

STERIPLUS™ 80
USER MANUAL

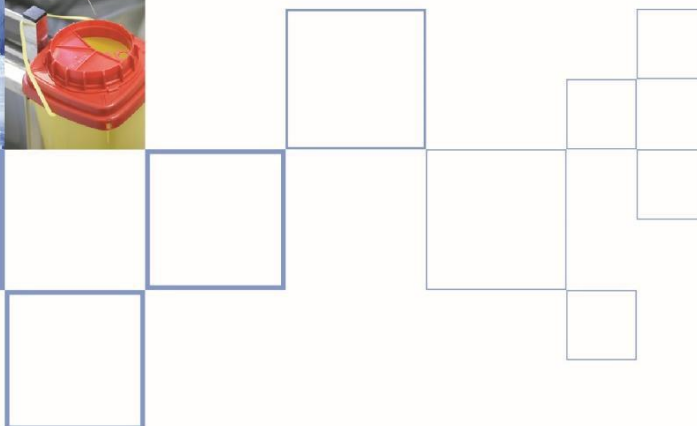
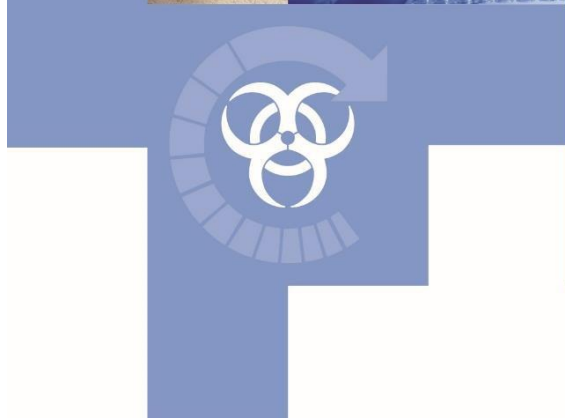


TABLE OF CONTENT

1 – PREFACE	4
1.1 ABOUT	5
1.2 PRECAUTIONS BEFORE USE	6
1.3 SAFETY INSTRUCTIONS	7
2 - INTRODUCTION	8
2.1 PRESENTATION OF TESALYS	9
2.2 PRESENTATION OF STERIPLUS™ SYSTEMS	10
2.3 DECONTAMINATION PROCESS	11
3 – TECHNICAL DESCRIPTION	12
3.1 REMINDER OF INSTALLATION CONDITIONS AND PROTECTION OF INSTALLATION CONNECTIONS	13
3.1.1 REQUIRED INSTALLATIONS	13
3.1.2 PROTECTION OF UTILITY CONNECTIONS	14
3.2 SECURITY ELEMENTS	15
3.3 WASTE TREATMENT CAPACITY	17
3.4 ACCESSORIES	19
4 – LIMITS OF USE	22
4.1 TYPE AND NATURE OF WASTE	23
4.2 CONSEQUENCES	28
5 - USE OF THE MACHINE	29
5.1 STARTING UP THE MACHINE	30
5.2 HOME SCREEN OF THE MACHINE	31
5.3 DELAYED START OF A CYCLE	32
HOME SCREEN – dELAYED START	32
5.4 RUNNING OF A CYCLE	33
5.5 CYCLES OF THE MACHINE	33
5.5.1 STANDARD CYCLE - AUTOMATIC UNLOADING DOOR	34
5.5.2 DECONTAMINATION CYCLE	45
5.5.3 VIRUS + CYCLE	48
6 - MONITORING AND CONTROL OF THE CYCLE	52
6.1 CYCLE CONTROL ELEMENTS	53
6.1.1 TRACKING TICKET	53
6.1.2 CHANGE OF THE PAPER ROLL	54
6.1.3 STATISTICS MENU OF THE MACHINE	55
7 – TOUCHSCREEN MENU	56

