUMP
- IONIC SYSTEM
- OSMOSI SYSTEM

Press **B-SELECT** to modify water supply loading.

Press **B-DOOR** to save the modify and maintain pressed until the sound of the “BEEP”.

Press **B-START** to exit menu and maintain pressed until the sound of the “BEEP”.

The data inserted are memorized. Turn off the autoclave using the MAINS switch.

14 SOLUTIONS TO OPERATIONAL PROBLEMS

In many cases some alarms or errors are determined by lack of attention or lack of familiarity with some technical and operational aspects. Following are listed some cases of irregularity with relative solutions.

14.1 Autoclave does not dry correctly

- substitute the bacteriological filter, with a new original.
- original trays have not been used, but other trays without perforations or diverse perforations. use only original trays, possibly in aluminum. request additional original trays.
- Instruments have not been arranged correctly. Follow the indication of par.8.4

14.2 Autoclave chamber becomes white

- Change immediately the type of water used, use demineralized or distilled water, as is specifically indicated in the previous chapter and then proceed with cleaning the chamber.
- The whitish color can be a consequence of the evaporation of organic materials present on the instruments. instruments should be cleaned with a detergent action more suitable and thoroughly.
- check the demineralizer (IONIC SYSTEM or OSMOSI SYSTEM)

14.3 Autoclave chamber presents blueish green stains

- Instruments have not been correctly rinsed cleanse and rinse with major attention the instruments. if the stains are evident request telephonic assistance.

14.4 Sterilization cycle interrupts without apparent motive

- Control if autoclave is connected to the electrical net with extensions, reductions, adapters, if so remove this accessories and connect the autoclave directly to the electric socket.

14.5 Autoclave does not receive commands

- Autoclave pre-arranges bar automatic alignment wait for the double beep after opening the door, then program the functions.
- Pure water tank is empty, minimum led level is on, fill with pure water
- Used water tank is full. maximum level led is on, discharge used water.

14.6 Autoclave printer does not print

- Paper carrier cover is not closed correctly, on the display appears the letter “d”. open and close the printer cover checking that is correctly closed.
- Paper missing, on the display appears the letter “p”. open the cover and insert the roll of thermo-graphic paper.
- Roll of paper is mounted with thermo side towards inside, open the cover and turn the roll of paper to the correct position.

14.7 Stains on instruments

- Instruments become yellow, chemical liquid residual has with heat been fixed on the instruments. they were not sufficiently rinsed.
- Sterilization chamber presents yellow spots, instruments were introduced in the chamber with chemical liquid which dripped and is fixed due to heat. rinsing was not sufficient.
- Instruments present white spots, rinsing was done with water with high level of calcium and the instruments were not dried. for last rinse it is advisable to used demineralized water and dry carefully the instruments.
- Instruments are darkened, this is caused by the fact that the instruments have internally a strong component of carbon.

15.1 Set of demineralizer system

Autoclave is already prepared also for plug IONIC SYSTEM or OSMOSI SYSTEM for charging water into the autoclave (*optional accessories*).

These applications are accessories of autoclave.

These applications have been designed for remove minerals in the water before to charge the autoclave.

First to plug the hydraulic connections it is necessary set the software of autoclave following this instructions.

1. Switch-on the autoclave with the MAINS (FIG.2–POS. **17**) switch and keep pressed **B-START** (during the switch on) until you see a string reporting the selected language.
2. Press and release **B-START** to select next screen until you setting the water load:
 - CHARGING BY PUMP
 - IONIC SYSTEM
 - OSMOSI SYSTEM
3. To change this setting use **B-SELECT**.
4. To save keep pressed **B-DOOR** until you hear a “BEEP”.
5. To exit keep pressed **B-START** until you hear a “BEEP”.

Set data are stored in memory.

WARNING

The number you can see on display, under the kind of water system used, it's a counter. It gives you an indication about the number of cycles possible to make until the end of filter (in case of osmosi system) or until the end of resins (in case of ionic system).

When you change the filter or the resins, it's necessary reset the number of the counter after saving of the kind of system used.

