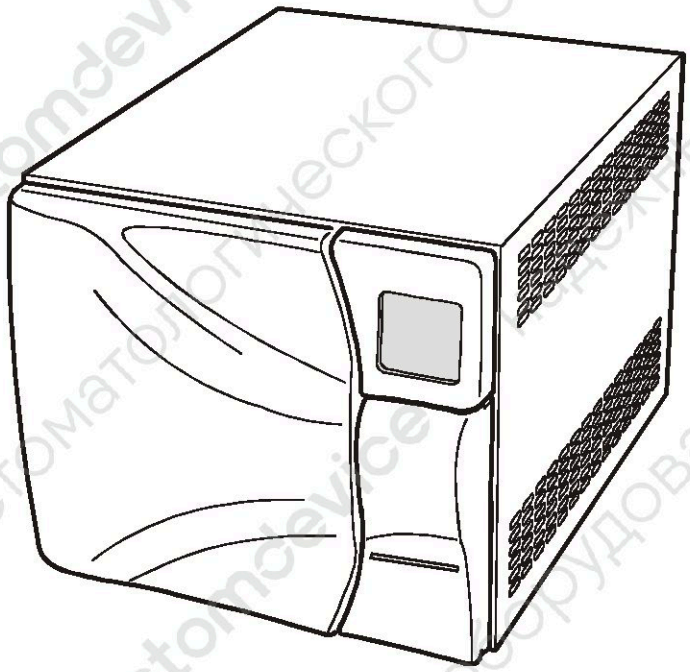
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User Manual
Fast B



CE 0426

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

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1. Warnings and Safety

	Before using this device, read the following safety information carefully.

Remark: this manual provides all the information required to ensure:

- correct installation and commissioning
- optimum use of the device
- continuity of operation
- effective periodic maintenance

Failure to comply with the instructions in this user manual can lead to accidents or damage the appliance.

- Before using the device, the operator must perfectly understand the meaning of all controls and their operation.
- The operator must be acquainted with and know how to apply the safety standards for the use of the device.
- The operator must know and correctly interpret all the indications contained in this manual and those present on the device.
- The operator must not carry out any operations on his own initiative or any operations not within his competence.
- The responsible authority is to be charged with the operator's professional training and development.
- In the event of malfunctions or a potentially dangerous situation, the operator MUST immediately notify the responsible authority of the same.
- It is absolutely forbidden to remove or disable the safety devices.
- Ensure that the device is supplied with the correct voltage.
- Ensure that the installation is earthed in compliance with the standards applicable in the country of installation.
- Never dismantle the device. Always contact the competent technical assistance service.
- The high internal voltages are dangerous.
- If you cannot turn off the supply, use the main circuit breaker and, if this is distant from or invisible to the person carrying out the maintenance, hang the notice "Work in progress" on the circuit breaker after setting it to "OFF".
- Keep the area around the appliance clean and dry.
- Do not use solvents on the label.
- Do not remove the label from the machine. If need be, request new labels.
- Clean the device with a damp cloth, after ensuring that the supply cable is unplugged (before using it again, dry carefully).
- Do not pour water or other liquids that might cause short-circuits or corrosion into the device.
- Never tough the device with wet hands or when there is liquid present on it; always exercise all the usual precautions for dealing with electrical appliances.
- The device is not designed for use in the presence of explosive gases or vapours.
- Do not subject the device to excessive mechanical stress such as impact or strong vibrations.
- Do no stand over or in front of the door when opening it, there is a risk of being scalded by the escaping steam (see section 1.7 "Secondary risks").
- In the event of absence of sterilisation, the discharge tank water may contain contaminated residues; so it is recommended to use of latex protective gloves when carrying out emptying operations (see section 3.2 and section 1.7 "Secondary risks").
- Before moving/transporting the device, empty the two water tanks.
  Use the special drainage pipe supplied (Appendix 9) and follow the drainage instructions (see section 3.2, page 9).

- **WARNING: There shall be no change in this unit.**

  - In case of malfunction, contact the manufacturer.
  - For any repairs, make the sterilizer manufacturer in its original packaging.

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1.1 Relevant standard

Tau Fast B is a class II b medical device in accordance with rule 15 of annex IX to Council Directive 93/42 EEC. It is further compliant with the national standards derived form the following harmonised standards:

EN 13060 , EN 61010-1, EN 61010-2-040, IEC 62304, EN 60601-1-6, IEC 62366, EN 61326-1, EN ISO 14971

The autoclave Fast B 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.

1.2 Intended use

This device, known as an "autoclave steriliser", is used to sterilise the instruments placed on the trays supplied, using specific sterilisation processes with steam from demineralised or distilled water, permitting the treatment of compact, solid objects, compact, porous materials and hollow bodies of type A and B, not packaged or in single or double packaging.

1.3 Recommendations

- The user is responsible for the installation, operation and maintenance of the steriliser in accordance with the instructions defined in the user manual.
- The autoclave has not been designed or tested for the sterilisation of liquids.
- At the end of the sterilisation cycle, the trays and their load are still very hot. Use the specific tongs to pull the trays out of the sterilisation chamber (see Appendix 9).
- Comply with the maximum load as fixed, checked and validated by Tau Steril for each type of material to be sterilised (table, page 16), in order to ensure normal operation and effective sterilisation.
- Do not remove the registration plate or any other labels from the devicce.
- Do not pour water or other liquids onto the device, this could cause a short circuit.
- Before carrying out any service or maintenance operation on the appliance, disconnect the plug from the socket.
- Any technical work must be carried out only by assistance centres approved by Tau Steril and using only original spare parts.
- Operations to be carried out before any maintenance and/or return to factory of the steriliser:
  - Empty the sterilisation tanks (section 3.2, page 9)
  - Allow the sterilisation chamber to cool down
  - Only use and always keep the original packaging.

Note, failure to comply with the instructions in this manual can:

- make it dangerous to use the appliance
- present risks for the operator and to the patient

1.4 Personnel requirements

The personnel assigned to the use and maintenance of the device must meet the following requirements:
- General culture enough to understand the contents of this manual;
- Knowledge of the device and the place where it is installed;
- Knowledge of hygiene, and accident prevention techniques;
- Must be aware of the technical methods, procedures and risks regarding the sterilization process.

OPERATOR is the person who physically uses the device for its intended purpose.
THE PROPER AUTHORITY is the person or group, responsible for the use, maintenance equipment and for operator training.
The responsible authority is legally responsible with regard to the obligations concerning the installation, operation and use of the device.
CAUTION !! TAU STERIL accepts no responsibility for training staff is not properly performed.

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1.5 Use and keeping of the manual

The present manual is an integral part of the product and must be kept near the device to be easily and speedily consulted. The purpose of the present manual is to give instructions for:

1. the correct installation of the device;
2. the safe and efficient operation of the device;
3. the continued and compliant maintenance of the device.

The device must be used in accordance with the procedures contained in this manual and never for any purpose other than provided herein. It is further supposed that the directives with regard to the safety of personnel in force in the destination country of the appliance are known and applied at the place of use of the device.
This manual must be kept in a safe place, easily accessible for the personnel; it must also be handled with care.

1.6 The manufacturer's responsibilities

The device is constructed in accordance with European regulations.
It should be noted that the use of the appliance is limited to the functions for which it was designed and made.
If the autoclave is improperly used, any resulting damage will be the responsibility of the user.
The product is guaranteed for 12 months from the date of purchase.

1.7 Secondary risks

During the normal operating cycle of the appliance, the operator is exposed to certain risks that cannot be totally eliminated, given the very nature of the machine.

1. Danger of burns (scalds).

When the autoclave has completed its sterilisation cycle and the operator opens the door to remove the sterilised instruments, their temperature will be between 70° C and 85° C: beware of the risk of burns, allow to cool for at least two minutes (door open) before removing from the sterilisation chamber.
Again, at the end of the sterilisation cycle, we indicate the other temperatures in order prevent any burns to the operator:

- Inner part of chamber and door = temperature between 70 °C and 85 °C (Fig. 1)
- Outer part of casing = 40 °C

To remove the sterilised instruments from the chamber, use the specific handle supplied (App. 9, page 37). When opening the door, do not stand over or in front of it, there is a risk of scalding by escaping steam (F.1).

2. Danger of accident to the hands.

- When in operation, the cooling fan of the appliance runs continuously. Do not remove the protective outer casing without switching off the supply. In the event of anomalies, always contact technical assistance.



Fig. 1: Note the arrows, they indicate the hot parts of the machine

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1.8 Safety Devices

Electrical safety

Description	Effect
The vacuum pump and the small water pumps have dual protection: software and electronic protection components.	The supply to the components is shut off (alarm indication) to permit the intervention of technical assistance.
Protection fuses (delay) to protect the device from any short-circuit in the appliance.	General shut-off of the electrical power supply.
Protection of the electronics card against any short-circuit: the transformer and the whole low-voltage electric circuit are equipped with automatic protection.	Shut-off of one or more low-voltage circuits.

Thermal protection

Description	Effect
Resettable safety thermostat to protect the sterilisation chamber heating element.	Shut-off of supply to the sterilisation chamber heating element.
Resettable safety thermostat to protect the steam generator.	Shut-off of supply to the steam generator heating element.
Thermal protection of the appliance to prevent overheating (before during and after the start of the sterilisation cycle).	Warning message; use of the machine is prevented in order to protect both the operator and the device.

Mechanical protection

Description	Effect
Safety micro-switch on the door (authorisation): authorises the motor to close the door. Message with signal . (see section 4.8)	Message and signal authorising the start of the motor for closing the door.
Safety micro-switch on the door (closure): ensures the door is correctly closed. Message with signal . (see section 4.8)	Message and signal if door not correctly closed.
Safety micro-switch on the door (opening): ensures the door is correctly opened. Message with signal. (see section 4.8)	Message and signal if door not correctly opened.
Safety pressostat to prevent any accidental opening of the door (during operating phase): locks the door.	Prevents the motor from starting during operation of the autoclave.

Thermal protection accessories

Description	Effect
Handle for withdrawal of trays in order not to touch the hot parts inside the machine (Appendix 9)	Avoids any burns during the machine loading and unloading phases.

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Control devices

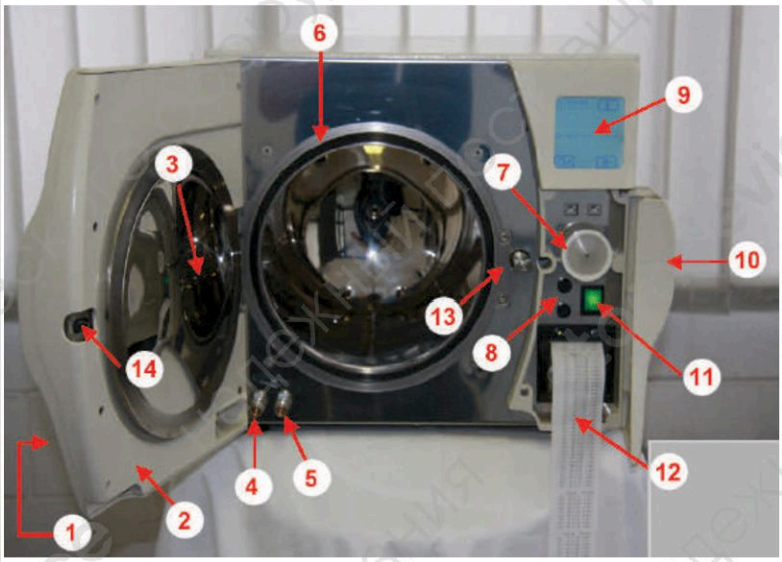
Description	Effect
System to regulate the pressure in the event of anomalies during the sterilisation cycle.	Automatic re-balancing of the pressure inside the sterilisation chamber.
Process parameter evaluation system. Microprocessor-managed.	Stop and indication with warning message.
Check of the electromechanical components before, during and after operation of the autoclave.	Stop and indication with warning message.

1.9 Personal Protection Devices (PPD)

- Latex protective gloves

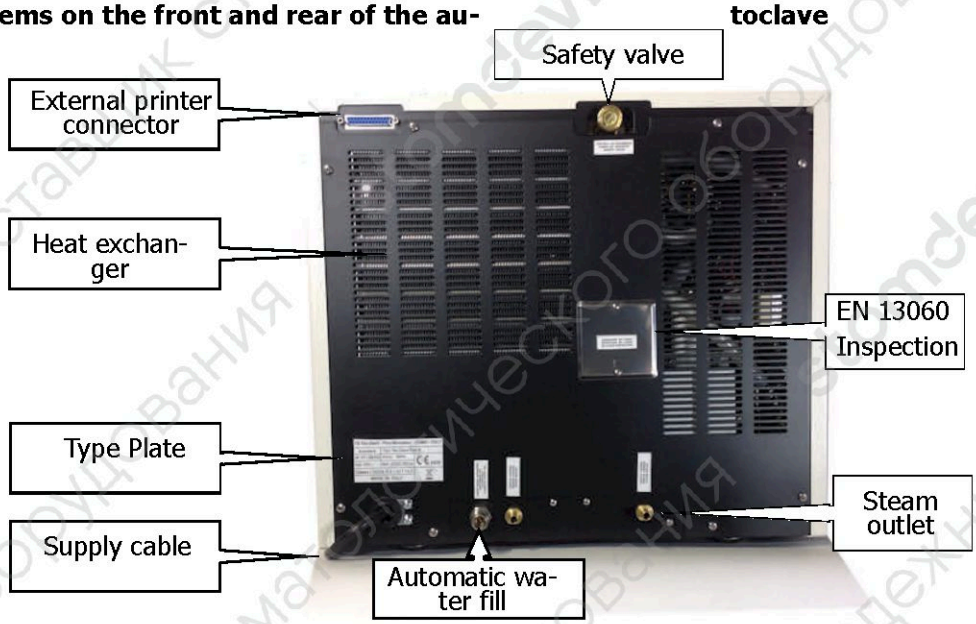
2 Description of the Machine

Legend	
1	Door
2	Inner door casing
3	Door disk
4	Used water drainage
5	Clean water drainage
6	Door seal
7	Bacteriological filter
8	Protection fuses (F1 e F2) 6,3x32 T 15 A
9	Touch-screen display
10	Display panel door
11	Main switch
12	Printer
13	Door closing motor spindle
14	Door closing motor spindle engagement housing



2.1 Items on the front and rear of the autoclave

Fig. 2



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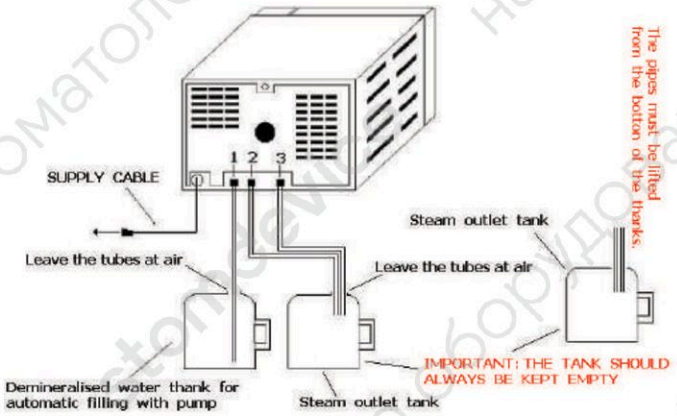
3 Transport - Installation and preparation for commissioning of the autoclave

The device is packed in the following manner:
Two caps of polyethylene (top and bottom) '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 in two people simultaneously, 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.
- 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.

