



Instructions for Use

Tau Clave 3000

CE 0426

DIRECTIVE 93/42 CEE E.S.M.I.
MEDICAL DEVICES

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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.

2 Introduction:

2.1 Normative References

The autoclave Tau Clave 3000 is conforming to the essential requirements of the Directives of the Council: Medical devices 93/42/CEE and S.M.I., class II b; it is conforming besides to the national norms that are translated in the harmonized norms:

EN 13060
EN 61010-1
EN 61010-2-040
EN 61326 – 1
IEC 62304
EN 60601-1-6
IEC 62366
UNI CEI EN ISO 14971

"For the date of validity of the aforementioned standards, refer to the Technical File to be requested from the manufacturer".

The autoclave Tau Clave 3000 complies with RoHS 2011/65 / EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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.

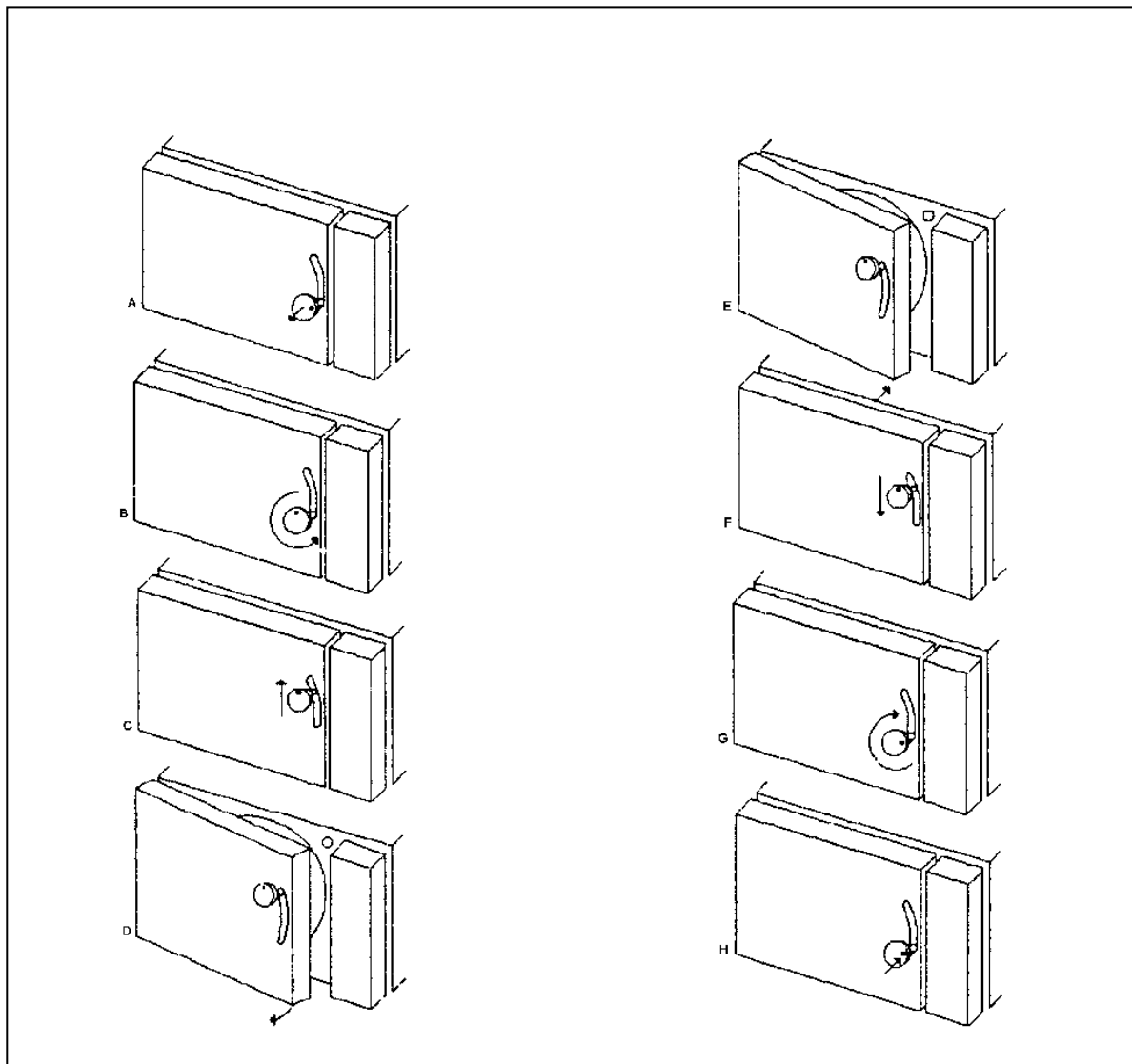
The use of this equipment is restricted to the functions for which it was originally designed and manufactured. **The user shall be responsible in case of any possible risks and dangers caused by an improper use of the autoclave.**