7.1 PERMANENT ICONS	57
7.2 TOOLS SCREEN – PAGE 1	58
7.3 TOOLS SCREEN – PAGE 2	59
7.4 CONFIG SCREEN MENU	60
7.5 DATE/TIME	61
7.6 BRIGHTNESS SCREEN SAVER.....	62
7.7 SCREEN CALIBRATION	63
7.8 SCREEN CLEANING	64
7.9 MACHINE ID – PAGE 1	65
7.10 MACHINE ID – PAGE 2.....	66
7.11 INFO	67
7.12 INFO – ALARMS.....	68
7.13 INFO – ALARM HISTORY	69
7.14 INFO – HISTORY STATS	70
7.15 INFO – REPORT.....	71
7.16 MANUAL.....	72
7.17 MANUAL – DOCUMENTATION	73
8 - SAFETY AND MAINTENANCE INSTRUCTIONS.....	74
8.1 EQUIPMENT	75
8.2 USER MAINTENANCE OPERATIONS.....	76
8.2.1 DAILY MAINTENANCE	76
8.2.2 WEEKLY MAINTENANCE	79
8.2.3 COMFORT CLEANING.....	82
9 - ALARMS	83
10 - ENVIRONMENTAL IMPACT	87
10.1 LIQUID EFFLUENTS (DRAIN)	88
10.2 AIR EMISSIONS	88
10.3 STEAM (HEAT DISSIPATION)	88
10.4 ODORS	88
10.5 NOISE POLLUTION	88
10.6 NO-BY PRODUCTS	88
10.7 WATER AND ELECTRICITY CONSUMPTION	89
11- APPENDIX	90
USE AND MAINTENANCE BROCHURE	106
CERTIFICATION DOCUMENTS	107

1 – PREFACE



1.1 ABOUT

PURPOSE OF THIS MANUAL

This manual contains the required information on how to use the machine STERIPLUS™ 80. In order to take full advantage of all the features and to use the machine correctly, this manual must be read carefully by the user.

This manual is part of the machine. It must be carried with the machine when it is moved or resold.

MODIFICATIONS AND UPDATES

Tesalys reserves the right to make any modification, even partial, of this manual without prior notice.

MAINTENANCE

The indications contained in this manual are a guide to remind you that the machine requires interventions in order to guarantee its safe operation.

GUARANTEE

Obtaining the warranty is subject to the application of the maintenance instructions in this manual.

This document has been prepared with the greatest possible care. However, Tesalys disclaims all liability for any errors or omissions. This also holds true for any damage resulting from the use of information contained in this manual.

COPYRIGHT – LIABILITY

All rights reserved. Copying or reproducing all or part of the contents of this manual without the express permission of Tesalys is strictly prohibited.



1.2 PRECAUTIONS BEFORE USE

- Be sure to read this manual carefully before installation.
- The personnel in charge of the installation, maintenance and repairs of the machine must have followed a complete training on TESALYS' premises and must hold the corresponding certificate.
- Do not try to install the machine by yourself.
- Users must be properly trained before using a STERIPLUS™ 20-40-80. Training should include at least the following topics: How to select the correct treatment cycle; Understanding each step of the cycle; How to load and unload waste; How to handle waste before and after treatment.
- A written record must be kept to maintain a record of who has been formally trained.
- The use of STERIPLUS™ 80 must comply with local regulations. The owner of the machine must ensure that the machine is installed and used in accordance with local regulations.
- Particular attention must be paid to the possible risks of cancellation of the guarantee by Tesalys in case of non-respect of the rules stated above.



1.3 SAFETY INSTRUCTIONS

The handling of STERIPLUS™ systems requires the use of specific protective equipment.

- Wear protective clothing (mask and gown) before handling and loading waste into the machine to avoid possible contamination.
- Wear protective gloves before handling the waste, especially when unloading to avoid the risk of burns.
- Wear protective glasses to prevent potential steam and/or liquid waste projection.
- Be sure to always wear the required equipment when using the machine to prevent any risk related to handling the machine and waste.



2 - INTRODUCTION

2.1 PRESENTATION OF TESALYS

Based in St. Jean (Toulouse), France, TESALYS is a French manufacturer of **equipment for the treatment of infectious waste on site**. Toulouse, a global showcase of European industrial know-how, has brought Tesalys the elements necessary for the international development of its **STERIPLUS™ technology**.

With the STERIPLUS™ crusher-sterilizer, Tesalys has quickly become a leader in **bio-contaminated waste treatment systems on the production site**.

TESALYS is now present through a network of distributors in more than 90 countries on five continents.

