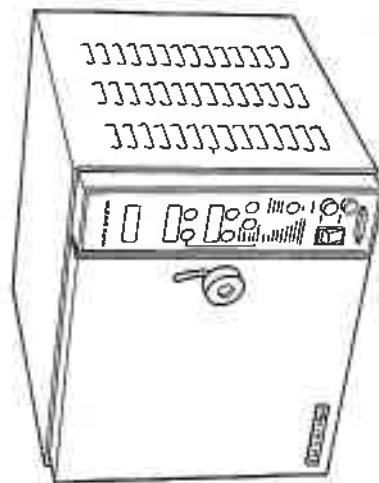




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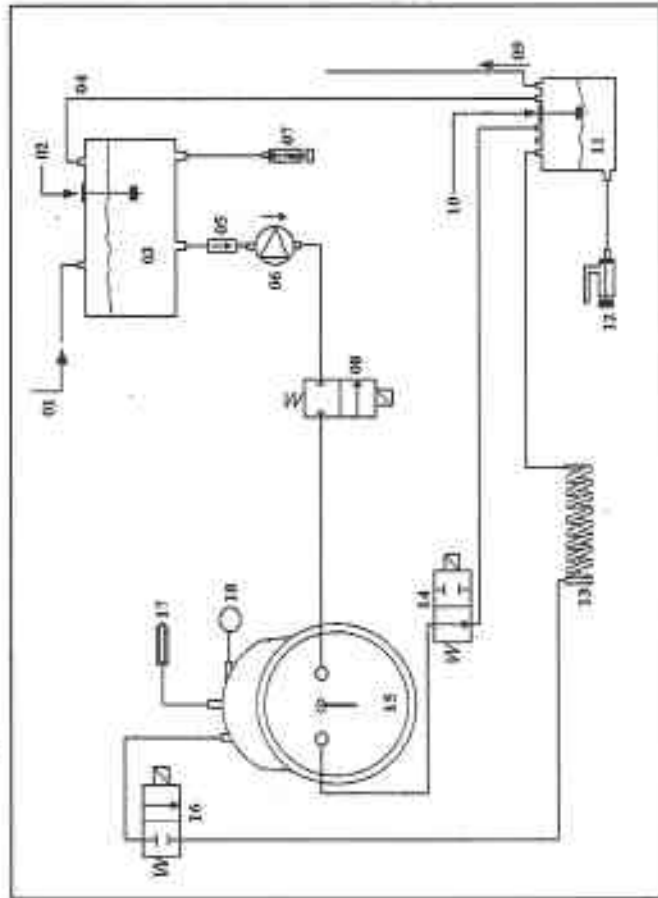
Operating Instruction Tau Clave 3000

**For a correct use functioning of the machine , the operator
should strictly the recommendations , especially as page 12.**

CE 0426
DIRECTIVE 93/42 EEC
MEDICAL DEVICES

11) Circuit Hydraulic

INDEX



LEGEND

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1) Warnings

Tau Clave 3000 is an Autoclave. Carefully clean the sterilization chamber and the instruments to sterilize. **USE ONLY DEMINERALIZED WATER.**

For a correct maintenance, please follow these indications when the machine is cold. Evacuate maintenance frequently in order to have an always efficient and clean autoclave.

- ✓ Clean the sterilization chamber with water and alcohol. If there is some limestone, remove using a rough sponge and vinegar. Rinse with water and alcohol.
- ✓ Clean the seal with alcohol and make sure no dust is present on the rubber (stainless steel counteracting ring). In case of dust clean with alcohol.
- ✓ Make sure that the seal is always in its exact position on the edge of the disk containing it. (always perform this operation when the machine is cold). If it has shrunk, (which is quite normal due to the characteristics of silicone), replace with a new one. Slight water leaks may occur when seals shrink.
- ✓ **THOROUGHLY** clean the tiny filter inside the sterilization chamber with some vinegar. If the filter is clogged and cleaning is no longer possible, replace with a new one. Carefully follow the filter assembly / disassembly instructions in the operating instructions manual on page 15 - 16.