Carefully remove the device from its packaging and check that it is intact. Ensure that the electrical installation is correctly earthed. Install the autoclave on a flat, horizontal surface to facilitate good ventilation. Do not place the autoclave closer than 10 cm from walls and other equipment to allow for good ventilation.
To incline the machine, it is generally supplied with two wedges under the front feet: do not, on any account, touch these wedges.
Do not place any object or obstruction near the opening radius of the door of the autoclave in order to allow this to open correctly.
Ensure that the supply voltage indicated on the type plate corresponds to that available at the place of installation (maximum variation of mains voltage: ± 10 %).
Insert the plug in the mains socket. Press the main switch (position "I") and check that it lights. Failure to comply with the above relieves TAU STERIL of any responsibility.

Rear view of the autoclave for connection of the pipes supplied:

Fig.4



Legend:
1. Quick connection for demineralised water filling pipe (do not crush the pipe).
2. Clean water outlet connection (do not crush the pipe): keep tank empty.
3. Used water outlet connection (do not crush the pipe): keep tank empty.

From the autoclave chamber, remove the basket, the trays and the accessories supplied (see Appendix 9).
At the rear of the machine, you will find the connections to which must be attached the respective pipes for filling with water (1) and venting of the two tanks (2 - 3).

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- **Caution: It is recommended before using the autoclave with load (first load water happened) of looping "135 ° C Standard" (empty chamber without load) in order to sterilize the chamber.**

Please connect correctly the pipes supplied to the drawing Fig. 4.
In case of problems contact the Tau Steril.

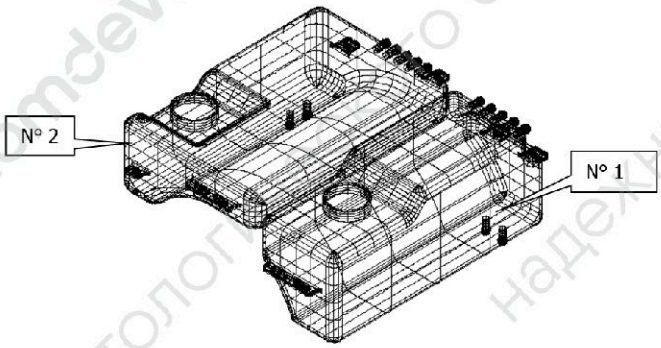
IMPORTANT: As can be seen from Fig. 4 there are two plastic cans; one filled with demineralized water from 5-10 liters (larger preferred, serves for loading automatic water), and an empty (from 5-10 liters larger preferred) for the discharge of steam (to be maintained always empty).

3.1 Description of demineralised water tanks

The autoclave is equipped with two separate tanks:
- clean water, capacity 4.7 litres
- used water = capacity 3.8 litres.

The right-hand tank (No. 1), the clean water tank, contains demineralised water for the cycles. It is equipped with a sensor with two sensing levels: minimum level, 1 litre, and maximum level, 4.6 litres.
The left-hand tank, the used water tank" contains the water pumped out at the end of the sterilisation cycle. It is equipped with a sensor: maximum level, 3.7 litres.

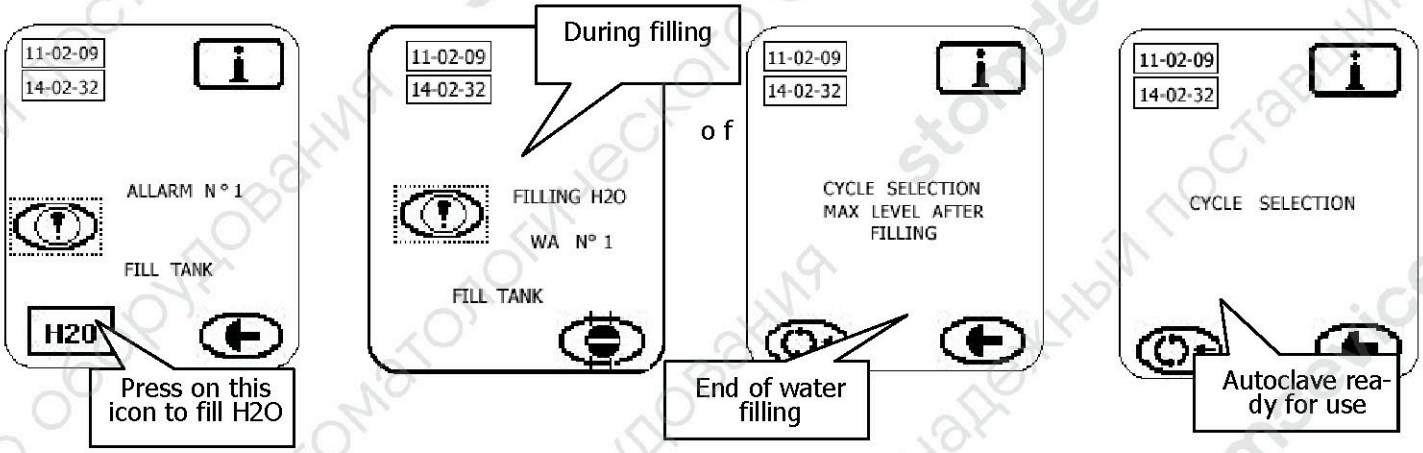
Fig. 5



The consumption of water per cycle varies according to the material to be sterilised and the weight of the load. The capacity of tank 1 (clean water) is sufficient for at least 6 sterilisation cycles (see Appendix 1 consumption of water per cycle).

3.2 First— filling with demineralised water and drainage of the used water tank

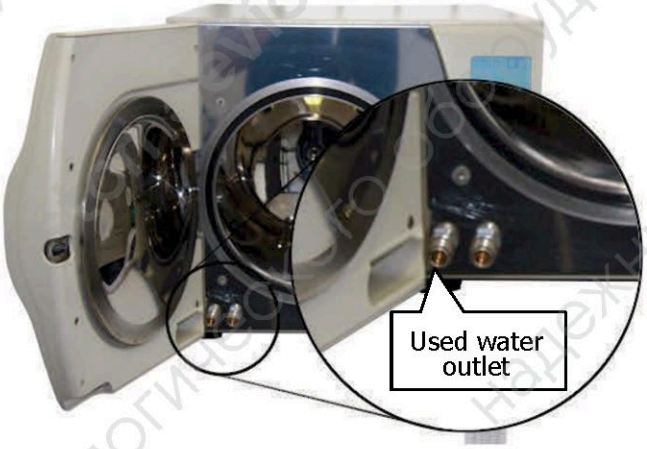
Once the machine is correctly installed (section 3), you must fill it with demineralised water (which is used for operation

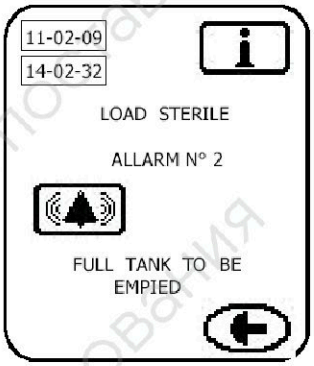


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Emptying used water: when alarm No. 2 is shown (see screen page below), insert the pipe supplied into the drainage connection (see Appendix 9 -Figs. 2 and 6). The used water tank will then start to empty. It may be that alarm 1 is shown at the same time: if so, press on the fill H20 button. The 2 operations of filling with clean water and emptying used water can be carried out at the same time with no problem.





4 Operation

4.1 Desciption of touch-screen icons

The autoclave is equipped with a touch-screen for the management of the commands and messages used during its normal operation. Below, you will find a brief description of the icons shown on the screen:

No.	Icon drawing	Name	Use
1		Cycle selection	To access the sterilisation cycle menu.
2		Access main menu	To access the machine menu.
3		Exit main menu	To exit the machine menu.
4		Stop	To stop a sterilisation cycle.
5		Alarm	Sounds when the machine goes into an alert condition for malfunction.
6		Attention	Signals the presence of an operation or alarm to which attention is required.
7		Door open	Indicates door opening at the end of a sterilisation cycle.
8		Enter button	To confirm the selection of a sterilisation cycle.
9		End button	To exit a main menu window.

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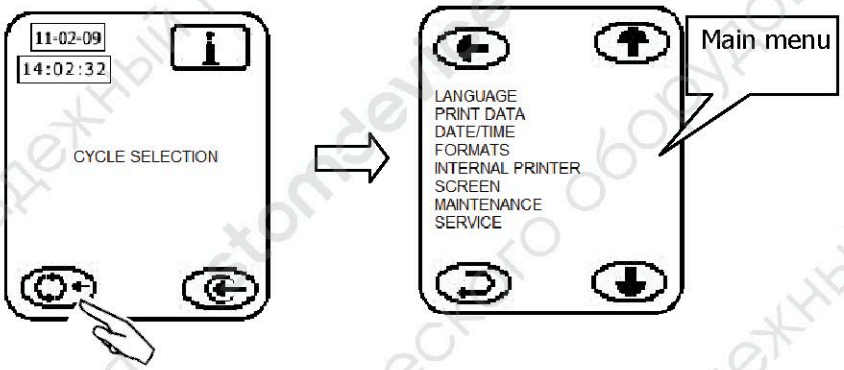
No.	Icon drawing	Name	Use
10		Right arrow	Move cursor to the right or go to the next window.
11		Left arrow	Move cursor to the left or go to the previous window.
12		Down arrow	Move cursor down the screen.
13		Up arrow	Move cursor up the screen.
14		Info button	Access the data of the last sterilisation cycle carried out (see section 4.7.1)
15		Save	To save or reinitialise menu data.

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4.2 Main menu

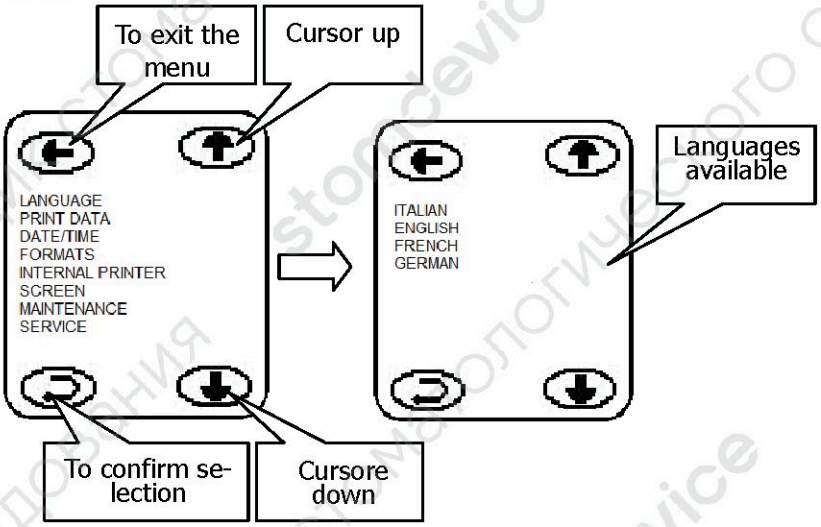
The autoclave has a menu and sub-menus for managing the appliance. The instruction windows are shown below:



4.3 Description of the main menu

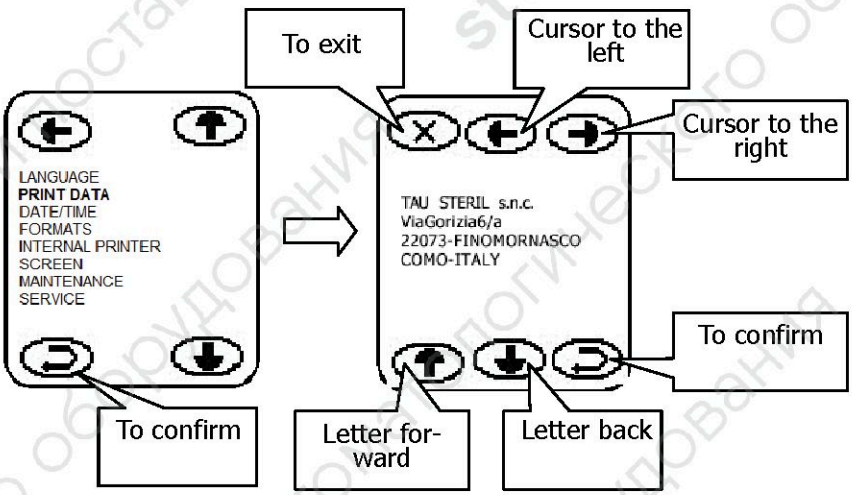
4.3.1 Language

The window of languages available is shown below. Select the one corresponding to the country where the machine is used:



4.3.2 Print data

In this sub-menu, you will find the data printed during the sterilisation cycle on the printer strip:

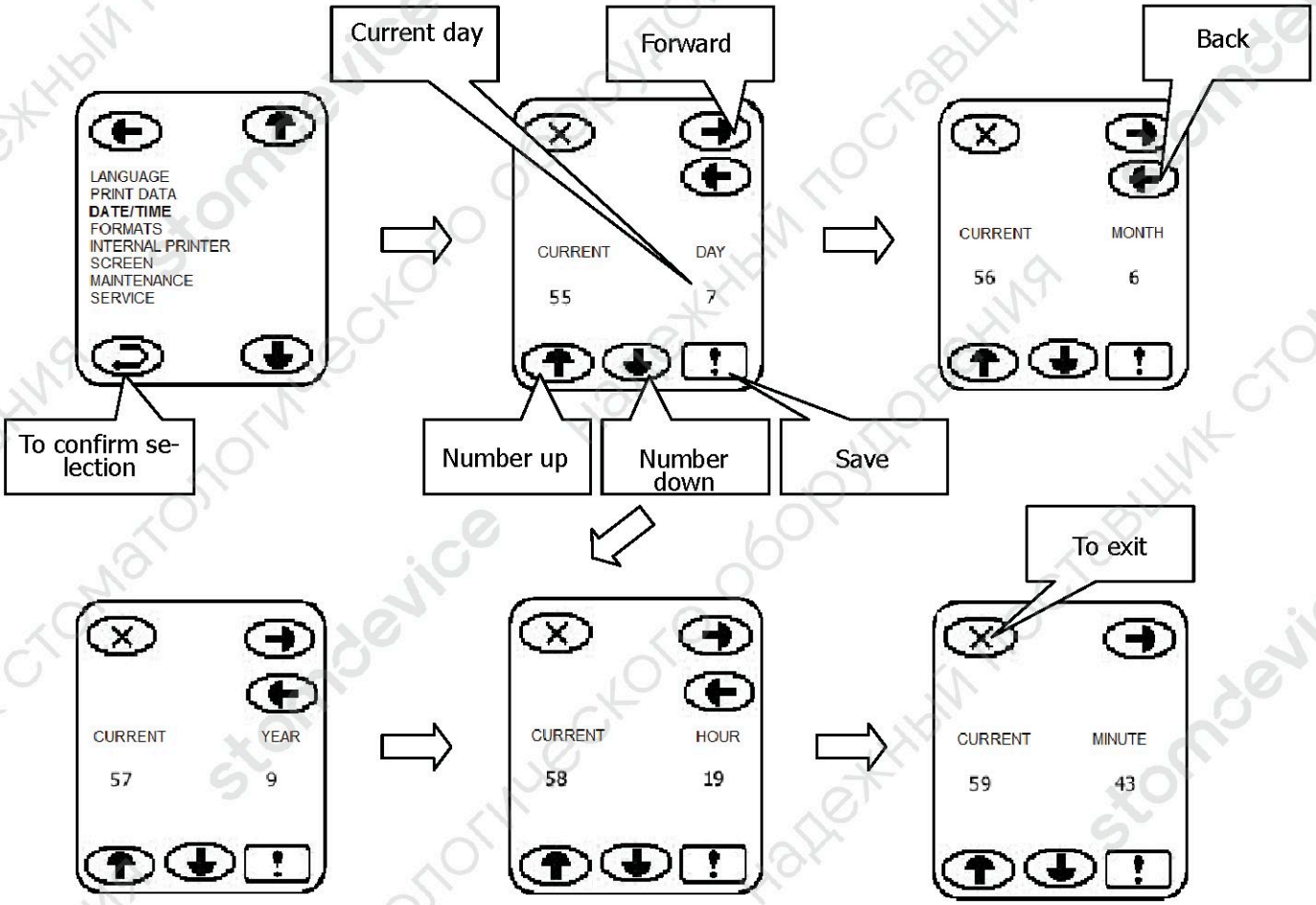


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4.3.3 Date / Time

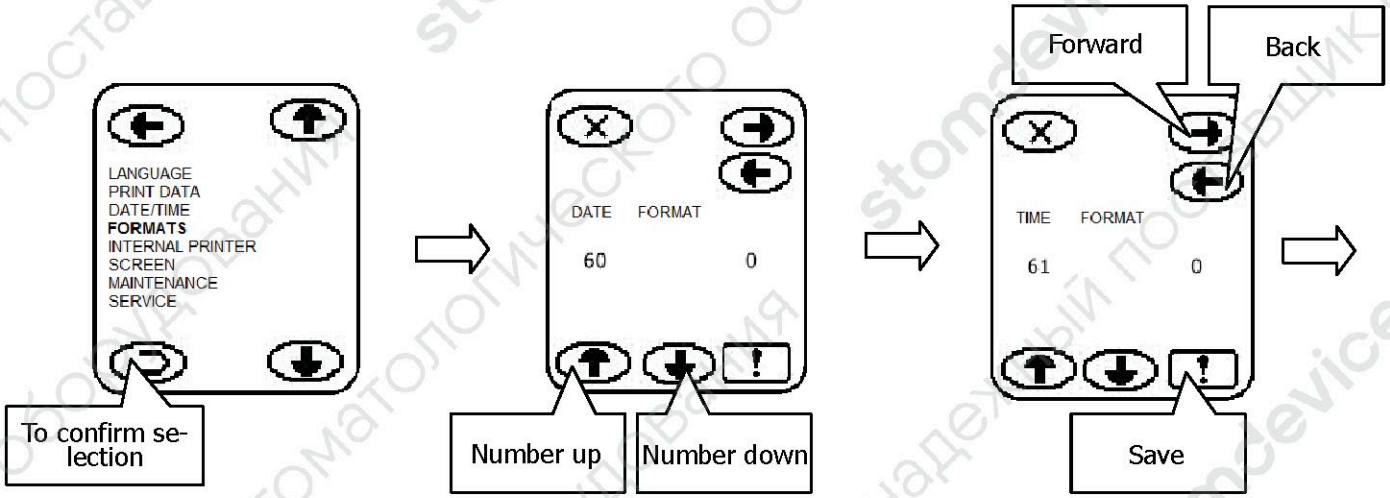
This menu item can be used to correct date and time if required:



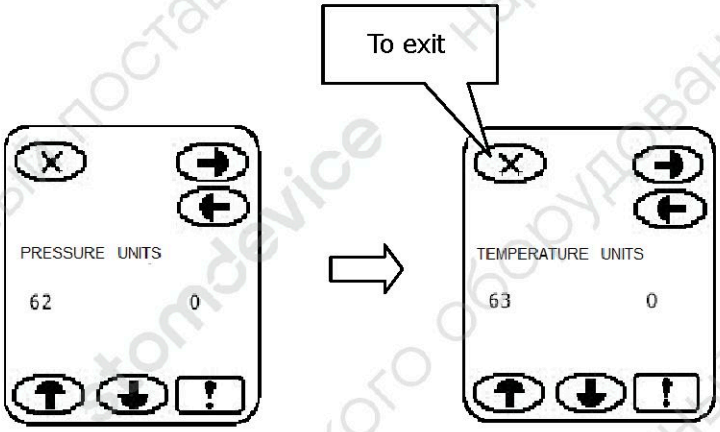
4.3.4 Formats

Sets the formats for the following:

- Date : the representation (0,1,2)
- Time : representation 12 or 24 hours (0,1)
- Pressure units: 0 = Bar > 1= Psi
- Temperature units: 0 = degrees Celsius "C" > 1 = degrees Farenight "F"

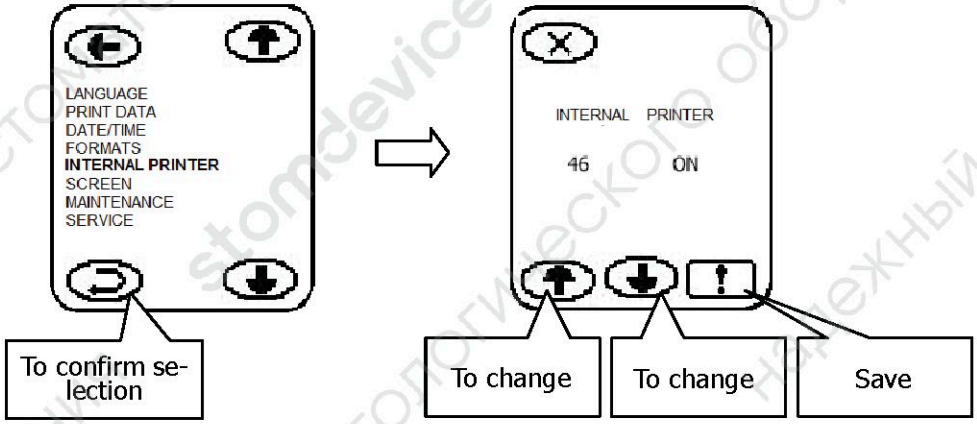


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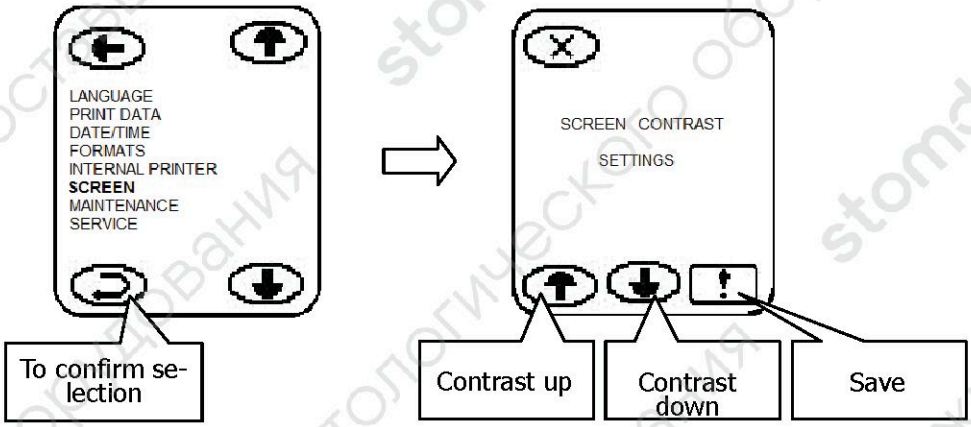
4.3.5 Internal printer

Use this item to turn the internal printer on or off:



4.3.6 Screen

Use this item to adjust the contrast of the touch-screen.

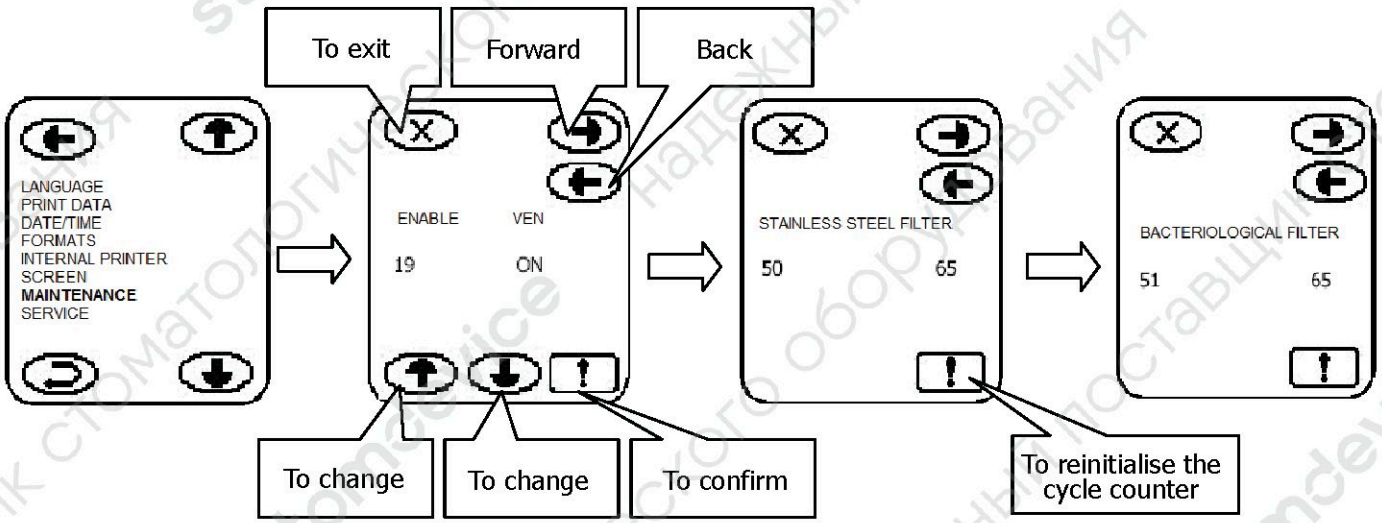


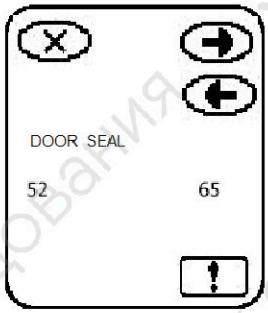
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4.3.7 Maintenance (enable / disable VEN phase)

In this sub-menu, you can enable/disable the VEN phase (anti-condensation ventilation) section 4.7.1.
It indicates to the user when a component of the machine must be cleaned and/or replaced. In this sub-menu, there is the possibility to reset (after checking/replacing/cleaning the components listed below):

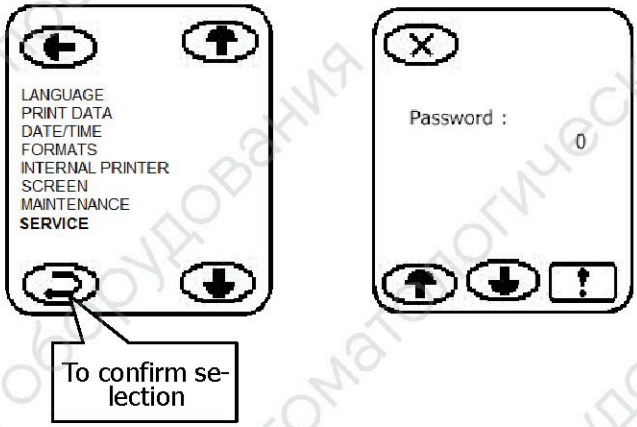
- Enable / disable VEN phase (anti-condensation ventilation see section 4.7.1)
- Stainless steel filter cycle counter
- Bacteriological filter cycle counter
- Door seal cycle counter





4.3.8 Service

In this sub-menu, you will find all the information useful for technical assistance.