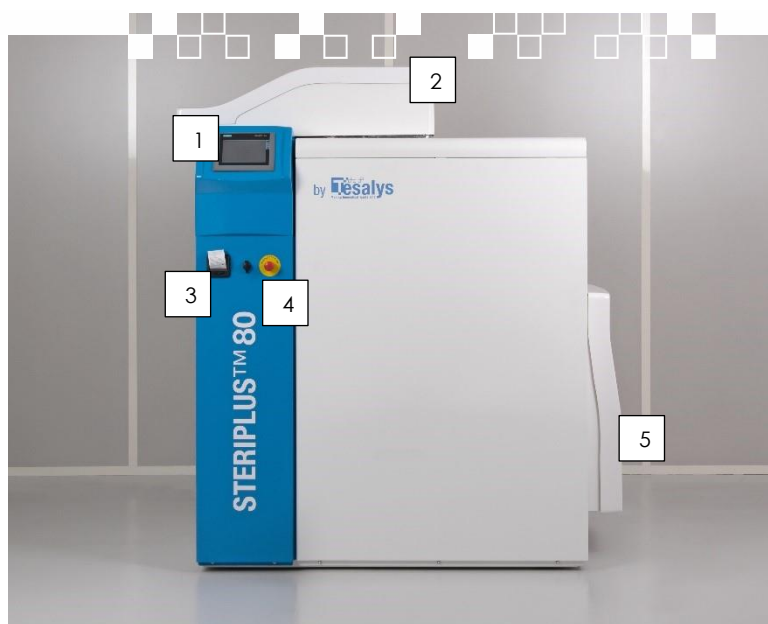


2.2 PRESENTATION OF STERIPLUS™ SYSTEMS

TESALYS systems STERIPLUS™ 20-40-80 are designed to **shred and decontaminate infectious waste** as defined in the French standard NF X-30 503-1 (1).

The disposal of biohazardous waste is not easy. It implies risks for the environment and the personnel not to mention high collection, transport, and incineration costs. In addition, **the waste producer is responsible of the waste until its final destruction**. Users must keep in mind that **the final disposal of the waste must also comply with local procedures and regulations**.

STERIPLUS™ systems are the ideal solution for bio-contaminated waste treatment at the point of waste generation. Its unique built-in TESASHRED™ system allows its user to **significantly reduce the volume of the waste** and guarantees optimum thermal treatment at the center of the waste. **The sterilizing phase at 135°C grants a 6 log10 microbial reduction** (8 log10 reduction of bacterial spores).



- | | |
|---|-----------------------|
| 1 | Touch screen |
| 2 | Loading door |
| 3 | Printer |
| 4 | Emergency stop button |
| 5 | Unloading door |

Designed and manufactured in France according to NF X-30-503-1 European Origin.

CE marked (European directive 2006/42/CEE, harmonized standards machinery safety)

Qualification of sterilization cycle according to international standards EN 554 and EN ISO 17665-1

European Directive for Pressure Equipment 2014/68/EU

The pressure vessel of the STERIPLUS™ 80 is designed for 30.000 cycles use (e.g. 3000 cycles/year for 10 years).

(1) The standard **NF X30-503-1 February 2016 – Waste of care activities – Reduction of the microbiological and mechanical risks of the waste of care activities with infectious risks and assimilated by the devices of pre-treatment by disinfection**, details the conception and testing specifications of the pre-treatment equipment for infectious waste alternatives to incineration before they are put on the market.

Find more details on meeting the requirements of the standard in [Appendix 4](#).

2.3 DECONTAMINATION PROCESS

STERIPLUSTM systems perform infectious waste decontamination in three main steps. The machine **first shreds the waste**, considerably reducing its volume, before **starting the decontamination by steam injection** into the pressure vessel. Once decontamination is complete, the **waste is discharged and/or drained for liquid waste**.

- **SHREDDING**

After unloading, the waste is **completely shredded**, and its **volume is considerably reduced** as shown in the photos below.

The shredding is ensured by counter-rotating knives made of 8mm thick anti-abrasion steel supported by two motor shafts rotating in both directions of rotation, capable of producing a shredded material with a **granulometry of about 8-15 mm**. Shredding the waste in small pieces enables a **better penetration of the sterilizing steam** and therefore a better waste decontamination. The size of the granules obtained after the cycle **complies with standard NFX 30-503-1** which defines a regulatory granulometry of less than 30 mm.