For reset the counter it's necessary keep push the button **B-PUMP** until the acoustic signal of the buzzer (it takes about 10 second) in the main page of the menu where you can start the sterilization cycle.

15.2 Connection of demineralizer system

Here are indicated the specific connection to the autoclave of the water supply hose and the connection of the electric plug.

1. Turn off the autoclave if it is on (FIG.2–pos. **17**)
2. Close the faucet located above the demineralization system
3. Install the demineralizer as indicated in its manual;
4. Twist the male screw of the connection-hose carrier with Teflon or other component which guarantees the sealing of water;
5. Screw the connection on the Demineralizer tap (FIG.1–pos. **2**)
6. Insert the hose exit of demineralizer to the connection-hose carrier already screwed to the autoclave;
7. Insert the plug of demineralizer to the socket (FIG.1–pos. **7**) on the back of the autoclave
8. Open the faucet located above the demineralization system;
9. Control that there is no water loss;
10. Turn on the autoclave;
11. Run one or more sterilization cycles to control the functioning of the connection and check above all for leaking



At the end of each day always close the faucet located above the demineralization system to prevent flooding



Connect of demineralizer only to preprogrammed autoclave



If the unit at the beginning of the cycle shows e250 then you have to fill the clean water tank until the maximum is reached

NOTE

For the connection of demineralization system to the autoclave tecno-gaz refer to indications in the manual.