The product warranty is of twelve months starting from the date of purchase.

2.4 Door opening and closure

OPENING MOVEMENT

CLOSING MOVEMENT



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3 Installation

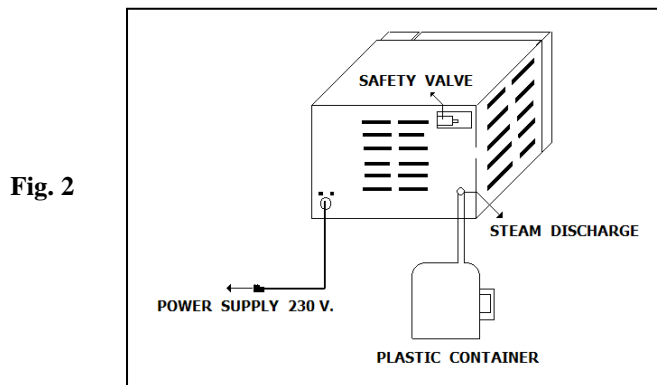
Carefully remove the autoclave from its packing and make sure there are no signs of damage. Make sure earthing is correctly made. Put the autoclave on a flat and horizontal surface, to facilitate aeration. Always respect a distance of at least 10 cm from any wall or other equipment, to allow suitable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

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

To check that the tension of suitable feeding on the back label corresponds to that in hand in the place of installation (maximum variation of the tension of net: $\pm 10\%$).

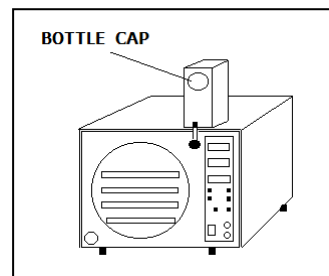
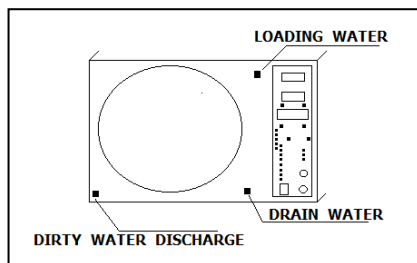
To insert the thorn in the attack of the electric net. To press the general interrupter bringing him/it in position "I" and to verify the lighting of the same.

In case of missed observance of these dispositions TAU STERIL declines every liability.



To give an inclination to the machine, it comes standard with two shims under the support legs front: it is important not to touch the shims. On the rear side of the machine is located in a pipe for the steam to exit.

IMPORTANT: The tube must be positioned as shown in Figure 2.



When the machine is empty:

- Fill the bottle with **2.5 liters** of demineralized water, then close the bottle with the cap (see Fig. 4).
- Introduce the cannula orifice load autoclave. Unscrew the tap until the water begins to flow. The **STOP** appears on the display time, followed by a beep, it indicates that the machine is fully charged.

When you turn on the red LED **Low level H2O**, followed by the code **A 01** (shown on the display time), it means the lack of water in the tank load.