Exemples de déchets avant et après broyage

- **DECONTAMINATION**

The microbiological performance of the machine has been tested by an independent laboratory and guarantees the **efficiency on different micro-organisms**. You can find the detailed explanation of the process in [appendix 1.1](#) and the BioRisk process performance certificate in [appendix 1.2](#).

3 – TECHNICAL DESCRIPTION

3.1 REMINDER OF INSTALLATION CONDITIONS AND PROTECTION OF INSTALLATION CONNECTIONS

3.1.1 REQUIRED INSTALLATIONS

The installation of the machine is very simple. STERIPLUS™ systems can be installed as close as possible to the point of waste generation.

The required installation conditions are the following:

WASTE WATER DRAINAGE

Drain hose provided Ø 32mm (1.1/4") - Copper material or PVC HT – connected to a siphon
Connection height between 0 and 50mm.
Flow rate 20 L/min

ELECTRICAL POWER SUPPLY

Alimentation
STERIPLUS™ 80 : 400V 3PH+N – 50Hz / 60 Hz protection 32A 35/45kW (3x10KW / 4x10kW)

L1 Brown **L2 Black** **L3 Grey** **Neutral Blue** **Earth Green/Yellow**

EXTERNAL ENVIRONMENT

Air renewal equal to 10 times the volume of the room (e.g.: extraction hood system)

GENERAL WATER SUPPLY

Dynamic flow rate: > 9 L/min
Pressure : 2 bars (29 PSI) minimum

PHYSICO-CHEMICAL PROPERTIES

TH(°f) Hardness (NFT90-003) Water hardness $4^{\circ} \leq TH \leq 8^{\circ}$ or $2.25 < D < 4.49$

Drain connection: Drain connector on the floor of the room where the machine is located.
The liquid effluents coming out of the machine can reach a temperature of 90°C.
To prevent any deterioration of the machine, the drainage line must be able to resist to this temperature.
The drainage must be watertight until the final evacuation.
In order to avoid any risk, during the draining phase of the machine, the drain do not have to be connected to a grid or other non-watertight component.
Please do not hesitate to contact the TESALYS technical Service for more information.

The STERIPLUS™ systems are compact machines in which are already integrated:

- A steam generator
- An air compressor
- A water softener
- A water booster to ensure a constant flow rate

3.1.2 PROTECTION OF UTILITY CONNECTIONS

Electrical network: 300 mA safety switch

Water supply: non-return valve on the circuit. In case of absence of water in the generator, it stops immediately.

Drain: the effluents are evacuated through a 1m tube. Depending on the installation, it can be recommended to install a cooling system that cools down the effluents below 50-55°C (See option ref. OP-0001) to lower the temperature in the building piping network.



When reading these elements, in case of any doubt about the installation, please refer immediately to your distributor or to Tesimalys technical service.

During this network protection control step, take some time to check the identification plate of your STERIPLUS™ system. The plate is located on the back of the machine.

Please note that the plate below is a generic one without serial number. A copy of the plate is supplied in the appendix at the end of this manual (CERTIFICATION DOCUMENTS).

Machine identification plate :



tesalys
making biomedical waste safe

7, Rue du Cassé
31240 Saint-Jean (Toulouse)
France
Tel.: +33 (0)5.62.10.18.91 / info@tesalys.fr

CE 0036

Type (Ensemble / Assembly) :

STERIPLUS™ 80

Année / Year :

N° Série / Serial Nb. :

Fluide, groupe / Medium, Groupe :

Eau, Vapeur / Water, Steam water – L2/G2

Composants principaux / Main Parts:	PS	TS	V/DN	PT
Chambre de décontamination Decontamination Chamber	-0,9/+3 bar	0/160°C	260,16 L	4,7 bar
Générateur de vapeur Steam Generator	-0,9/+5 bar	0/160°C	15 L	10 bar
Condenseur Condenser	0/+8 bar	0/80°C	2 L	12 bar
Tuyauteries, connexions et accessoires Vapeur Pipes, Connexions & accessories Steam	16 bar	0/135°C	≤ DN25	/
Tuyauteries, connexions et accessoires Eau Pipes, Connexions & accessories Water	15 bar	0/80°C	≤ DN25	/
Utilités (Air comprimée) Air utilities system	10 bar	0/50°C	≤ 25 L	/

Système programmable de contrôle et mesure de type API
Control & Measurement programmable system type PLC

Poinçon inspection / Inspect. Stamp

30.09.2020

3.2 SECURITY ELEMENTS

TEMPERATURE SENSOR

The temperature sensor allows to **measure real-time temperature in the chamber**. It allows to control it at any time (information displayed on the STATS screen as well as on the ticket edited at the end of each cycle).