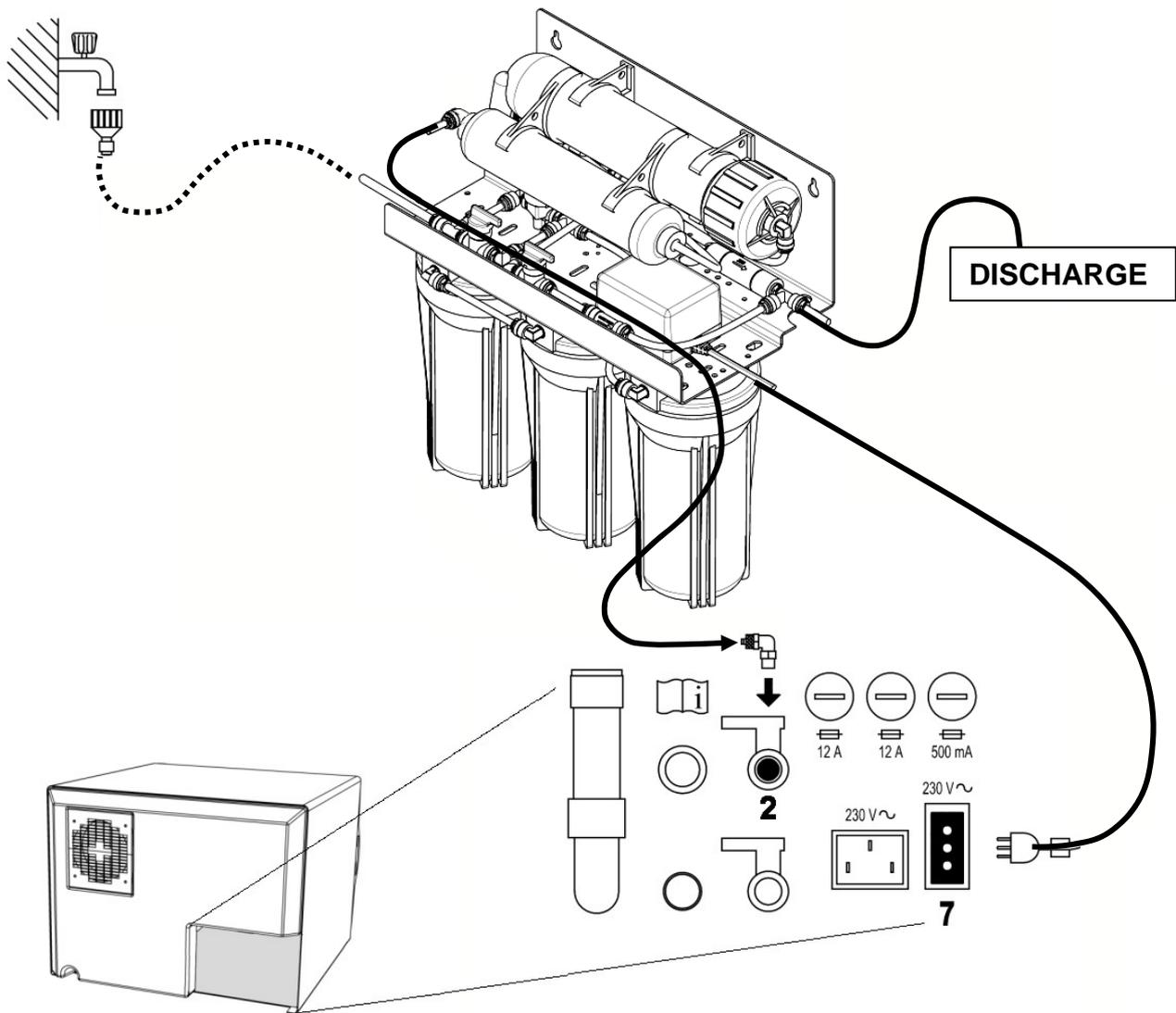


FIG.26

15.3 Change resins - filter

Autoclave display indicates the state of finishing of the resin with the message "REPLACE THE RESINS" (*spare code 242-S*) or "REPLACE THE FILTER" (*spare code 248-S-2*). Substitute the resin cartridge as indicated in the demineralizer manual. After substitution, press button **B-PUMP** until the "beep", to reset the autoclave.

Sterilization means adopting precise operational protocol and applying a system. Autoclave is the final link of this system. Those who do not follow all of the various phases of the sterilization system will be unsatisfied with the final result.

TECNO-GAZ S.p.A. produces all the devices for each phase of the sterilization cycle. Therefore it is necessary to:

1 - Prepare a precise written operational protocol to distribute to all operators assigned to sterilization.

TECNO-GAZ S.p.A. can provide these personalized protocols.

2 - Follow carefully and with attention all of the sterilization cycle phases:

DISINFECTION obligatory phase, in base of that is obligatory for the operator security, to be done with immersion in chemical liquids or thermo-disinfection.

CLEANING the most important phase which insures the removal of all types of residual, chemical and organic. The most suitable instruments are ultrasound baths.

DRYING essential phase to avoid corrosion of instruments and interference of the sterilization cycle.

PACKAGING essential phase for maintaining sterile the treated instruments.

STERILIZATION final phase of steam sterilization

17 | PROCEDURE FOR SERVICE AND ASSISTANCE

In case of failure, review, validation, contact the service centers
TECNO-GAZ S.p.A

**See annex for Authorized Service Centers
 Cod. 0Z00H0002**



Assistance will assess the return at headquarters or with the intervention of a technician, and having viewed the machine in order to draw up a cost estimate, which will be forwarded to the distributor customer who will forward it to the final customer, for acknowledgement and signing.

After receiving prior written acceptance of the cost estimate, the autoclave will be serviced and reshipped according to times indicated on the cost estimate.

In case the autoclave must be shipped for repairs, controls, reactivation, revisions, validations follow the obligatory indications below:

1. Use the original packaging; if this is no longer in your possession, use adequate packaging. The merchandise travels at risk to the sender.
2. Ship the autoclave only (do not include any component contained in the accessories kit).
3. Carefully clean the sterilization chamber and autoclave in general before shipping. In case it arrives dirty or with residual the autoclave will be returned without being repaired, or it will be put through a cleansing action and disinfection.
4. Always empty the clean water tank through the attachment located on the back of the autoclave (Fig.A–pos. **4**).
5. Always empty the used water tank through the attachment located on the back of the autoclave (Fig.A–pos. **6**).
6. Indicate by letter and insert in the package a document which indicates precisely the irregularity or service desired.
7. Ship at your expense, otherwise you will be billed for shipping.

All non original packaging which arrives will be disposed of.

Autoclave will be returned with new and original packing to insure maximum protection for your autoclave during shipping. Cost of packaging will be charged to client.



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