10.1) Legend of symbols

WARNING READ OPERATING INSTRUCTIONS



WARNING DANGER OF BURNS



WARNING DANGER OF ELECTRIC SHOCKS



WARNING WEAR PROTECTIVE GLOVES



NOT TREATED AS MUNICIPAL WASTE.
FOLLOW RULES FOR MUNICIPAL DISPOSAL.



10) Safety rules and precautions

When operating the autoclave always wear protective gloves to avoid possible burns (a precautionary nameplate "WARNING: DANGER OF BURNS can be found on the outer frame of the machine).

The autoclave must be used only by an expressly authorized personnel, informed about the "Sterilization techniques", the materials that can be sterilized and the recommended times and temperatures to follow.

This equipment must be used uniquely for the purpose for which it was originally designed and manufactured, i.e. sterilization of surgical instruments to be used in the medical and paramedical field.

All precautions must be absolutely taken to avoid an improper use of the machine by unauthorized people. Modification, removal or disconnection of existing thermal and electric protections is strongly forbidden. The operator must not perform any repairs on the machine.

Always disconnect the autoclave during cleaning and maintenance of same. Moreover it must always be completely cold.

When sterilizing surgical instruments (such as scalpels or pointed instruments) safety shoes should be preferably worn.

Check periodically that the power supply cable is not damaged.

2) Introduction

2.1) Door opening and closure

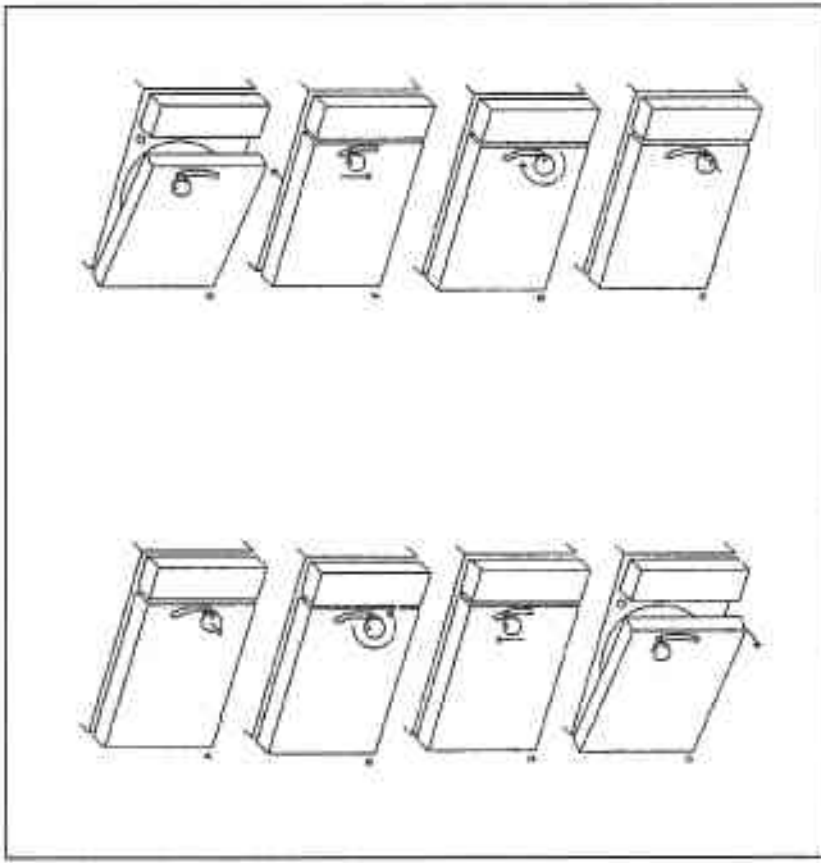


Figure 1

2.2) Expected use of materials to sterilize

The equipment is used to sterilize surgical instruments in the medical-paramedical sector. The materials to be sterilized must withstand operating temperatures ranging from 105°C to 134°C.