You can find it in the loading door and in the vessel.



PRESSURE SENSOR

Located in the loading door, the pressure sensor controls and **regulates the chamber pressure**. In **case of excess pressure**, the sensor triggers the opening of the safety systems to evacuate it.



SECURITY VALVE

Placed on the steam generator, the safety valve is a safety device that **releases any overpressure present in the steam generator**. When the maximum allowable pressure is exceeded, the safety valve triggers and releases the excess steam generated in order to regulate the pressure rate and thus allow the correct operation of the cycle in progress and prevent any risk of explosion.

The machine is fitted with two valves (5 bar) on the steam generator to ensure the operation of at least one valve, thus providing double safety, and one valve (3 bar) on the chamber.



CLOSURE SENSOR(S)

Located on both loading and unloading doors, the closure sensors **allow to ensure the proper closing of the doors and secure their locking.**



INFLATABLE SEALS

Placed on both loading and unloading doors, the inflatables seals **ensure the tightness of the tank.**



EMERGENCY STOP BUTTON

Located on the front panel of the machine, the emergency stop button **stops the current cycle and locks all the main operating elements of the machine.**



3.3 WASTE TREATMENT CAPACITY

VERSION	STERIPLUS™ 80
LOADING CHAMBER CAPACITY	80 L
LOADING CHAMBER USEFUL DIMENSIONS (W x D x H)	370 x 360 x 628 mm
LOADING CAPACITY (CONTAINERS)	1 x TESABOX 80 2 x TESABOX 40 4 x TESABOX 20
TOTAL CYCLE TIME (NF X30-503-1 STANDARD) (1)	30 to 35 minutes
TOTAL CYCLE TIME IN WORKING CONDITIONS (2)	30 to 50 minutes
LOADING CAPACITY (KG/CYCLE)	6,4 to 9,6 kg/cycle* 9,8 to 16 kg/cycle**
TREATMENT CAPACITY (KG/H) (3)	8 to 12 kg/cycle* 12 to 20 kg/h**
MAX QUANTITY OF LIQUID RECOMMENDED PER CYCLE (4)	24 L
EXTERNAL DIMENSIONS (W x D x H)	1550 x 1200 x 1800 mm
NET WEIGHT	1300 kg

* Based on an average waste density of 0,08 to 0,12kg/L for Healthcare Waste

** Based on an average waste density of 0,12 to 0,2kg/L for Lab/Humid/Liquid Waste

(1) 30-35min for test loads as per NF X30-503-1 standard.

(2) Cycle times may vary based on the type of materials, waste density, humidity, quantity of liquids, etc. For loads with high liquid content, cycle time can be longer. Up to 50min depending on the waste density.

(3) Based on an average cycle time of 45min. (40 min. of cycle + 5 min. unloading/loading time).

(4) Quantity of liquids allowed might vary depending on application (urine bags, blood bags, food testing bags, ...). All the data given in this catalogue are non-binding and given as a guide only. Treatment capacities, cycle times and consumptions are given as mere examples and may vary depending on the type of waste, installation conditions, operator's availability and skills.

There is **no technical limitation regarding the maximum weight of waste that can be processed in the machine**. However, if loading is manual and carried out by one person, **the waste bags / boxes loaded into the machine must not exceed the maximum weight allowed by local health and safety regulations**.



When using plastic waste bags, they must be able to withstand very high temperatures (autoclavable bags) or bags made of HD-PE materials to prevent the accumulation of melted plastic in the loading chamber.

3.4 ACCESSORIES

Tesalys strongly recommends the use of the accessories listed below. For some of them, the machine has been designed and thought with their use in mind. Their purpose is to optimize the efficiency and the practicality of use of the machine.