- Fill the bottle with **1.5 l** of demineralized water.
- Introduce the cannula orifice load the autoclave and unscrew the cap. The STOP appears on the display, which give you the completion of the load (about 1.5 l of the alarm activation A 01).
- **Tank drain recovery: Occurs alarm A 02 on the display of the time; It means that the machine must be emptied. Without this procedure, the same remains in the alarm condition, and therefore unusable. It is advisable for a better operation of the autoclave, the discharge of frequent recovery tank (dirty water).**
- **Caution: It is recommended before using the autoclave with load (first load water happened) of looping "Unwrapped" (empty chamber without load) in order to sterilize the chamber.**

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4 Characteristics

4.1 Technical data

Weight: 45 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. 50 Hz

4.2 Environmental Conditions of Work

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

4.3 Temperatures Times and Features programs

The autoclave is equipped with five sterilization programs. All programs have drying of 15 minutes. In the program LIQUIDS missing drying, replaced by RELIEF SLOW. This is to stop the warming, and wait until the pressure drops, the temperature drops up to 0.4 bar pressure. In special program lacks equally the DRT (drying) if the selected temperature is 105 ° C.

DO NOT PLACE LIQUIDS inside the autoclave.

PROGRAM	STERILIZATION	DRYING	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 (Fabrics and gauzes)	121° 30 Minutes 1.08 Bar	15 Minutes	NO
LIQUIDS (jellies reversible)	121° 30 Minutes 1.08 Bar	-	YES
SPECIAL (suitable for delicate materials)	105°/134° 1 / 20 Minutes 0.20 / 2.11 Bar	15 Minutes	NO

N.B: In the LIQUIDS program the drying phase (DRY) is missing, replaced by the SLOW DECOMPRESSION, which consists in stopping the heating, and waiting for the pressure to drop, with the temperature going down to 0.4 Bar of pressure.

DO NOT INSERT LIQUID SUBSTANCES. The SPECIAL program also lacks the DRY (drying) if the selected temperature is 105 °.

WARNINGS: During the sterilization process, TAU STERIL always recommends to insert a sterilization process detection indicator (in compliance with current regulations) inside the autoclave sterilization chamber (with the material to be sterilized).

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5 Terms of Use

5.1 General information

The controls and displays are shown in the drawing on page. **10** they are:

Control buttons:

1	SELECT	to select the program of sterilization
2	START / STOP	to start / stop the sterilization cycle
3	TEMPERATURE DECREASE	to decrease the temperature of the sterilization program Special.
4	TEMPERATURE INCREASE	to increase the temperature of sterilization in the program Special.
5	DECREASE TIME	to decrease the time in the program Special.
6	INCREASE TIME	to increase the time in the program Special.

5.2 Views

1	PRESSURE	It indicates the pressure in bar.
2	TEMPERATURE	Shows the temperature of steam in the chamber, or by pressing the right button (+ TEMP) shows the temperature of the heating element. Also pressing the left button (-TEMP), you can see the selected temperature cycle.
3	TIME	Indicating the sterilization time of the selected program. They also bear the identification codes alarms, in addition to writing "FILL" indicates that the entry of water into the sterilization chamber.

. LED Operation (green)

They indicate the progress of the program:

- LED off: being not yet executed
- Flashing LED: phase running
- LED on steady: phase completed

They are:	READY	= drying
	FILL	= filling (dose water)
	VACUUM	= vacuum (for version with vacuum pump)
	HEATING	= heater
	STERILIZE	= sterilization
	DRY	= drying
	END	= end of the cycle
	PRINT	= print

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. LED Alarm (red)

Report any anomalies:

they are: DOOR = door open
 LOW H2O LEVELB = low level H2o
 ALARM = generic alarm identified by the code on the display time

The front panel also has a cup connector (optional), suitable for the attachment of an external printer. It also has a switch with fuses (2x10A. 6.3x32).