Do not load toxic materials into the autoclave. TAU STERIL shall not assume any responsibility in this respect.

2.3) Manufacturer's responsibility

The equipment is manufactured in compliance with European regulations.

The use of this equipment is restricted to the functions for which it was originally designed and manufactured. The user shall be responsible in case of any possible risks and dangers caused by an improper use of the autoclave.

3) Installation

Carefully remove the autoclave from its packing and make sure there are no signs of damage. Make sure earthing is correctly made. Put the autoclave on a flat and horizontal surface, to facilitate aeration. Always respect a distance of at least 10 cm from any wall or other equipment, to allow suitable ventilation.

Do not put objects or other items in the vicinity of the door, to prevent them from hindering opening of same.

Connect the autoclave to a nearby and easily accessible plug. Press the main switch setting it to "I" and make sure the autoclave switches on.

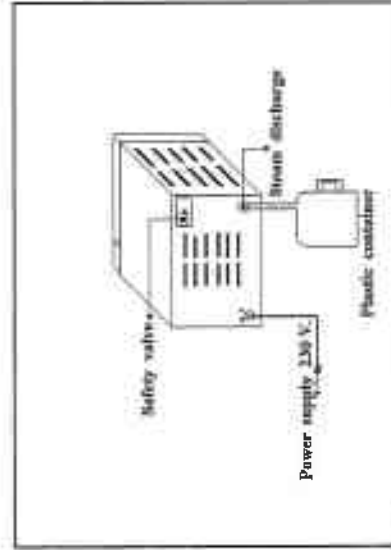


Figure 2

9) Control panel

Legend

1. Pressure Display
2. Temperature Display
3. + Temperature
4. - Temperature
5. Time Display
6. + Time
7. - Time
8. Start / Stop
9. Programme Selection
10. Programme Led
11. Fuses
12. Printer coupling
13. Main switch
14. Operation Led
15. Programme Led

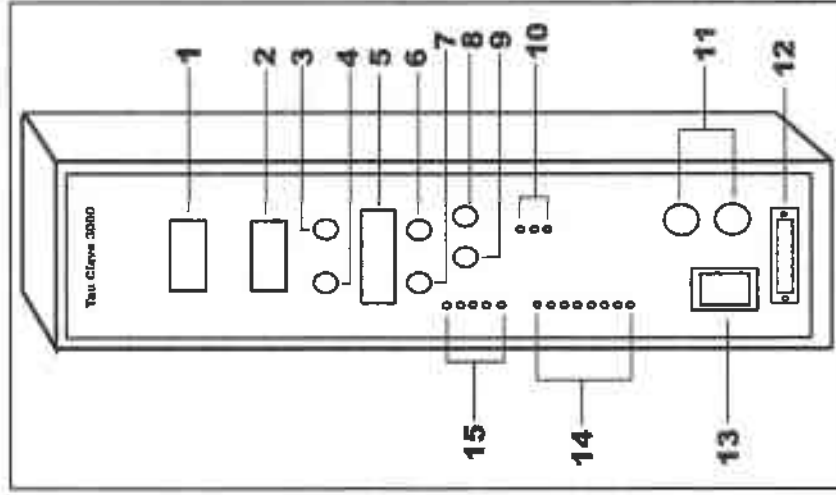
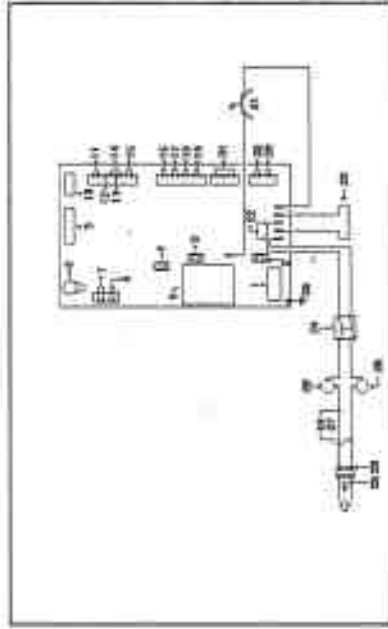