TESABOX



Ref. :
CO-0039
CO-0029
CO-0054

TESABOX cardboard boxes are equipped with a watertight bag that can be reclosed by pull tabs, allowing both solid and liquid waste to be loaded. TESABOXs help to optimize the loads as well as the shredder's ability to attract waste more easily.

Loads are thus more measured since their dimensions are adapted to those of the machine, and their use limits the risks of overloading and jamming the machine while managing cycle times more efficiently.

Indeed, if the load is systematically the same (in number of cartons loaded into the machine), the cycles will be equal in time.

The rigidity of the TESABOX, combined with its double protection with the integrated bag, limits the risk of potential contamination or injury, as the cardboard is less likely to be pierced and punctured.

Refer to [Appendix 2](#) for more details on TESABOX closure.

TESABAG



Ref. : CO-0035



Ref. : CO-0036

TESABAGs are autoclavable bags designed to not melt in contact with heat and therefore adhere to hot surfaces. Indeed, if the bags loaded in the machine are not autoclavable, they may melt and damage the grinder by sticking to the various components of the machine.

However, TESALYS rather recommends the use of TESABOX (see above) which allows a better measured waste load.

TESANET



Ref. : CO-0040

The TESANET nets are made to be fixed to the unloading basket and constitute a first level of filtering. They provide comfort when unloading the basket since the net is thrown directly into the garbage can, reducing the basket cleaning steps.

DRIP TRAY



Ref. : AC-0034

The drip tray is placed under the unloading door and allows the recovery of potential waste that could fall out when the door is opened, keeping the floor and the processing environment clean.

NEEDLE BOXES



Réf. : Nous consulter

Needle boxes are autoclavable boxes designed to contain sharps waste. They are divided into 12 categories: barrel lancets and lancing devices, pen needles, needles alone, micro infusers, transfer sets, vial and needle adapters, lancing devices, catheters, pens with crimped or retractable needle, syringes and finally applicators. This type of waste can cause injury and serious contamination risks, therefore it is important and highly recommended to place them in the needle boxes before loading them into the machine.

Please do not hesitate to contact your sales department or your technical reference service for more information on the main accessories of the machine. You will find all accessories, parts, and consumables at the end of the manual in the [Operation and Maintenance Brochure](#).

4 – LIMITS OF USE

4.1 TYPE AND NATURE OF WASTE

Healthcare waste is waste resulting from diagnostic, monitoring and preventive, curative or palliative treatment activities in the fields of human and veterinary medicine.

The table below summarizes all the waste that can be accepted (**green**) or not (**red**) in the machine, all systems combined. You will find the A4 format poster of the limits of use in [appendix 6](#).

The treatment of the elements marked in **red** is **FORMALLY FORBIDDEN**.

INFECTIOUS WASTE	
 Are considered as infectious waste, all wastes that may contain pathogens (or their toxins) in sufficient concentration to cause disease in a potential host. Examples of infectious wastes include used materials or equipment used for diagnosis, treatment and prevention of disease that have been in contact with body fluids (dressings, compresses, diapers, blood bags, etc.). This category also includes liquid wastes such as feces, urine, blood, or other body secretions (such as sputum or lung secretions). This type of waste can be easily processed by the STERIPLUS™ systems.	
PATHOLOGICAL AND ANATOMICAL WASTE	
 Anatomical waste, which corresponds to fragments that are not easily identifiable, can be processed by the STERIPLUS™ systems.	 The treatment of anatomical parts differs according to the legislation of the countries. Are considered as anatomical parts organs, limbs, fragments of organs or limbs easily identifiable by a non-specialist. They must not be treated as they are by the machine.

HAZARDOUS PHARMACEUTICAL WASTE



Pharmaceutical waste includes **expired, unused, spilled, and contaminated pharmaceuticals, medicines and vaccines**. Are also included in this category **worn items used in the handling of pharmaceuticals such as cans, vials, tubing**.

This type of waste does not have to be processed in the machine.

This category also includes **all drugs and equipment used for the mixing and administration of cytotoxic drugs**. Cytotoxic or genotoxic drugs are drugs that have the ability to reduce/stop the growth of certain living cells and are used in chemotherapy for the treatment of cancer. Cytotoxic wastes are treated under a separate category.