5.3 Display mode alarm

Each alarm is displayed in the machine in the following way:

- The time display shows the alarm code (ex: A01, A02 etc.).
- It has issued a long beep followed by 10 short, eventually silenced.
- In case of alarm A00 (door open) or A01 (insufficient water level) which are the most frequent, also they flash their LEDS and DOOR LOW LEVEL H2O.
- In other cases, the ALARM LED flashes and the cause of the alarm must be obtained from the code on the display, or if present, from the printer that prints in detail the reason for alarm.
- The machine remains in this state until the occurrence of the condition of the termination / acknowledgment, specified individually for each alarm.
- If this (alarm) occurs during the cycle, the latter is interrupted and the pressure discharged.

5.3.1 Alarms and codes Summary

CODE ALARM	INDICATIONS
A00	Door open: occurs if the start of the cycle, the door is open. Disappears by pressing any key or by closing the door.
A01	Low water: occurs if at the start of the cycle, the water level in the cargo tank is insufficient. Disappears by pressing any key or by resetting the level. If during the refueling operations is peaked, the time display shows "STOP" and the beeper sounds in the manner of an alarm. 2 ceased beeper "STOP" disappears, and returns to its normal state.
A02	Tank full exhaust: occurs when the level of water in the recovery tank is excessive. Disappears just emptying the tank.
A03	Black-Out: occurs in cases of abandoned cycle by Black-Out. Disappears opening the door or pressing any key. *
A04-A05	Long time for the heating is energized with any key. *
A06	High pressure: it excites with any key. *
A07	High temperature: energizes with any key. *
A08	Abnormal pressure: energizes with any key. *
A09	Abnormal temperature: energizes with any key. *
A12	Hgh temperature PTV: it disappears by pressing any push button *
A13	High temperature PTC: it disappears by pressing any push button *

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

N.B: A00, A01, A02 do not cause (in the presence of printer) no print activity.

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There are also other alarms that are related to the components of the electronic board; they are:

CODE ALARM	INDICAZIONI
A 20	Data loss *
A 21	Watchdog malfunction *
A 22	Defective sensors *
A 23	Batteries Clock *
A 24	Software*

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

5.4 Instruction Manual

1 Clean the material to be sterilized.

2 Turn on the main switch.

3 Load the cargo tank (capacity 2.5 machine completely empty), until the message "STOP" on the display time.

It occurs whenever the alarm Low H2O LEVEL add 1.5 liters of demineralized water. If you go over, it arises "STOP", that is tank full load, then pull the tube out of the oil cargo.

4 Whenever the alarm A02 occurs, download the recovery tank (better not wait for the alarm because nothing prevents you download it at any time) with the appropriate tube.

5 Load the material on the trays provided (without overlapping the pieces) and pull it into the sterilization chamber.

6 Select the program: to do this press the select button

A single press of the button does not change the program, but it serves the display shows **the temperature** of the temperature program: After five seconds the display **temperature** resumes its **normal** content. Within five seconds if the select button is pressed again, the program is changed (indicated by LED). If the selected program is **special**, the contents of the display **temperature** will flash to indicate that the sterilization temperature can be chosen between 105 ° - 134 ° with the + - **temperature**. The same applies to the time with the + - **time**.

These variations can be carried out simultaneously in both the time for which the temperature

7 Close the door after you have done so.

8 Press Start: starts the selected cycle.

9 Keep area within the opening of the door, to avoid (the opening of the door in hot machine) burns or other hazards:

WARNING: DURING OPERATIONS USE GLOVES.

NOTE: At any time (eg. During sterilization or during DRY = dry) you can break the cycle by pressing the "STOP", a buzzer will sound and the beeper in the presence of pressure, will be downloaded automatically.

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 witch 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.
- ❖ Switch the autoclave on; the printer is automaticitilly prepared to print.

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- 5.6 Description cycle TAU CLAVE 3000

The phases of the cycle take place as follows:

At the start of the cycle (by pressing **start**) close all the valves.

At this point it follows the step of placing the water (the display **time** appears the word FILL).