Figure 6

To modify Printer settings (5.5 page 13)

n° 6 = To change YEAR – MONTH – DAY – HOUR – MINUTES
n° 7 = To move on to next parameter to modify

8) Wire diagram



LEGEND

1. Line filter
2. Extra-quick fuse 5x20 4A
3. Semi-delayed fuse 5x20 3.15A
4. Semi-delayed fuse 5x20 1.6A
5. Transformer
6. Inner probe PT 100 (vapour temperature)
7. Outer probe PT 100 (resistor temperature)
8. Pressure switch
9. Coupling for printer connector
10. Coupling for display connector
11. Float discharge max. level
12. Float loading min. level
13. Float loading max. level
14. Common use max. min fill
15. Door microswitch
16. NO (normally open) 2-way solenoid valve – 24 V. cc.
17. NC (normally closed) 3-way solenoid valve – 24 V. cc.
18. NC 2-way solenoid valve – 24 V. cc.
19. NC 2-way solenoid valve – 24 V. cc.
20. 230 Volt power supply (optional for version with vacuum pump)
21. Bimetallic safety thermostat
22. Power supply 230 V. 50 Hz.
23. Resistor 230 V. 1250 watt.
24. Main switch
25. Quick fuse 5.3x32 10 A.
26. Quick fuse 5.3x32 10 A.
27. Condenser 0.1 mF 250 Vcc class x2
28. Feeding cable terminal
29. Earthing
30. Earthing
31. NC 2-way solenoid valve 24 V. cc.
32. Power supply 230 V (it supplies the water pump)

The autoclave is usually delivered with two shims under the front supporting feet to facilitate tilting of the autoclave. **IMPORTANT:** Do not alter the shims. A tube on the back of the autoclave allows vapour emission. **IMPORTANT:** The tube must be positioned as indicated in figure 2.

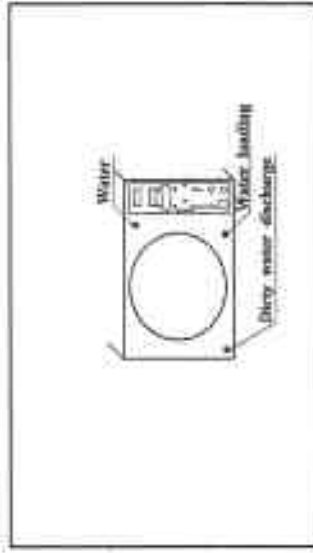


Figure 3

When the machine is empty:

- Fill the bottle with 2.5 lL of demineralized water. Close the bottle with the suitable cap (see fig. 4).
- Insert the small cane in the autoclave's loading orifice. Slightly unscrew the cap until water starts flowing out. The indication **STOP** on the time display, followed by some beeps, indicates that the machine is full.



Figure 4

When A01 alarm is displayed again, indicating a low water level, proceed as follows:

- Fill the bottle with demineralized water.

□ Insert the small cane into the autoclave's loading orifice and unscrew the cap. When the indication **STOP** appears on the time display, loading is completed (about 1,5 / 2 lt of water after the alarm A 01 is visualized).

□ How to empty the recovery tank: the alarm A02 is visualized on the time display; this means the machine must be emptied (see fig. 3). Without this procedure the machine remains in the alarm condition and cannot be used. For a better operation of the autoclave, frequently empty the recovery tank (dirty water).