DRUG WASTE



Residues of drug waste contained in soiled vials or care kits (liquid, solid or gaseous) generated during disinfection or cleaning procedures **can be treated together with infectious waste**. Residues should be **non-explosive and in small quantities (end of vial, bottle, etc.)**.



Medicated waste **in large quantities and toxic, corrosive, flammable wastes must be used and eliminated according to the specifications on each container**.

Consequently, they do not have to be treated in the machine.

WASTE WITH A HIGH CONTENT OF HEAVY METALS



Waste with high contents of heavy metals and derivatives are potentially highly toxic (e.g. cadmium or mercury from thermometers or manometers). They are considered as a sub-group of chemical waste and **do not have to be treated in the machine**. They should be treated specifically.

PRESSURIZED CONTAINERS



Pressurized containers consist of **full or emptied containers or aerosol cans with pressurized liquids, gas or powdered materials**.

This type of waste does not have to be treated in the machine.

SMALL SHARP OBJECTS



Sharps are **items that can cause cuts or puncture wounds (needle stick injuries for instance)**. Whether they are infected or not, they are considered as highly dangerous and potentially infectious waste. They must be **segregated, packed, and handled specifically** within the Healthcare Facilities to ensure the safety of the medical and ancillary staff.

They can be easily treated in the machine.

HIGHLY INFECTIOUS WASTE



Highly infectious waste consists in **microbial cultures and stocks of highly infectious agents from Medical Analysis Laboratories**. They also include **body fluids** of patients with highly infectious diseases.

This type of waste can be easily treated in the machine.

GENOTOXIC / CYTOTOXIC WASTE



Genotoxic waste derives from drugs generally used in oncology or radiotherapy units that have a high hazardous mutagenic or cytotoxic effect. Feces, vomit or urine from patients treated with cytotoxic drugs or chemicals should be considered as genotoxic. In specialized cancer hospitals, their proper treatment or disposal raises serious safety problems.

Consequently, they do not have to be treated in the machine.

RADIOACTIVE WASTE



Radioactive waste **includes liquids, gas and solids contaminated with radionuclides whose ionizing radiations have genotoxic effects.**

The type of radioactive material used in HCF results in low level radioactive waste. It concerns mainly therapeutic and imaging investigation activities where Cobalt 60Co, Technetium 99mTc, iodine 131I and iridium 192Ir are most commonly used.

This type of waste does not have to be treated in the machine.

LIQUID INFECTIOUS WASTE



Are considered as liquid infectious waste any body fluid such as blood, urine, stool, waste, or other liquids that have been potentially contaminated. **Liquid waste that does not exceed 30% of the total volume of the loading chamber* may be treated with infectious waste.**



Are considered as liquid infectious waste any body fluid such as blood, urine, stool, waste, or other liquids that have been potentially contaminated. **Liquid waste does not have to exceed more than 30% of the total volume of the loading chamber* and must be eliminated according to the specifications formulated on each container.**

They do not have to be treated in the machine.

*Example: For a STERIPLUS 80, the loading chamber capacity is 80L, the liquids to be treated should not exceed a total of 24L (30% of 80L is equal to 24).

LARGE METALLIC PIECES



Large metallic pieces include **stainless steel parts over 5mm thick, titanium prostheses and large metal instruments such as pliers, large scissors, etc.**

This type of waste does not have to be treated in the machine.

TEXTILE WASTE



Textile waste refers to **woven materials** such as blouses, pants, shoes, and sheets that can easily roll up, get stuck and block the shredder.

This type of waste does not have to be treated in the machine.

OTHER WASTE



Other wastes such as **soft or rigid plastics, rubber, paper, cardboard, and glass** can be treated.

This type of waste can be easily treated in the machine.



Household waste cannot and should not be processed by the machine (e.g. books, cd's, household trash, non-autoclavable bags, etc.).

4.2 CONSEQUENCES

Non-compliance with the above-mentioned processing rules (see 4.1) can have **serious consequences for both the machine and the user**:

Loading unauthorized waste, such as textiles, large metal parts or household waste, can lead to **rapid wear and tear**, blockage, or breakage of the shredder as well as the gearbox.