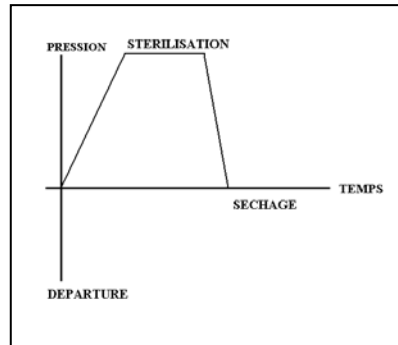
Thus begins the phase heat up the machine until reaching the 98th.

At this point they close the valves in order to enable the machine to arrive in sterilization.

It can happen that during and after the closing of the valves, the excess air is expelled with an electronic system.

Once the temperature you have an additional exhaust air (pressure stabilization).

The cycle ends with the drying phase (DRY).



Grafic 1 Cycle Tau Clave 3000

6 Conditions for the Transport / Handling and Storage

The autoclave is supplied with packaging that requires the usual precautions for transport fragile materials, as indicated on the packaging boxes himself. When returning for repair, use the original packaging. When storing, place the product in areas without **humidity** to protect the electrical components.

The device is packed in the following manner:

Two caps of polyethylene (above and below) protected by a box around the volcano in triple wave.

Do not lift the machine with violent jerks and not flip.

The device and the packaging are delicate, handle with care. Carry no shock, impact. Store in a dry and protected.

The packaging should be stored.

Using a different packaging, it could cause damage to the product during shipment.

The appliance must be extracted with the help of two people

- Remove the top cap.
- Extract the machine, taking care to keep it always in a horizontal position.
- Place the unit on the worktop.
- The device must be installed inside a laboratory accessible only to authorized personnel.
- Place the unit on a flat, horizontal surface.
- Leave a space of at least 20 cm around the apparatus for sufficient ventilation.
- Avoid placing the autoclave near sources of steam or splashing with water that may damage the internal electronics.
- Do not install in places with poor ventilation.
- Do not place it near heat sources.

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- 7 Maintenance and Cleaning

Each type of maintenance must be carried out with power wire off, and the machine completely cold.

WARNING: Do not modify the equipment without the authorization of the manufacturer.

In case of malfunction, contact the manufacturer.

For repairs to make the sterilizer manufacturer in its original packaging.

Cleaning the sterilization chamber (to be repeated on a daily basis):

- A cold machine using a sponge with vinegar to remove limestone from the chamber
- Wash the sponge with demineralized water and clean the chamber itself (several times)
- Pass a clean cloth with some isopropyl alcohol (90%) within the sterilization chamber.

Maintenance of the bacterial filter:

- Replace the filter every 6 months
- If dirt (sucks outside air during the sterilization cycle) to replace the first.

A cold machine, monthly check that the door seal is accurate in the hard (steel) that contains: if withdrawn, replace with a new one. We recommend replacing the gasket still every six months or after 200 sterilization cycles.

Clean the seal on a daily basis (the machine is cold) with alcohol repositioning it in its proper housing.

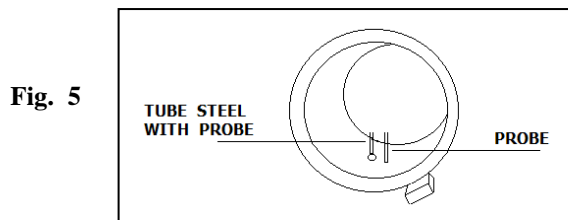
Check monthly (or even if you move the device) the electric power cable is intact and in good condition.

In case of malfunction contact the manufacturer.

For repairs, it is recommended to make the autoclave to the manufacturer, using the original packaging

It is **always** advisable to clean the instruments before putting it in the autoclave. Always clean the chamber (the machine is cold) with vinegar, then rinse with water and alcohol.

To safeguard against dirt components of the machine, it was put a small filter (unscrewable) on the tube at the side of the probe, inside the sterilization chamber (see fig. 5).