4) Characteristics

4.1) Technical data

Weight: 50 Kg.
Outer dimensions: Width cm. 44 – Height cm. 38 – Depth cm. 43
Inner dimensions: Diameter of chamber cm. 24 – Depth cm 35.
Absorption: 1250 Watt
Power supply: 230 V – 50Hz

4.2) Environmental working conditions

- Temperature 5° - 40°
- Moisture (with max. T° 31°) 80%
- Moisture (with max. T° 40°) 50%

4.3) Recommended times and characteristics of programmes

The autoclave has five sterilization programmes.
N.B. All the cycles have a **DRYING TIME** of 15 min.
In the **LIQUIDS** programme the drying stage is substituted by slow decompression. This is obtained by gradually decreasing the pressure (40 min.), avoiding damage to the materials.

Disassembly: when the machine is cold – turn the stainless tiny tube from left to right (using pliers if necessary), paying attention to the nearby probe.

Remove the piece from the chamber, unscrew the filter, clean it with vinegar or replace with a new one if it is too dirty. You don't need to disassemble the tube with the filter. Just pour (always when the machine is cold) some vinegar on the filter itself. Rinse thoroughly with water.

Assembly: follow the operations in the same reversed order, always paying extreme attention to the probe.

IMPORTANT: when a tube with a new filter is positioned, make sure this is well fixed, keeping a distance from the probe of about 2.5 cm.

6) Transport and storage conditions

The autoclave is equipped with packing requiring normal transport precautions necessary for fragile materials, as indicated on the cover itself. Make sure you retain the packaging materials for future shipment or should the machine need repairing. In case of storage, put the machine in a moisture-free area to protect electrical parts.

7) Maintenance and cleaning

Any maintenance must be executed after disconnecting the feeding cable and when the machine is completely cold.
The autoclave is delivered with a bacteriological filter, replace it every 6 months.

Use a cloth soaked in alcohol to clean periodically the interior of the autoclave chamber.

Make sure periodically that the feeding cable is in a good condition. In case of improper functioning, please contact the manufacturer.

In case of repairs, please send the autoclave to the manufacturer in its original packing container.

Always clean the instruments before loading them into the autoclave. Always clean the chamber (when the machine is cold) with some vinegar, rinse with water and alcohol.

To protect components from dust, a special tiny filter (which can be unscrewed) is mounted on the small tube next to the probe inside the sterilization chamber (see fig. 5).

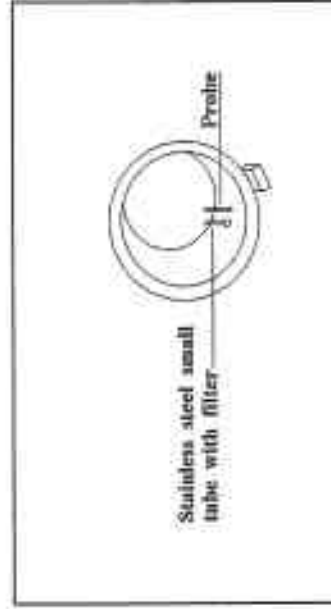


Figure 5

PROGRAMME	STERILISATION	DRY	SLOW - DECOMPRESSION
UNWRAPPED (Unwrapped instruments)	134° 4 minutes 2.11 bar	15 minutes	NO
WRAPPED (Wrapped instruments)	134° 12 minutes 2.11 bar	15 minutes	NO
PACKS (Instrument packs)	121°C 30 minutes 1.08 bar	15 minutes	NO
LIQUIDS (Reversible gelatine)	121°C 30 minutes 1.08 bar	15 minutes	YES
SPECIAL (Suitable for delicate materials)	105°/134° C 1/20 minutes 0.20/2.11 bar	15 minutes	NO

5) Operating modes

5.1) General information

Commands and visualizations are indicated in the drawing on page. 18. They are

SELECT	To select sterilisation programme
START / STOP	To start / stop sterilisation cycle
TEMPERATURE DECREASE	To reduce sterilisation temperature in the special programme. (- TEMP.)
TEMPERATURE INCREASE	To increase sterilisation temperature in the special programme. (+ TEMP.)
TIME DECREASE	To reduce sterilisation time in the special programme. (- TIME)
TIME INCREASE	To increase sterilisation time in the special programme. (+ TIME)

5.2) Visualizations

PRESSURE:

TEMPERATURE

TIME:

It indicates pressure in BARS

It indicates the temperature of vapour inside the chamber by pressing the right push button (+TEMP.) It indicates temperature of the heating element. Moreover, by pushing the left push button (- TEMP.) you can visualize the selected cycle temperature.