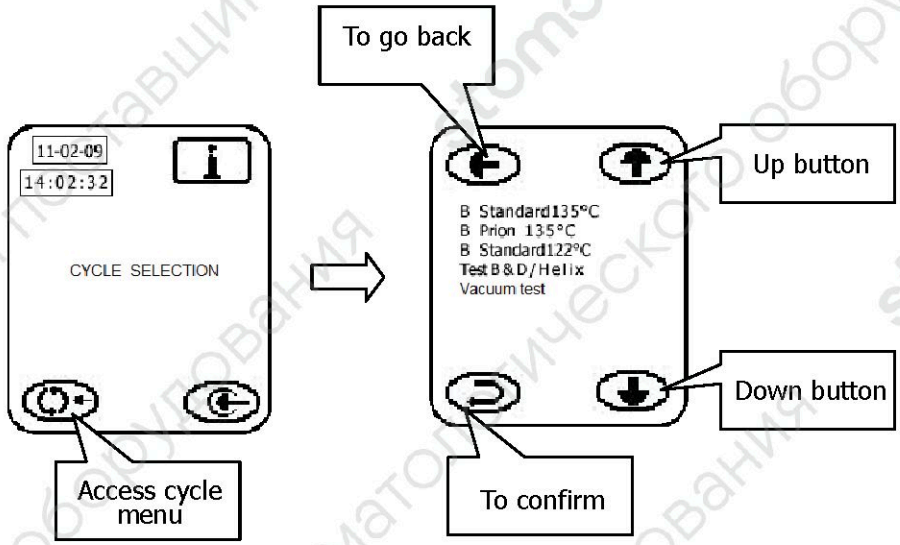
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4.4 Cycle menu

TYPE OF CYCLE		STERILISATION CYCLES			TEST CYCLES	
		CYCLE B 135° Standard	**CYCLE B** 135° Prion	**CYCLE B** 122° Standard	B & D / Helix	VACUUM TEST
Temperature		135,5° C	135,5° C	122,5° C	135,5° C	-
Pressure		2,16 bar	2,16 bar	1,16 bar	2,16 bar	- 0.85
Duration of sterilisation phase		4′	18′	15′	4′10″	16′
Drying time		15′	15′	20′	4′	-
Cycle time empty - full load		30′ - 40′	44′ - 54′	50′ - 60′	28′	24′
TYPE OF CYCLE	Compact, solid objects (probes, tweezers, drill bits)	YES	YES	YES	Test cycles See Appendices 4, 5, 6	
	Small objects / porous materials (gauzes, cotton, etc.)	YES	YES	YES		
	Full load, porous materials (80 % of useful space)	YES	YES	YES		
	Hollow bodies type A (hand tools, tweezers, scissors, ...)	YES	YES	YES		
	Hollow bodies type B (canullae...)	YES	YES	YES		
	Not packaged, single / double packaged	YES	YES	YES		
	Maximum load: solid / porous	3.5 / 1,5 Kg	3.5 / 1,5 Kg	3.5 / 1,5 Kg		
	Materials: the three Class B cycles can sterilise and dry everything: metal, textiles, hollow bodies A and B, plastic, rubber, in single / double packaging. However • Follow the instructions of the equipment manufacturers • Observe the maximum permitted load as validated by the manufacturer, which guarantees perfect sterilisation.					

The Cycle menu consists of three sterilisation cycles and 3 tests required by the regulatory provisions. The latter are listed and described in Appendices 4-5-6.



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4.5 Opening/closing door and stopping sterilisation cycle

The autoclave is equipped with a motor to close the access door to the sterilisation chamber (see fig. No. 2).
Important: before closing the door of the autoclave (for a sterilisation cycle), ensure that the door motor spindle is in a horizontal position. If it is not, turn off the machine at the main switch and turn the spindle through 45° clockwise (see fig.8 below)



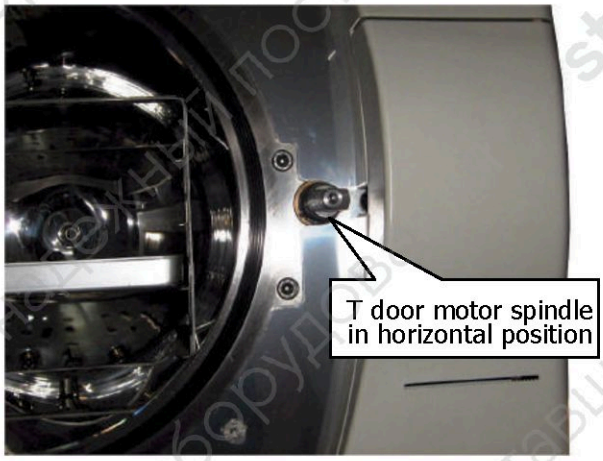


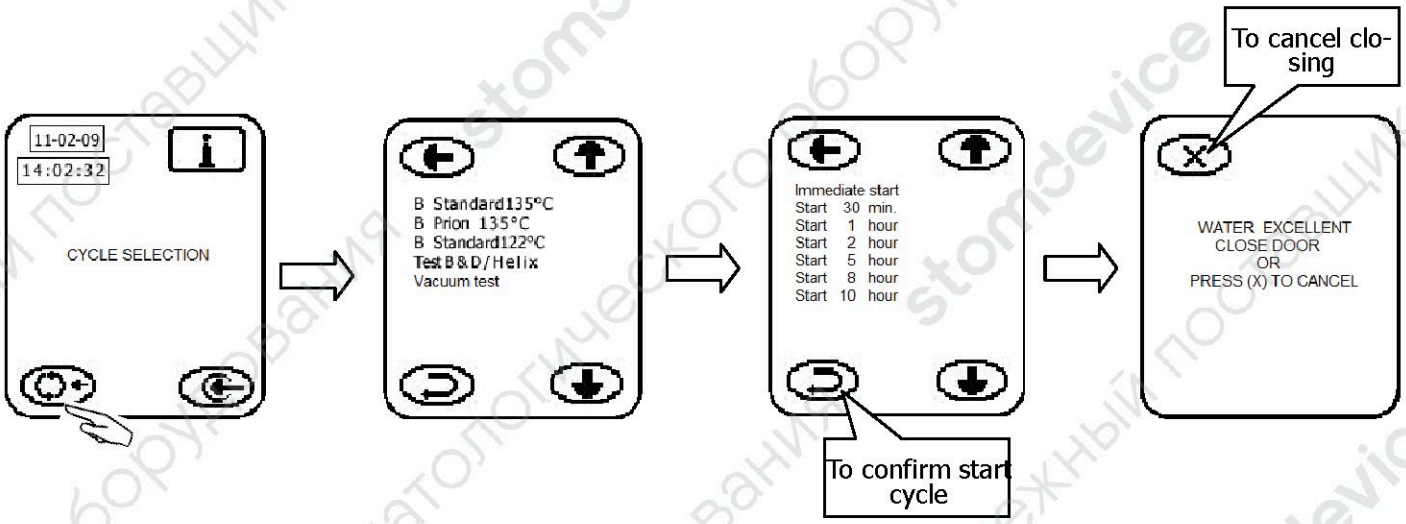
Fig. 7 **Fig. 8**

Once the position of the motor spindle has been checked (Fig. 8), the machine is ready to start: select the cycle (see section 4.7), close the door gently until it comes into contact with the spindle: caution! When the door touches the spindle, exert a gentle pressure: you will then hear the click of a spring that guarantees correct locking of the door. The cycle can then be started with the appropriate button.
To open the door at the end of the sterilisation cycle or after pressing the Stop icon during the cycle, the door open icon (see icon page 10, section 4.1) will appear.

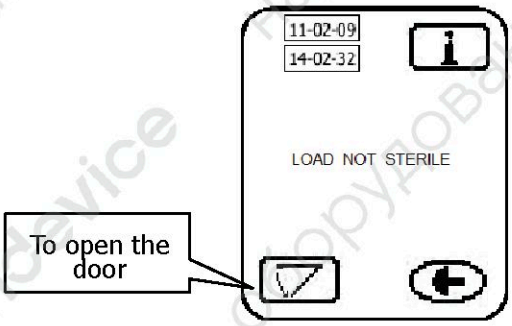
In case problems should cause the motor to jam, it is equipped with an unlocking key (see alarms relating to door motor, see table page 21 and Fig. 7 above). In this case, proceed as follows:

- Contact tecnical assistance.

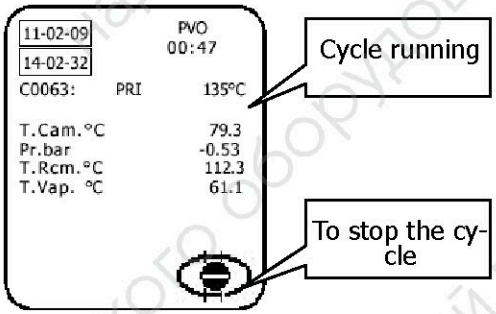
Once the door is closed, you can cancel the operation if you experience a problem (for example, equipment to be sterilised forgotten, not loaded or badly loaded). This can be done within two seconds after closing the door by pressing the X button (window below). The sequence of windows is as follows:



If you press X, the following window appears:

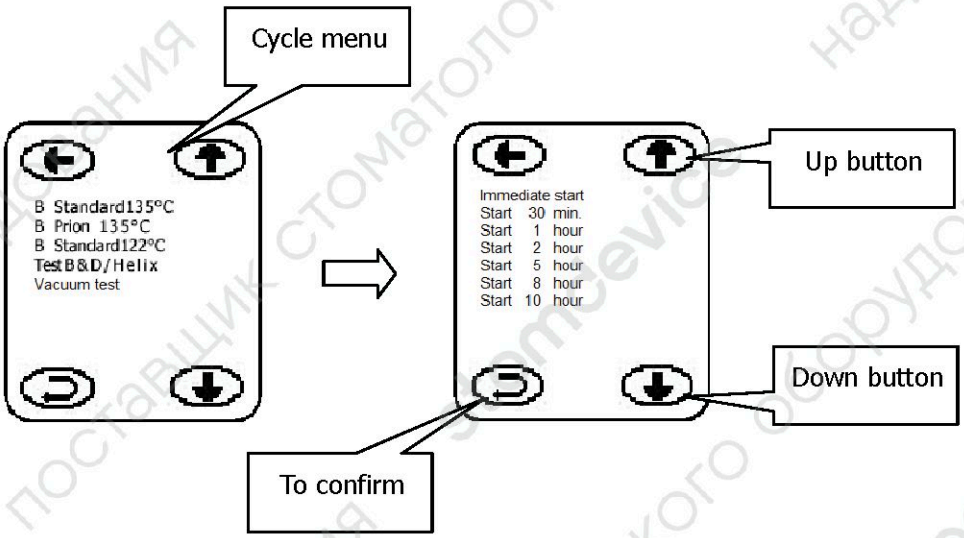


Clearly, the equipment is not sterile as it has not been through the PR Sterilisation phase: the load to be steriliser is considered sterile if, during the cycle, it passes through the sterilisation phase (PR). If this is not the case, it is considered "Load not sterile". In this case, restart the sterilisation cycle.
The sterilisation cycle can be stopped at any time by pressing the Stop button.



4.6 Delayed start of cycle – overnight cycle

After selecting the cycle from the appropriate menu, the machine indicates the possibility of programming a delayed start of the sterilisation cycle:



After selecting the cycle start option, enter your selection (if you wish the machine to start immediately, select "Immediate", using the up and down arrows) by pressing the corresponding button.
If, on the other hand, you wish the machine to run during the night so that the equipment is ready to use in the morning, proceed as follows:

- Enable the ventilation phase VEN (se section 4.3.7, page 15)
- Set the delay to, for example, 10 hours: the surgery closes at 20:00 and reopens at 08:00, calculate 1 hour for the sterilisation cycle, this gives you: from 20:00 to 08:00 is 12 hours, including the ventilation phase, the machine will start at 06:00 and will finish the sterilisation cycle at 07:00; the ventilation phase will then start to prevent condensation inside the sterilisation chamber and cool the sterilised equipment.

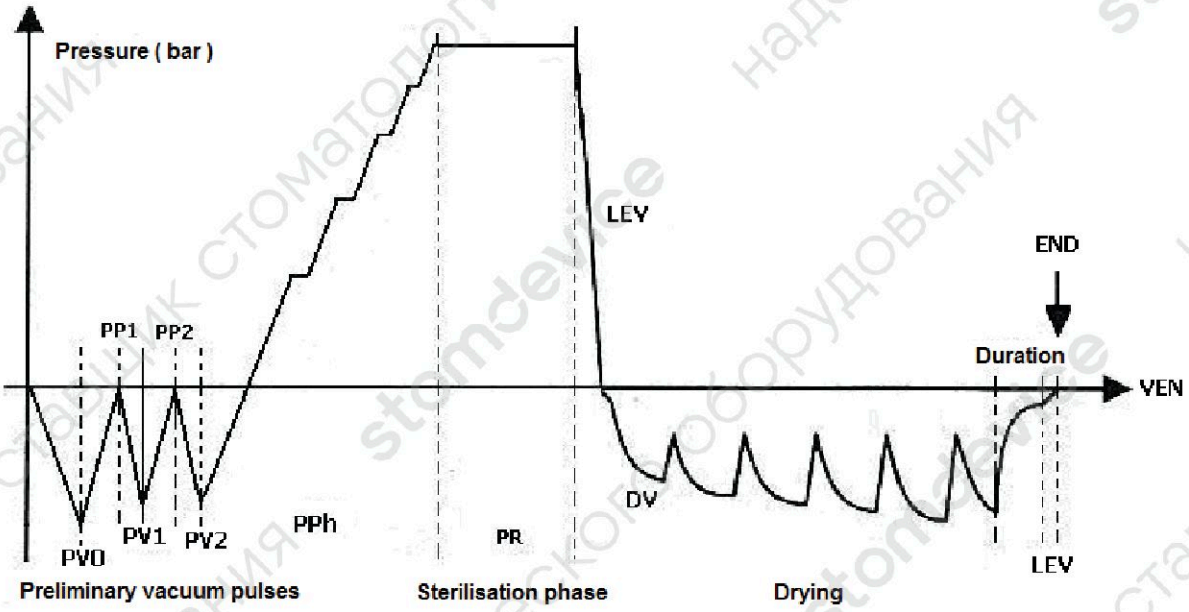
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4.7 Starting and operating cycle

Preamble: All cycles have the same profile (section 4.4, page16): only the durations of the sterilisation and drying phases and the sterilisation temperatures (122 °C - 135 °C) differ (see graph F9). The sterilisation cycle consists of various phases (shown on the touch-screen display during operation) from beginning to end. There follows the list of the various phases and their meaning:

Phase name	Timing (Fig. 9) and purpose
PV0 - PV1 - PV2	Occur at the beginning of the cycle and alternate with PP phases. Their function is to eliminate residual air from the inside of hollow and porous instruments.
PP1 - PP2	Occur at the beginning of the cycle and alternate with PV phases. Their function is to inject steam during the phases prior to sterilisation.
PPh	Follows the PP & PV phases. Its function is to raise the pressure in the machine and prepare for the "PR" sterilisation phase.
PR	This is the sterilisation phase. Its function is to sterilise the instruments.
LEV	Follows the "PR" phase. The pressure is reduced to that of the outside atmosphere.
DV	Follows the "LEV" phase. This serves to dry the (sterile) instruments inside the machine.
END	Follows the "DV" phase. End of sterilisation cycle.
VEN	Follows the END of cycle (if enabled, otherwise not). Prevents the formation of condensation: overnight cycle section 4.6 (see also 4.3.7, 4.7.1).