Dismantling: With the cold machine, turn from left to right the steel tube (with the help of pliers, if necessary), paying attention to the probe closer. Remove the piece from the chamber, unscrew the filter, clean it with vinegar or if too dirty replace it with a new one.

If you want you can avoid disassembling the tube with filter, pouring (machine cold) vinegar directly on the filter. To rinse well with water.

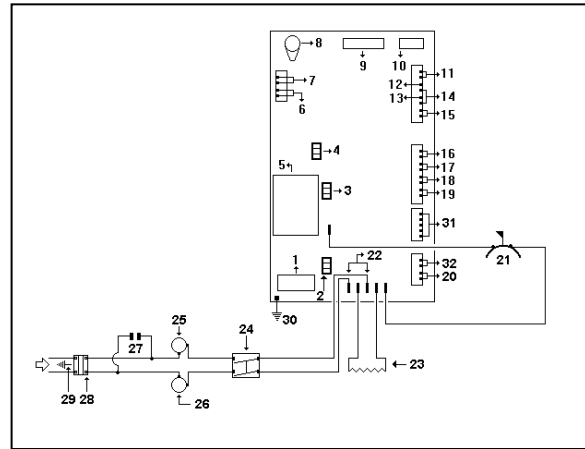
Reassembly: repeat the contrary operations previously carried out, paying attention to the probe.

IMPORTANT: when you place the tube with the new filter, make sure that it is well established, keeping a distance from the probe equal to 2.5 cm.

8 Wiring Diagram

LEGEND

1. Line Filter
2. Fuse 5x20 extrafast 4 A.
3. Fuse 5x20 semi-delayed 3.15 A.
4. Fuse 5x20 semi-delayed 1.6 A.
5. Transformer
6. P.T.100 internal probe (temperature steam)
7. Probe P.T.100 external (temperature resistance)
8. pressure
9. Attack printer connector
10. Attack display connector
11. Floating maximum discharge
12. Floating minimum load
13. Floating maximum load
14. Floating common load connection
15. Micro-switch door
16. Electric valve N.A. (Normally open) 2 Way 24V DC.
17. Output optional 24V. cc.
18. Electric valve N.C. 2 Way 24V DC.
19. Electric valve N.C. 2 Way 24V DC.
20. Output optional 230 V.
21. Bimetallic security
22. Power supply 230 V 50 Hz.
23. Resistance 230V 1250 Watts.
24. switch
25. Fuse 6.3x32 quick 10 A.
26. Fuse 6.3x32 quick 10 A.
27. Capacitor 0.1 mF 250 VAC class x2
28. Cable clamp Power
29. Mass ground
30. Mass ground
31. Electric valve N.C. 2 Way 24V DC.
32. 230 V power supply (feeds the water pump)

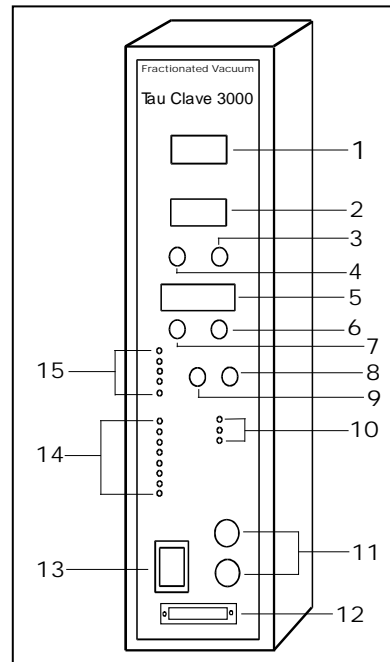


9 Control Panel

- LEGEND

- 1 = Pressure Display
- 2 = temperature display
- 3 = + - Temperature
- 4 = Display time
- 5 = + - Time
- 6 = Selection Program
- 7 = START / STOP
- 8 = Led Alarms
- 9 = Fuses
- 10 = Switch General
- 11 = Led Operation
- 12 = Led Program

Fig. 6



- For Changing Printer Settings

- A = To change YEAR - MONTH - DAY - HOUR - MINUTES -
- B = To move to the next parameter to be changed
- F = Attack Printer

10 Rules and Safety Precautions

- During use, wear gloves, to avoid sunburn (on the outer jacket is labeled precautionary "WARNING DANGER BURNS").