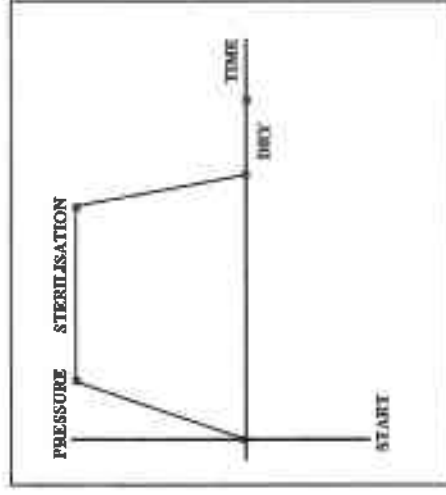
It indicates the sterilisation time of selected programme. The alarms identification codes are now displayed, as well as indication "FILL" indicating that water is flowing into the sterilisation chamber.

5.6) Description of TAU CLAVE 3000

At the beginning of the cycle (when start is pressed) the water intake phase follows (indicated by message FILL on time display). The machine temperature now begins to rise until 98° degrees. At this point the valve close, permitting the machine to enter sterilisation phase. During and after the closure of the valves excess air may be expelled by an electronic system.

When required temperature is reached there is a further expulsion of air (stabilisation of pressure).

The cycle is concluded with the drying phase (DRY).



Graphic cycles Tau Clave 3000

WARNING: NEVER PROTESTIVE RELAYES WHEN USING THE AUTOCALVE

N.B. The cycle can be stopped whenever you want (i.e. during sterilization or drying) by pressing "STOP" a buzzer will emit some beeps and if there is any pressure this will be automatically discharged.

5.5) Setting date & time on printer

The autoclave may be fitted with a printer (optional) for creating labels containing the data relative to each sterilisation cycle.

Setting: Switch the machine on holding key-time pressed and with the door open. A long beep is heard and, when the key is released, setting mode is available.

The pressure display indicates the current value which is to be modified.

The + time key increase this value within permitted limits (e.g. increasing the hour from 23 the next value is 00, increasing the day value after the number 31 the next value is 01 etc.).

The - time key is used to pass on the next value that is to be modified. Values are modified in this order: YEAR, MONTH, DAY, HOUR, MINUTES.

The UNWRAPPED —SPECIAL leds come on in the same order. After setting the HOUR, pressing key -time the automatic adjustment of summer / winter time may be activated or deactivated. The READY led comes on and the pressure display indicates "on" or "off".

Pressing the key + time toggles between on and off. When on is active the clock automatically adjusts between summer and winter time (effected at 2 a.m on the last Sunday of October and on the first Sunday of April). Pressing - time the clock runs again and the machine returns to normal state.

5.5.1) Using the printer

- ❖ Connect the printer using the plug provided. Insert the power supply plug into the mains socket
- ❖ Switch the printer on.
- ❖ Printer is now ready to print.
- ❖ Switch the autoclave on; the printer is automatically prepared to print.

Leds Indicating Operation (green)

They indicate the programme status:

- The led is switched off : the phase has not been executed yet
- The led is blinking: the phase is under way
- The led is lit: the phase is over

They are:

- READY (drying phase)
- FILL (loading)
- VACUUM (no active – version with vacuum-pump)
- HEATING (heater)
- STERILIZE (sterilization)
- DRY(drying phase)
- END (end of cycle)
- PRINT (printing phase).