Key:

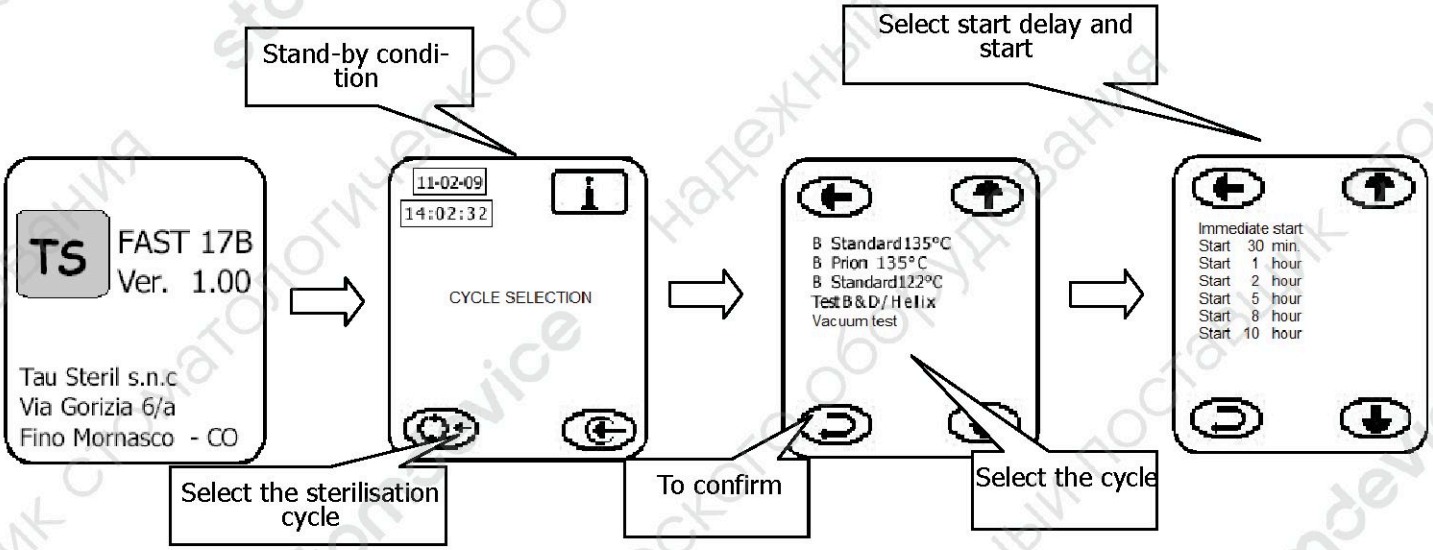
PV0-1-2: Vacuum pulses PP1-2: Pressure pulses PPh: Rise in pressure PR: Sterilisation process
LEV: Equalisation with atmospheric pressure DV: Vacuum drying END: End of sterilisation cycle
VEN: Anti-condensation ventilation

Fig. 9

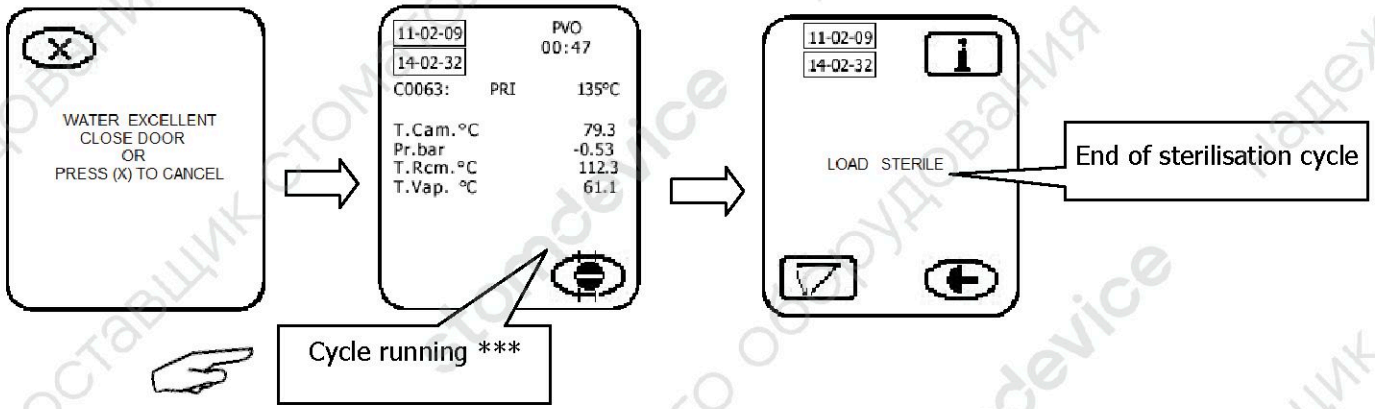
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WARNINGS: During the process of sterilization TAU STERIL always recommended to insert in the sterilization chamber of the autoclave (with the material to be sterilized) and an indicator of detection of the sterilization process (complies with the standard currently in force).

After preparation of the equipment to be inserted in the sterilisation chamber of the autoclave (see Appendix 2), turn on the main switch (Fig. 2 page 7). In this condition (door open and main switch on) the machine is in Stand-By. From this point on, to start the machine, work through the following screen pages:



Close the door (see section 4.5).



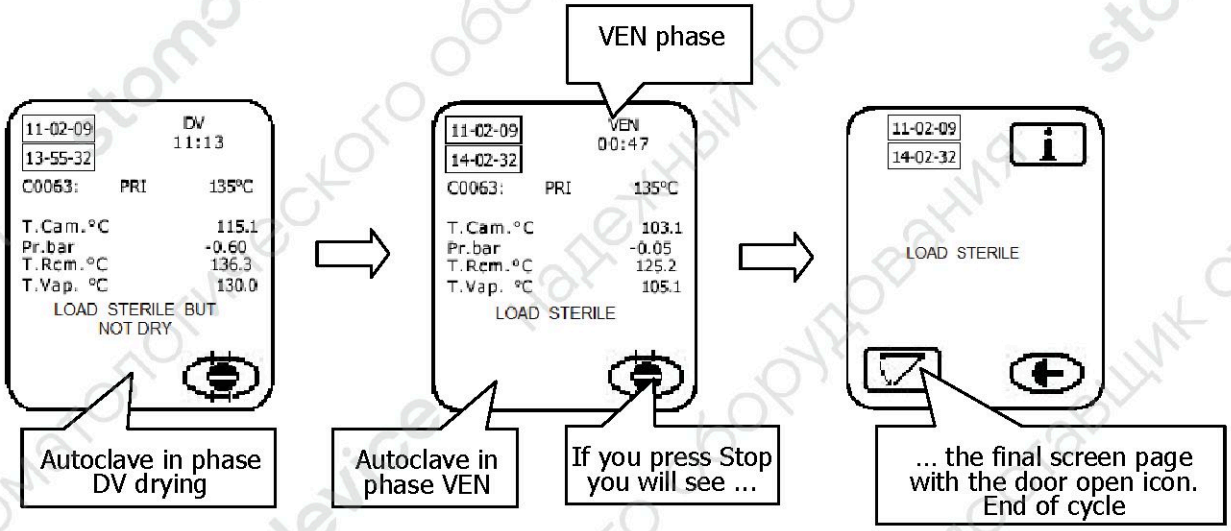
*** taking this screen page ,as an example, it consist of the following components:

Item indicated	Message shown	Item indicated	Message shown
Date	11-02-09	Chamber heating element temperature	T.Rcm.° C = 112.3
Time	14-02-32	Steam generator temperature	T.Vap. ° C = 61.1
Sterilisation cycle number	C0063	Phase of cycle (duration in minutes Fig. 9)	PV0 = 00:47
Chamber temperature °C	T.Cam.°C = 79.3	Name of cycle	PRI = Prion Test 135°
Pressure	Pr.bar = - 0.53		

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4.7.1 Anti-condensation Ventilation Phase (VEN)

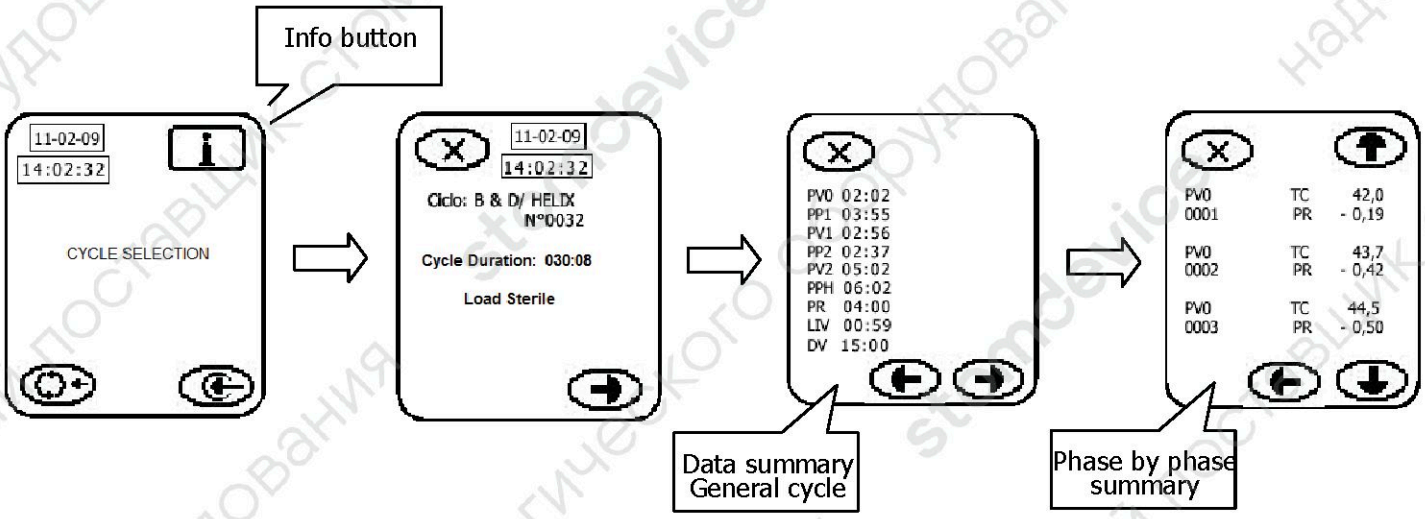
Ventilation phase VEN: at the end of the sterilisation cycle, the display will show VEN (if enabled): anti-condensation ventilation. The sterilisation chamber of the autoclave is vented every 20 sec. by means of a vacuum pump, until the temperature shown on the display (T. Cham.) falls to 102° C.
This ventilation ensures that the equipment is perfectly dry.
The machine can, however, be opened at any time (without waiting for the end of the VEN phase) if you are in a hurry: press the "stop" button and the machine will show the door open icon.



It is possible that, at the end of sterilisation cycle (after the VEN phase), the display indicates alarm No. 11 "Cooling Pause" when the door is opened. The purpose of this is to allow (once the cycle is complete) the parts of the machine subject to thermal stress (during the sterilisation cycle) to cool down.

4.7.2 Info Button

The machine memorises the last sterilisation cycle. By pressing the info button when it is shown on the screen, you can access the archived data:



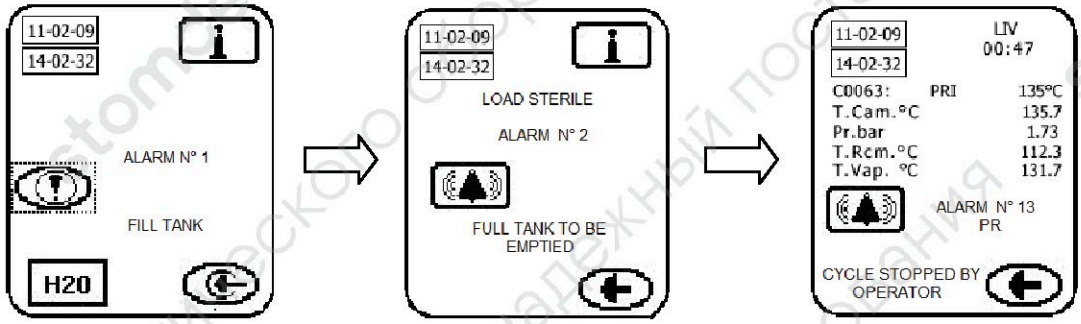
If there is a problem with the machine, these archives are useful, in particular, to technical assistance.

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4.8 Alarm messages and signals

Throughout the sterilisation cycle, the machine displays messages on the touch-screen. These inform the operator of the correct operation of the appliance or any fault or error occurring during the sterilisation cycle (alarm).