The autoclave should be used only by authorized staff and informed about the techniques of "sterilization" of materials that can be sterilized and times and temperatures to be used.

The equipment must be used exclusively for the use for which it was conceived: sterilization of surgical instruments in the medical and paramedical staff.

It's essential to take all necessary precautions to prevent misuse by unauthorized persons. It's forbidden to modify or alter in any way the security guards thermal and electrical equipment or put them out of order. It's forbidden the operator to carry out repairs of any kind.

During cleaning and / or maintenance, it is absolutely essential to ensure that the equipment is disconnected from the power supply, and it is completely cooled.

In the case of sterilization of surgical instruments (ex: scalpel or pointed instruments), we recommend the use of safety shoes.

Periodically check that the power cord is not damaged in any way.

WARNING: There shall be no change in this unit.

In case of malfunction, contact the manufacturer.






For repairs to make the sterilizer manufacturer in its original packaging.

10.1 Decommissioning and scrapping Device

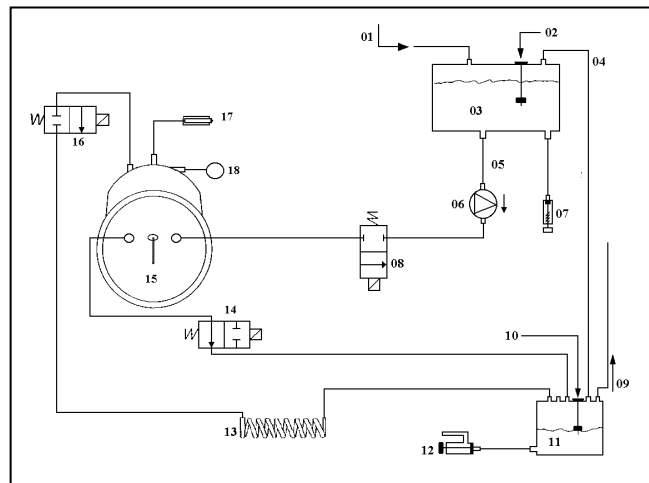
The autoclave Tau Clave 3000 is constructed of ferrous materials, electronic components and plastics. If the appliance is no longer repairable and running, separate the various components according to the material of which they consist, in order to simplify a possible re-use or disposal differentiated. When the unit is demolished there are no special instructions to be executed.

Do not leave the unit in an unguarded. Entrust scrapping to disposal companies. Scrapping always refer to the laws in force in the country of use.

10.2 Explanation of Symbols

WARNING: READ THE INSTRUCTIONS	
WARNING: DANGER BURNS	
CAUTION: RISK OF ELECTRIC SHOCK	
WARNING: USE GLOVES FOR HAND PROTECTION	
PRODUCT NOT COMPARABLE TO MUNICIPAL WASTE. FOLLOW THE RULES FOR MUNICIPAL DISPOSAL	

- 10.3 Circuit Hydraulic



LEGEND

N°	DESCRIPTION	N°	DESCRIPTION
1	WATER INLET	13	SERPENTINE
2	LOAD TANK FLOAT	14	ELECTRO-VALVE 2 WAY n.o. 24 V. cc..
3	TANK DEMINERALIZED WATER	15	STERILISATION CHAMBER
4	TUBE COMMUNICATION AIR TANK	16	ELECTRO-VALVE 2 WAY n.c. 24 V. cc.
5	VALVE	17	SAFETY VALVE
6	WATER PUMP	18	PRESSOSTAT
7	WATER OUTLET		
8	ELECTRO-VALVE 2 WAY n.c. 24 V. cc.		
9	STEAM OUTLET		
10	OVERFLOW TANK FLOAT		
11	OVERFLOW TANK		
12	DIRTY WATER OUTLET		