Leds Alarm (red)

They indicate possible defects:

They are:

- DOOR (the door is open)
- LOW H2O LEVEL (low water level)
- ALARM (generic alarm – it can be identified by the visualized code on the time display).

The front panel is endowed with a connector (optional) suitable for connection to an external printer. Moreover it is equipped with a main switch with fuses (2 x 10A. 6,3x32).

5.3) Alarms visualization modes

The machine visualizes every alarm in the following way:

- The time display visualizes the alarm code (i.e. A01, A02 etc)
- A long beep is heard, followed by 10 short beeps (these can be silenced if necessary)
- In case of alarm A00 (the door is open) or A01 (low water level), which are the most frequent, the corresponding DOOR and LOW H2O LEVEL LEDs will also blink.

- In the other cases, the ALARM led blinks and the cause of the alarm can be found by checking the code on the display or by reading the detailed printout from the printer (if this is present).
- The machine remains in this status until termination/silencing condition occurs, specified individually for each alarm.

5.3.1) Alarms and corresponding summary codes

ALARM CODES	INDICATIONS
A00	Open door: it checks if the door is open when the cycle starts. It disappears by pushing any push button or by closing the door.
A01	Low water level: it checks if, when the cycle starts, the water level in the loading tank is not enough. It disappears by pressing any push button or restoring the level. If during topping up the max. level is reached, the time display visualizes "STOP" and the beeper sounds like an alarm. When the two beepers are silenced the indication "STOP" disappears and you go back to normal operation.
A02	Discharging tank is full: it checks if the water level in the recovery tank is excessive. It disappears only after emptying the tank.
A03	Blackout: it occurs in case of a cycle previously interrupted by a BlackOut. It disappears after opening the door or by pressing any push button*
A04-A05	Heating excessive time: it disappears by pressing any push button*
A06	High pressure: it disappears by pressing any push button*
A07	High temperature: it disappears by pressing any push button*
A08	Anomalous pressure: it disappears by pressing any push button*
A09	Anomalous temperature: it disappears by pressing any push button*

* = Repeat the cycle, the material to sterilize is not sterilized. If the problem persists, please contact the manufacturer.

N.B: A00, A01, A02 do not cause any printing activity (if there is a printer)

Moreover there are other alarms connected to the components of the electronic card; they are:

ALARM CODE	INDICATIONS
A20	Loss of data*
A21	Watchdog improper functioning*
A22	Probes*
A23	Watch batteries*
A24	Software*

5.4) Operating instructions

- 1) Carefully clean and wipe the instruments to sterilize
- 2) Open the door and switch on the main switch.
- 3) Load the loading tank (capacity 2.5 lt. when the machine is completely empty) until "STOP" is visualized on the time display.
Every time the alarm Low H2O level intervenes, add 1.5 lt. of demineralized water. If you exceed this quantity, "STOP" is displayed, indicating that the tank is full; extract the small canne from the loading orifice.
- 4) Every time the alarm A02 intervenes, discharge the recovery tank (it is better however not to wait for the alarm - you can discharge it at any moment you like) by using the appropriate small tube.
- 5) Select your programme by pressing the "select" button.
A single pressure on the push button does not change the programme. It merely visualizes on the temperature display the temperature of the programme. After 5 seconds the temperature display resumes its normal display. If the "select" push button is pressed again within 5 seconds, the programme changes (this is indicated by the led).
If you select the special programme, the content of the temperature display blinks to indicate that the sterilization temperature can be chosen between 105° -134° by using push buttons +/-temperature.
The same holds true for time, by using push buttons +/-time. These variations can be performed simultaneously both for time and temperature.
- 6) Close the door only after performing these operations
- 7) Press start: the chosen cycle starts up.
- 8) Keep the area in front of the door free from any obstacles to avoid burns or any damage when the door is opened and the machine is hot.