The table below lists the alarms and respective messages programmed in the machine:

No.	Message displayed	Description	Solution
1	FILL TANK	Tank fill level low	Top up demineralised water, section 3
2	FILL TANK TO BE EMP-TIED	Tank full	Empty used water tank, section 3.2
3	MISSING LINE LOCK	No Sync signal (50 Hz)	Repeat the cycle. If the problem persists, contact technical assistance.
4	FILLER TANK SENSOR DEFECTIVE	Filler tank sensor	Contact technical assistance
5	TRIAC Q8 OPEN SUPPLY SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persists, contact technical assistance.
6	TRIAC Q9 OPEN SUPPLY SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persists, contact technical assistance.
7	TRIAC Q10 OPEN SUPPLY SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persists, contact technical assistance.
8	PRESSURE WRONG IN THE PHASE PR	Alarm low temperature in phase PR	Allow the machine to cool. Inspect and clean the door seal (maintenance section 5). Repeat the cycle. If the problem persists, contact technical assistance.
9	WRONG TEMPERATURE IN THE PHASE PR	Alarm, high temperature in phase PR	Allow the machine to cool. Inspect and clean the door seal (maintenance section 5). Repeat the cycle. If the problem persists, contact technical assistance.
10	PHASE NOT COMPLETED	Vacuum phase not executed	Dirt on door seal: Inspect and clean the door seal (maintenance section 5). Repeat the cycle. If the problem persists, contact technical assistance.
11	TANK TEMP. HIGH COO-LING PHASE	Chamber heating element temperature high: cooling pause	The sterilisation chambre temperature is high: wait for cooling with door open
12	TRIAC Q15 OPEN SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persist, contact technical assistance.

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No	Message displayed	Description	Solution
13	CYCLE STOPPED BY OPERATOR	Manual cycle stop	The cycle has been stopped by the operator: repeat the loading and cycle start operations. If the problem persists, contact technical assistance.
14	CHAMBER PRESSURE TOO HIGH	Start pressure above atmospheric	Contact technical assistance.
15	TRIAC Q9 CLOSED SUPPLY SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persists, contact technical assistance.
16	TEMPERATURE PHASE PR HIGH	High temperature in phase PR	Allow the machine to cool. Inspect and clean the door seal (maintenance section 5). Repeat the cycle. If the problem persists, contact technical assistance.
17	TEMPERATURE PHASE PR LOW	Low temperature in phase PR	Allow the machine to cool. Inspect and clean the door seal (maintenance section 5). Repeat the cycle. If the problem persists, contact technical assistance.
18	TRIAC Q10 CLOSED SUPPLY SHUT OFF	Electronic component	Switch the machine off and on again. If the problem persists, contact technical assistance.
19	TRIAC Q15 CLOSED SUPPLY SHUT OFF	Electronic component	Switch the machine off and on again. If the problem persists, contact technical assistance.
20	TRIAC Q13 CLOSED SUPPLY SHUT OFF	Electronic component	Switch the machine off and on again. If the problem persists, contact technical assistance.
21	FANS BLOCKED	Fans blocked	Contact technical assistance.
22	BIM. CHAMBER	Chamber heating element bimetallic safety cut-out	Contact technical assistance.
23	BIM. STEAM GEN.	Steam generator heating element bimetallic safety cut-out	Contact technical assistance.
24	SENSOR PTV CHAMBER	Chamber PTV sensor	Contact technical assistance.
25	SENSOR PTC CHAMBER	Chamber PTC sensor	Contact technical assistance.
26	SENSOR PTV STEAM GENERATOR	Steam generator PTV sensor	Contact technical assistance.
27	DOOR MICROCONTACT	Door micro-switch	Contact technical assistance.
28	SENSOR CHAMBER PRESSURE	Pressure sensor	Contact technical assistance.
29	LOSS OF DATA E2P	Data loss E2P	Contact technical assistance.
30	DOOR MOTOR OR OPEN MICROCONTACT	Door motor or open micro-switch	Contact technical assistance.
31	AL_TRIAC_Q8_CLS	Electronic component	Switch the machine off and on again. If the problem persists, contact technical assistance.
32	NO MAINS DURING CYCLE	Power cut during cycle	Repeat the sterilisation cycle

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No	Message displayed	Description	Solution
33	DOOR MOTOR OR OPEN MICROCONTACT	Door motor or close micro-switch	Contact technical assistance.
34	TRIAC Q13 OPEN SUPPLY SHUT OFF	Electronic component	Turn the machine off and on again. If the problem persist, contact technical assistance.
35	OK TO CLOSE DOOR AT OFF	Door close authorisation/enable micro-switch at OFF during cycle	Contact technical assistance.
36	DOOR MICROCONTACT	Door open micro-switch at ON during cycle	Contact technical assistance.
37	DOOR NOT CLOSED DURING CYCLE	Door closed micro-switch at OFF during cycle	Contact technical assistance.
38	TEMP. R. CA. HIGH	High temperature resistance chamber	Contact technical assistance.
39	STEAM GEN. HEATER TEMPERATURE HIGH	High temperature resistance generator	Contact technical assistance.
40	STARTING TO MUCH WATER PUMP	Too many switching water pump	Contact technical assistance.
41	DOOR OPEN	Door closed not correctly	Contact technical assistance.
42	NO CALIBRATION E2P	Calibration data loss	Contact technical assistance.
43	CALIBRATION NON OPTIMAL	Reading incorrect calibration	Contact technical assistance.

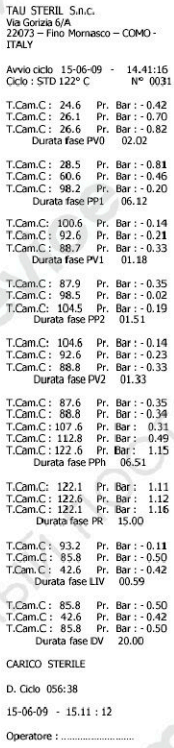
4.9 Printer

The internal (see fig. 2) or external (see fig. 3) printer is used to print out the data for the complete sterilisation cycle in order to guarantee a paper report to be included with the sterilised equipment.
To change the time, date etc., see section 4.3.2, 4.3.3. To enable the internal printer, see section 4.3.5. For the external printer, if this is an ordinary printer with parallel port connection, to install, proceed as follows:

- Connect the cable to the 24-pin connector on the rear panel (see fig. 2).
- Connect the other end of the cable to the external printer.
- Connect the printer supply using an appropriate cable.
- The printer is now ready to print.
- Note! If your internal printer is enabled, the external one will also work.

Example of paper strip printout showing the results of the sterilisation cycle (Fig. 10).




TAU STERIL S.n.c.
Via Gorizia 6/A
22073 – Fino Mornasco – COMO -
ITALY

Avvio ciclo 15-06-09 - 14.41:16
Ciclo : STD 122° C N° 0031

T.Cam.C.: 24.6 Pr. Bar : - 0.42
T.Cam.C.: 26.1 Pr. Bar : - 0.70
T.Cam.C.: 26.6 Pr. Bar : - 0.82
Durata fase PV0 02.02

T.Cam.C.: 28.5 Pr. Bar : - 0.81
T.Cam.C.: 60.6 Pr. Bar : - 0.46
T.Cam.C.: 98.2 Pr. Bar : - 0.20
Durata fase PP1 06.12

T.Cam.C.: 100.6 Pr. Bar : - 0.14
T.Cam.C.: 92.6 Pr. Bar : - 0.21
T.Cam.C.: 88.7 Pr. Bar : - 0.33
Durata fase PV1 01.18

T.Cam.C.: 87.9 Pr. Bar : - 0.35
T.Cam.C.: 98.5 Pr. Bar : - 0.02
T.Cam.C.: 104.5 Pr. Bar : - 0.19
Durata fase PP2 01.51

T.Cam.C.: 104.6 Pr. Bar : - 0.14
T.Cam.C.: 92.6 Pr. Bar : - 0.23
T.Cam.C.: 88.8 Pr. Bar : - 0.33
Durata fase PV2 01.33

T.Cam.C.: 87.6 Pr. Bar : - 0.35
T.Cam.C.: 88.8 Pr. Bar : - 0.34
T.Cam.C.: 107.6 Pr. Bar : 0.31
T.Cam.C.: 112.8 Pr. Bar : 0.49
T.Cam.C.: 122.6 Pr. Bar : 1.15
Durata fase PPh 06.51

T.Cam.C.: 122.1 Pr. Bar : 1.11
T.Cam.C.: 122.6 Pr. Bar : 1.12
T.Cam.C.: 122.1 Pr. Bar : 1.16
Durata fase PR 15.00

T.Cam.C.: 93.2 Pr. Bar : - 0.11
T.Cam.C.: 85.8 Pr. Bar : - 0.50
T.Cam.C.: 42.6 Pr. Bar : - 0.42
Durata fase LIV 00.59

T.Cam.C.: 85.8 Pr. Bar : - 0.50
T.Cam.C.: 42.6 Pr. Bar : - 0.42
T.Cam.C.: 85.8 Pr. Bar : - 0.50
Durata fase DV 20.00

CARICO STERILE

D. Ciclo 056:38

15-06-09 - 15.11 : 12

Operatore : .....

Fig.10

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5 Maintenance and Cleaning

Any maintenance work must be carried out with the supply cable disconnected and the machine completely cold.

For correct care of the device, regularly clean all external parts using a soft cloth moistened with denatured, 90-% alcohol.
Demineralised water tank cleaning operations: filling (clean water).

- If the autoclave is not used for more than 7 days, we advise you to empty the water from both tanks (fig. 2) in order to avoid the formation of algae or other deposits.
- **Washing out the clean water tank:** we advise that the clean water tank should be emptied regularly (every 2 months or if the autoclave remains unused for more than a week), using the connection device supplied (see section 2.1). Take a new 5-litre can of demineralised water, pour in 200 ml of denatured, 90-% alcohol and 200 ml of vinegar. Repeat the operations for the first filling (see page 9). Once the machine is filled, leave (machine off) the water/vinegar/alcohol mixture (in tank No. 1) to descale/clean the walls of the tank (leave for one hour). Empty the clean water tank then fill it again with clean, demineralised water (5 litres, see section 3).
- Never use used, demineralised water.

Sterilisation chamber cleaning operations (to be repeated daily):

- Note! When cleaning the chamber, take care not to damage the temperature sensor (see photo 11).
- When the machine is cold, use a sponge moistened with vinegar to clean any lime scale from the chamber.
- Rinse the sponge with demineralised water and wipe out the chamber (repeat several times).
- Wipe over the inside of the sterilisation chamber with a clean cloth moistened with denatured alcohol (90-%).

Bacteriological filter (fig.2) maintenance operations

- Replace the filter every 6 months.
- If it is dirty (outside air is drawn through it during the sterilisation cycle), replace it earlier.

Door seal maintenance operations

- Every month, when the machine is cold, check that the door seal is properly seated in its housing. We advise that the seal should be replaced every 6 months or after 200 sterilisation cycles. Clean the seal every day (machine cold) with alcohol, refitting it correctly in its housing (fig. 2, section 2.1).

Every month (or earlier if the appliance is moved), check that the supply cable is intact and in good condition.
In the event of malfunction, contact the manufacturer.

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.

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The instruments must be clean and free of any residues such as fragments of dentine, blood etc. These substances can cause serious damage to the steriliser. If you use ultrasonic baths to wash the instruments, we recommend that you follow the advice of the respective manufacturer(s).
Always rinse ultrasonically cleaned equipment with water.

Always clean the chamber (when machine cold) with vinegar then rinse with water and alcohol.
To protect the machine components from dirt, a pressure filter is fitted inside the sterilisation chamber (see figures below).

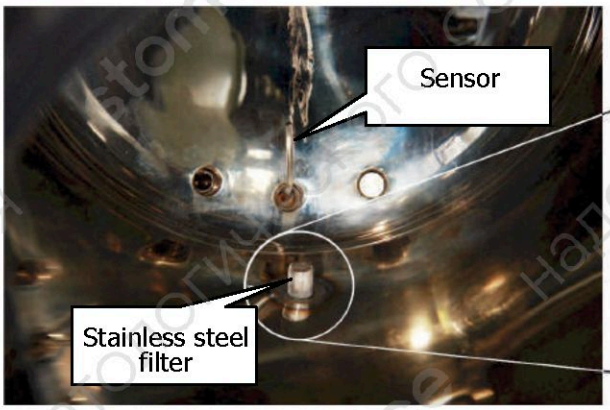


Fig.11



Fig.12

The water used for sterilisation passes through this filter (at the end of the cycle). Its function is to protect the solenoid valve against any dirt accumulating in the sterilisation chamber. To remove the filter, proceed as follows:

- Grip the filter very delicately on the two sides (arrows, fig. 12) between thumb and index finger and pull upwards.
- Check that the mesh screen is clean. If it is not, immerse it in vinegar and then rinse with water and alcohol.
- Blow-dry the filter with air.
- Check the condition of the filter seal (red): if it is worn, replace with a new one.
- Once it has been cleaned and refurbished, refit the filter.

Check the condition of the filter every week.

Door closing motor:

- Check the position of the locking spindle (see section 4.5, page 17).
- In the event of any problem when closing the door (alarm relating to the motor, see table of alarms, page 21), contact technical assistance.

For any repair work, we recommend that you return the autoclave to the manufacturer in its original packing.

We recommend that you have the calibration of the appliance checked by the manufacturer every two years.

The average service life of the appliance is about 10 years after ordinary and extraordinary maintenance.

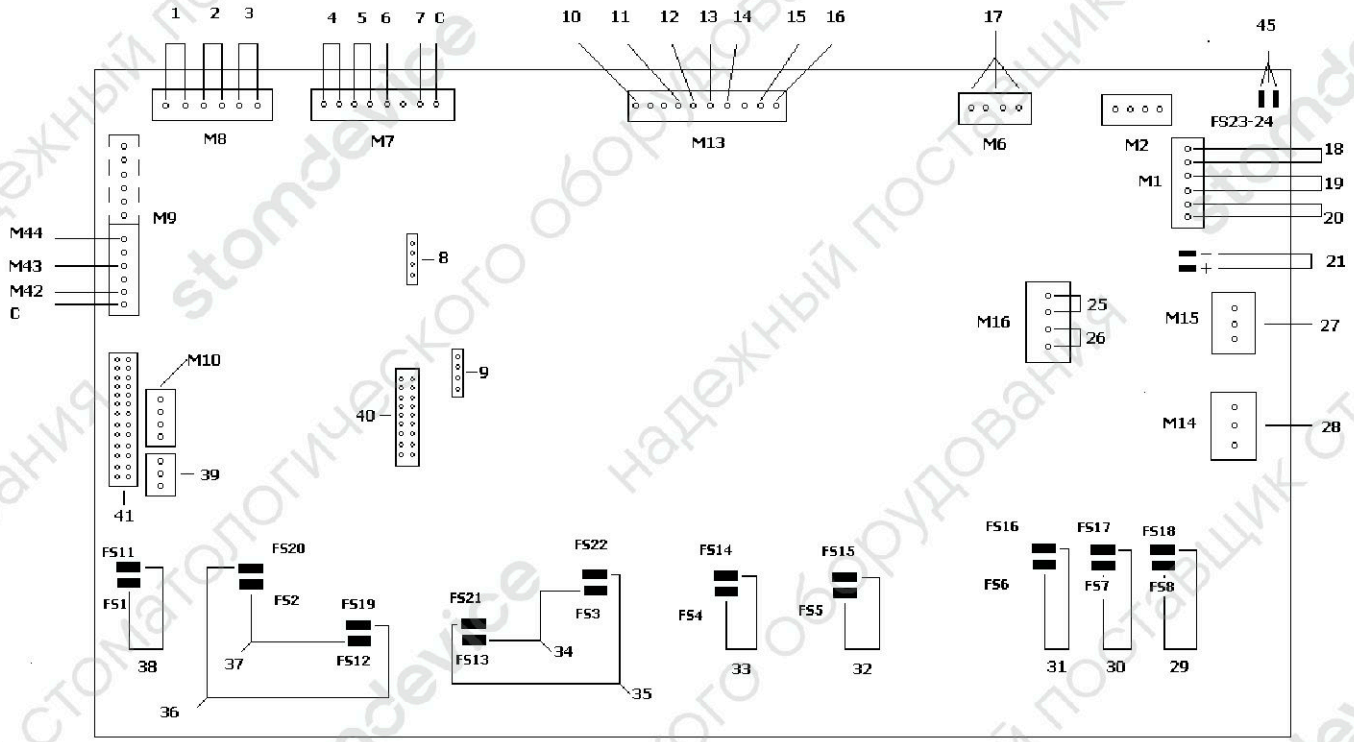
6 Decommissioning and scrapping of the appliance

The Fast B autoclave is manufactured from ferrous materials, electronic components and plastic materials. If the appliance can no longer be repaired and no longer works, separate the various components according to the material of which they are made so as to simplify any recycling or selective sorting. The dismantled appliance will be subject to no special instruction.
Do not abandon the appliance in unguarded areas. Entrust a waste disposal organisation with the scrapping. For scrapping, you must always refer to the laws in force in the country of use.

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7 Electrical circuit diagram



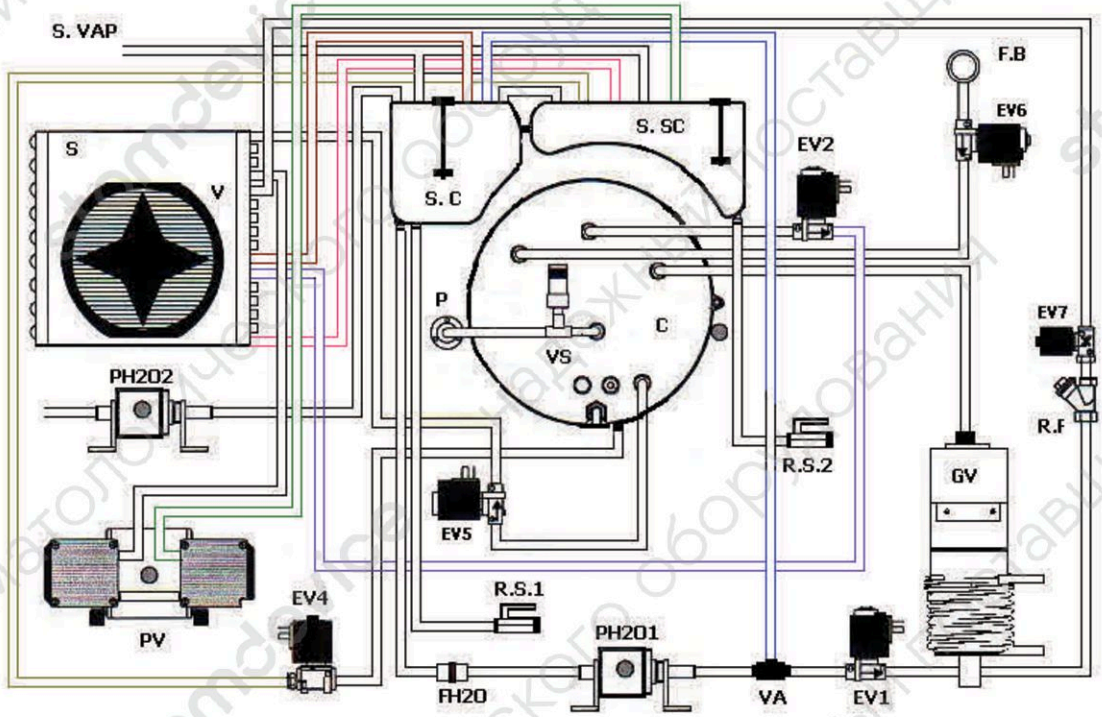
LEGEND

POSITION	DESCRIPTION	POSITION	DESCRIPTION	POSITION	DESCRIPTION
1	FAN CONTROL	16	PROTECTION, WATER PUMP	32	OPTIONAL 300-W OUTLET
2	STEAM GENERATOR WATER LEVEL	17	PRESSOSTAT	33	VACUUM PUMP
3	SOFTENER	18	STEAM GENERATOR SENSOR	34	STEAM GENERATOR HEATING ELEMENT
4	FLOW METER	19	TAPE HEATING ELEMENT SENSOR	35	GENERATOR SAFETY THERMOSTAT
5	MAXIMUM LEVEL DRAINAGE WATER	20	CHAMBER SENSOR	36	RESETTABLE THERMOSTAT. TAPE HEATING ELEMENT
6	MAXIMUM FILL LEVEL	21	DOOR MOTOR	37	TAPE HEATING ELEMENT
7	MINIMUM FILL LEVEL	22	SUPPLY CABLE TERMINAL	38	OPTIONAL 300-W OUTLET
8	INTERNAL PRINTER CONNECTION	23	SWITCH	39	K1 SENSOR
9	INTERNAL PRINTER SUPPLY	24	FUSE	40	DISPLAY CONNECTION
10	COMMON CONTACT	25-26	TRANSFORMER SECONDARY	41	EXTERNAL PRINTER CONNECTION
11	STEAM GENERATOR OUTLET	27	TRANSFORMER PRIMARY	42	MICROCONTACT, DOOR CLOSED
12	AIR INLET, BACTERIOLOGICAL FILTER	28	MAINS FILTER	43	MICROCONTACT, DOOR OPEN
13	PROTECTION, VACUUM PUMP	29	WATER FILL PUMP	44	MICROCONTACT, DOOR PART OPEN
14	WATER DRAINAGE	30	GENERATOR WATER PUMP	45	SAFETY SWITCH PRESSURE
15	PRESSURE RELIEF	31	FANS		

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8 Hydraulic diagram

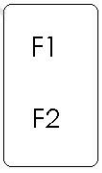


LEGEND

S	Heat echanger (vacuum pump cooling)	**S.C.**	Clean water tank (filling)
V	Heat echanger fan (exchanger cooling)	**S.SC.**	Used water tank (drainage)
PH202	Water pump (2) tank filling (to fill main water tank)	**VS**	Safety valve
PH201	Water pump (1) fills steam generator filling (to fill steam generator, if required)	**P**	Pressure transducer
PV	Vacuum pump (to create vacuum during the cycle)	**C**	Sterilisation chamber
EV1	2-way solenoid valve N.C. 24V d.c. (protects water pumps 1)	**FB**	Bacteriological filter
EV4	2-way solenoid valve N.O. 24V d.c. (water drainage)	**VA**	Water collection valve
EV5	2-way solenoid valve N.C. 24V d.c. (protects vacuum pump)	**GV**	Steam generator
EV2	2-way solenoid valve N.C. 24V d.c. (steam outlet)	**RF**	Water filtering connection
EV6	2-way solenoid valve N.C. 24V d.c. (bacteriological filt intake)	**RS1**	Connection for draining clean water
EV7	2-way solenoid valve N.O. 24V d.c. (steam generator outlet)	**RS2**	Connection for draining used water
		S. VAP	Steam vent

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9 Type plate and explanation of symbols

	Placed on the rear of the machine, bottom left corner
CAUTION: READ THE INSTRUCTION MANUAL	
CAUTION: DANGER OF BURNS	
CAUTION: DANGER OF ELECTRIC SHOCK	
CAUTION: WEAR PROTECTIVE GLOVES	
PRODUCT NON TO BE DISPOSED OF IN DOMESTIC WASTE. FOLLOW THE LOCAL RULES FOR DISPOSAL.	
SUPPLY PROTECTION FUSES (PAR 2.1 PAGE 7)	

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Appendix 1 Technical Data

General technical data	
Supply voltage	230 Volts (tolerance ±10 %)
Supply frequency	50 Hz
Mains supply protection fuses	6.3 x 32 T (delay) 15 A ceramic (2)
Maximum power consumption, heating element	2750 Watts
Current	15 A
Operating temperature / humidity	10° C - 40° C / 0 – 90 %
Storage temperature / humidity	20° C - 60° C / 0 – 90 %
Overall dimensions	L 445 mm. - H 390 mm. – D 580 mm.
Overall dimensions, door	L 360 mm. - H 400 mm. – D 36 mm.
Empty weight	kg. 55
Noise level	< 50 dB
Steam generator data	
Material of construction	Stainless steel, aisi 304
Maximum power consumption, heating element	1800 Watts
Maximum pressure	2.5 bar
Maximum temperature	150 ° C
Sterilisation chamber data	
Material of construction	Stainless steel, aisi 304
Dimensions	Ø 245 P 350 mm.
Volume	17 litres
Maximum pressure	2.5 bar
Maximum temperature	138° C
Maximum power consumption, heating element	1000 Watts
Bacteriological filter	0.3 µm
Distilled / demineralised water data	
Water quality	in accordance with EN 13060 Appendix C
Consumption, min. / max. per cycle	0.3 l / 0.45 l (load totally porous)
Capacity of clean / used water tanks	6 sterilisation cycles min.
Connections	
Parallel port for printer	
USB port for uploading software and downloading data	
Printers	
Integral thermal printer	Mod. PLUS
External, parallel port, ribbon printer	Mod. DP 40
Other characteristics	
Full control and management of machine by microprocessor / touch-screen	

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Appendix 2 Preparation of instruments for sterilisation

The instruments to be sterilised must be clean and free of any residues such as fragments of dentine, blood etc. These substances can cause damage to the materials to be sterilised and placed on the trays or even to the autoclave.

- Clean the instruments immediately after use. If you use ultrasonic baths to wash the instruments, we recommend that you follow the advice of the respective manufacturer(s).
- Remove any disinfectant residues, which may become corrosive at high temperature, from the equipment to be sterilised and dry.
- Lubricate in accordance with the instructions of the respective manufacturer(s).

Preparation of the trays

- For each programme, comply with the maximum load of equipment to be sterilised as fixed, tested and validated by the manufacturer so as to guarantee complete sterilisation.
- Always use the tray carrier to ensure good circulation of steam between the trays.
- To ensure complete sterilisation and drying, do not overload the trays.
- For better drying, place the cassette in a vertical position (if possible).
- Leave some space between the objects, for steam circulation.
- To avoid any accumulation of water, load empty recipients and unperforated trays in an inverted position.
- Install different materials (stainless steel, carbon steel etc.) on different trays.
- In the case of objects in carbon steel, place a paper napkin between the tray and the instruments.
- Instruments such as tweezers, scissors and pliers must be sterilised in the open position.
- If you use sachets for sterilisation, use porous packages that facilitate the passage of steam and allow good drying (e.g. plastic/paper sachets for autoclave).

Pipes

- After cleaning, rinse and dry.
- Place pipes on the tray leaving the ends open. Avoid folding.

Made-up packs

- Made-up packs must be place vertically, leaving space between them. Avoid their coming into contact with the walls of the sterilisation chamber.

Packaged materials

We advise that packaged materials should be placed on perforated trays, paper side up and leaving space between them.

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Appendix 3 Looking after sterilised instruments

Equipment that is still hot is at higher risk of contamination because the barrier presented by packaging materials offers less protection in the presence of residual humidity when hot than at ambient temperature. We therefore recommend that the equipment should not be piled up after it is removed from the autoclave but spread out to favour the dispersion of heat.

Wait for the equipment to reach ambient temperature before storing it: before storage, we further recommend that the integrity of the package and the chemical barrier should be checked; ensure that the packet is not ruptured or torn.

We advise that equipment should be stored in sealed cupboards, installed at 30 cm from the floor and 5 cm from the ceiling; if you do not have this type of cupboard available, store the equipment protected in nylon bags.

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Appendix 4 Description of the Bowie & Dick Test

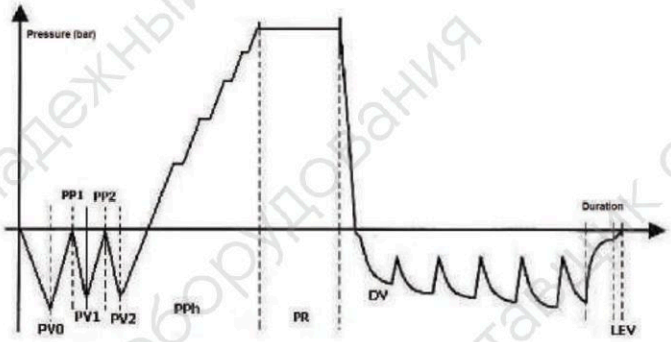
The Bowie & Dick test, also known as the Brown test, is representative for textile materials to be sterilised. The test piece consists of a series of sheets of paper and sponge rubber forming a small packet in the middle of which is placed a heat sensitive sheet (physical-chemical test).

This test verifies the performance of the appliance for the sterilisation of textiles:

- Efficacy of the initial vacuum in enhancing the steam penetration.
- The temperature and pressure parameters of the saturated steam during the sterilisation phase.

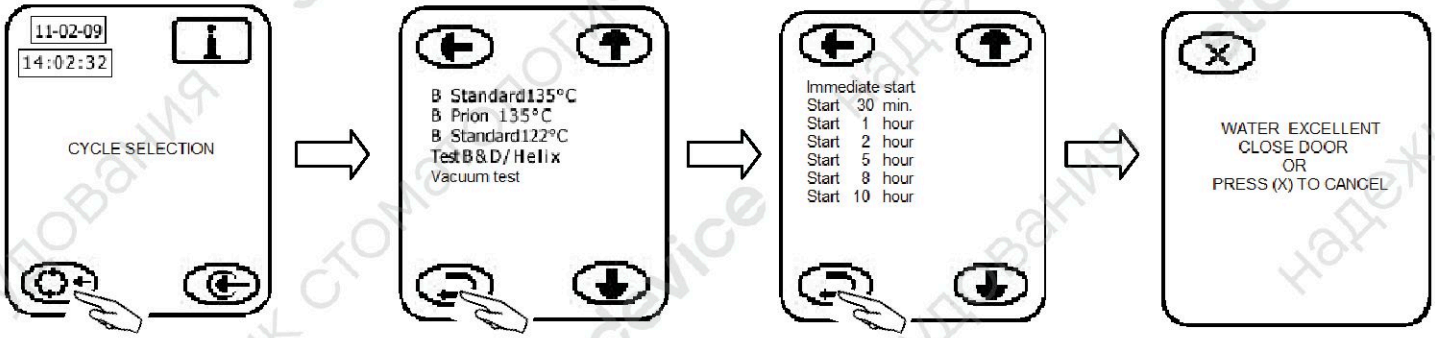
The cycle profile is of the same form as the others but with:

- A temperature of 135,5°C
- A pressure of 2.16 bar
- A sterilisation phase of 4.10 minutes
- A reduced drying time of 4 minutes to avoid falsifying the result.



Carry out the test as follows:

- Place the Bowie & Dick test piece in the sterilisation chamber on the lowest tray, with the label facing upwards.
- Select the B&D cycle in the menu (see below)



Now close the door and await the end of cycle. Immediately the cycle comes to an end, open the door and bring out the test piece. Note! The packet will still be hot! Take out the heat-sensitive paper from inside the packet.

CORRECT RESULT:
The radiating bands are all black (F13)



Fig.13

RESULT NON CORRECT:
The radiating bands are not black at the centre (F14)

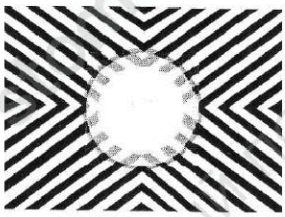


Fig. 14

Even if the heat-sensitive paper is grey or silver, the test result is not correct: it has been exposed to too high a temperature.

For archiving, you can attach the printout ticket to the test paper.

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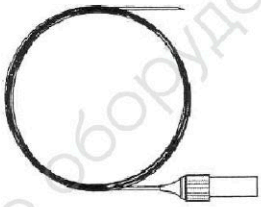
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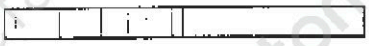
Appendix 5 Description of the Helix Test

The Helix test piece represents the most complex shape for a hollow body to be sterilised (type A).

Characteristics of tube (F15)

Lenght: 150 cm.
Internal Ø: 2 mm.
Material: PTFE

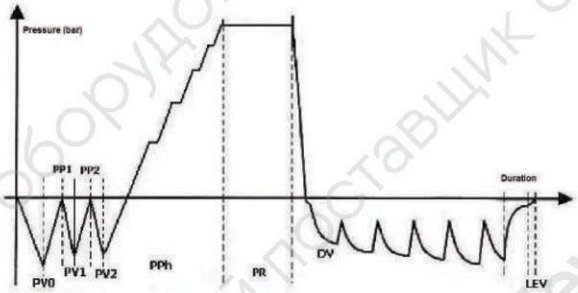




This test verifies the performance of the appliance for the sterilisation of hollow bodies:

- Efficacy of the initial vacuum in enhancing the steam penetration and the rapidity and uniformity of penetration.
- The temperature and pressure parameters of the saturated steam during the sterilisation phase.

The cycle profile is of the same form as the others but with:

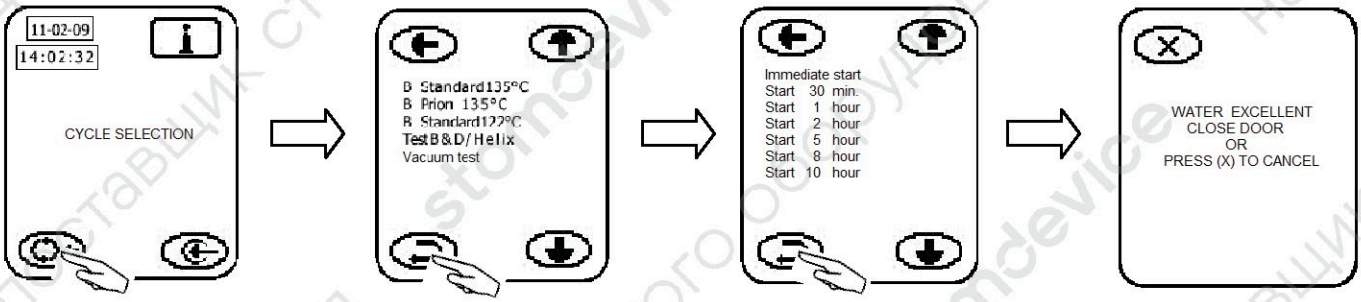


- A temperature of 135,5°C
- A pressure of 2.16 bar
- A sterilisation phase of 4.10 minutes
- A reduced drying time of 4 minutes to avoid falsifying the result.

Carry out the test as follows:

- <u>Run a standard 122 vacuum cycle: this enables the test to be started hot; never run it from cold as this will falsify the result.</u>
- Once the cycle is finished, open the door
- Empty used water tank, section 3.2 page 9)
- Insert a strip of test paper (Fig. 16) in the capsule (follow the manufacturer's instructions).
- Screw the capsule shut (Fig. 17)
- Place the test tube in the sterilisation chamber on the middle tray (use the basket with one tray only)
- Select the B&D cycle in the menu (see below)





Now close the door and await the end of cycle. Immediately the cycle comes to an end, open the door and bring out the test piece.

- Careful! The test piece will still be very hot!
- Unscrew the capsule and take out the strip

CORRECT RESULT:
The 4 spots on the strip are black



RESULT NON CORRECT:
The spots are not completely black



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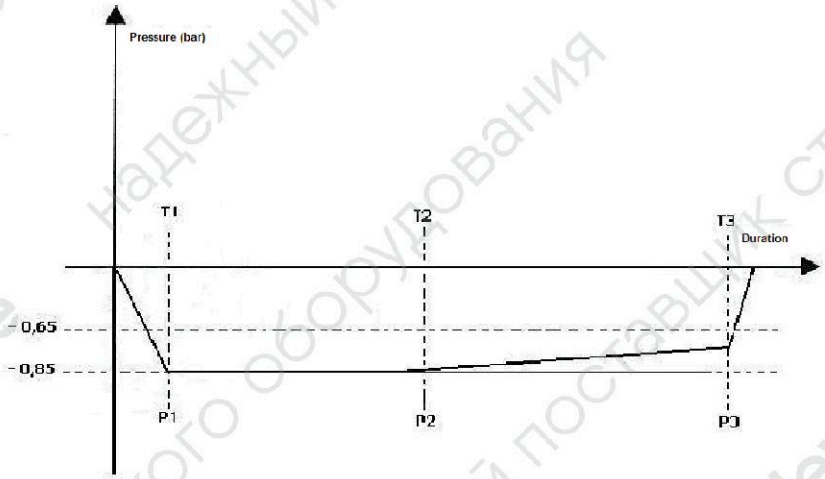
Appendix 6 Description of the Vacuum Test

This test verifies the performance of the appliance in respect of vacuum in the sterilisation chamber:

- The efficacy of the vacuum pump
- The freedom from leaks of the pneumatic system.

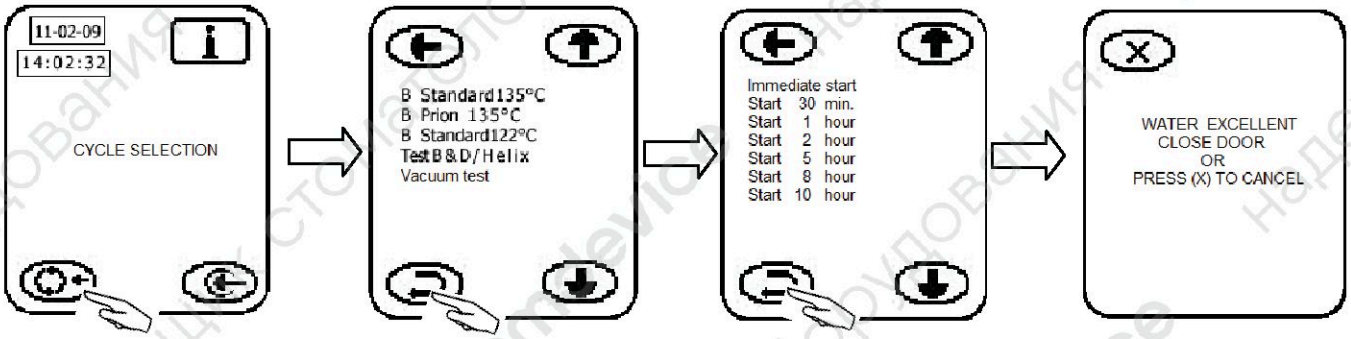
The cycle profile is specific to this test:

- A vacuum phase down to P1 = -0.85 bar
- A pause of 5′ > T2, reading of P2
- A pause of 15′ > T3, reading of P3



Carry out the test as follows:

- Select the Vacuum Test cycle from the menu (see below)



Now close the door and await the end of cycle.

In accordance with EN 13060, this test is required to demonstrate leakage of 1.3 mbar (0.013 bar) or less during the 10 minutes of the test; if the leakage is greater than this, the test result will be negative. The leakage of the hydraulic circuit and the door seal should be checked.

IMPORTANT: in order to obtain a correct result, **this test must be carried out when "cold"**, namely immediately after switching on at the main switch. If the test is carried out after some other cycle, alarm No. 11 will be shown on the screen, together with the message "Cooling pause" (see table of alarms, page XXX).

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Appendix 7 Validation of Cycles

Referring to EN 13060, the following sterilisation cycles have been validated:

	B 135° C Standard	B 135° C Standard	B 122° C Standard
Dynamic pressure of the sterilisation chamber	•	•	•
Air leak	•	•	•
Chamber vacuum	•	•	•
Solid Load	•	•	•
Small porous articles	•	•	•
Reduced porous loads	•	•	•
Full porous load	•	•	•
Load of hollow bodies B	•	•	•
Load of hollow bodies A	•	•	•
Multiple package	•	•	•
Dryness, solid load	•	•	•
Dryness, porous load	•	•	•

There follow some definitions that will help with understanding the table above:

- Solid load: non-porous article, without cavities or other characteristics that might prevent the penetration of the steam to an extent equal to or greater than is the case for hollow loads.
- Porous load: material capable of absorbing fluids; we speak, in particular, of:

  A. full porous load when the load occupies 95 ± 5 % of the useful space
  B. reduced porous load when the load occupies 20 to 25 % of the useful space
  C. small porous load when the load occupies 0.5 to 5 % of the useful space

- Load of hollow bodies type A: open space at one end in which 1=L/D=750 where D is the diameter of the cavity and L the length with L=1,500 mm or open space at both ends in which 2=L/D=1500, with L=3,000 mm and not being a load of hollow bodies type B.
- Load of hollow bodies type B: open space at one end in which 1=L/D=5 where D is the diameter of the cavity and L the length, with D=5 mm, or open space at both ends in which 2=L/D=10, with D=5 mm.

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Appendix 8 Water quality

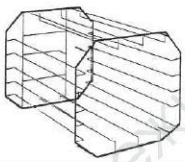
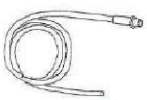
Referring to the EN 13060 standard, the table below shows the limit values (maximum) advised for the contaminants and physical-chemical characteristics of the water used to supply the autoclave.

Dry residue	< 10 mg/l
Silicon oxides	= 1 mg/l
Iron	= 0.2 mg/l
Cadmium	= 0.005 mg/l
Lead	= 0.05 mg/l
Heavy metal residues	= 0.1 mg/l
Chlorides	= 2 mg/l
Phosphates	= 0.5 mg/l
Conductivity 20 ° C	= 15 µS/cm
PH	5-7
Aspect	Colourless, transparent Without sediments
Hardness	= 0.02 mmol/l

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Appendix 9 Accessories supplied and Spare parts for maintenance

Description		Code
Aluminium tray 18.5 x 28.5		5000154 (4 supplied in package)
Tray carrier in stainless steel wire, aisi 304, for 4 trays		5000155 (1 supplied in package)
Tray gripper in aluminium		5000156 (1 supplied in package)
Pipe in silicone with connection for emptying used and clean water (section 2.1) Dimensions Ø 5 x 10 Length 80 cm.		5000157 (1 supplied in package)
Pipe in silicone with quick connector for filling demineralised water (section 3) Dimensions Ø 7 x 13 Length 150 cm.		5000158 (1 supplied in package)
Pipe in silicone with quick connector for emptying clean water tank (section 3) Dimensions Ø 7 x 13 Length 150 cm.		5000159 (1 supplied in package)
Pipe in silicone with quick connector for emptying clean water tank (section 3) Dimensions Ø 7 x 13 Length 150 cm.		5000160 (1 supplied in package)
Bacteriological filter		5000161
Door seal		5000162 (1 supplied in package)

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