Unauthorized chemicals and pharmaceuticals can cause **uncontrolled and unpredictable reactions** that can have serious consequences for the user and the machine, such as allergic reactions, risk of corrosion, explosion, fire, escape of toxic or contaminated gases.

It is consequently essential to **ensure that all restrictions imposed on the type and nature of waste to be treated are respected** in order to preserve the **proper functioning of the machine** and **prevent premature wear and tear**.



5 - USE OF THE MACHINE

5.1 STARTING UP THE MACHINE

The power switch is located at the rear of the machine. Turn it to the "ON" position to start the machine.



OFF



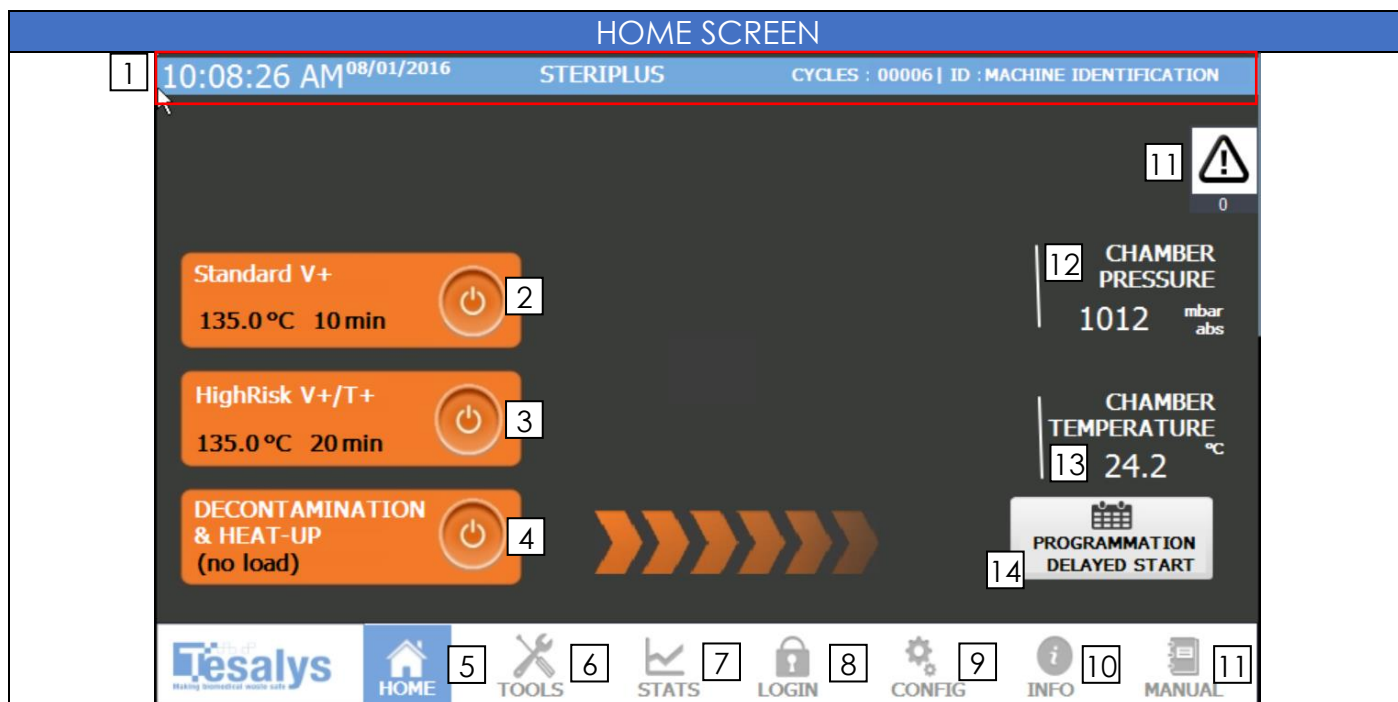
ON



After switching on the machine, the touch screen (located on the front side on the machine) starts and enter automatically in the user program.

5.2 HOME SCREEN OF THE MACHINE

Below you will find the home screen of the machine with the explanation of each of the buttons that compose it.



1 Date and time banner

This banner displays standard information such as time, date, machine name, number of cycles...

2 Standard cycle button

Press the round button to start a standard cycle.

3 High Risk cycle button

Press the round button to start a High-Risk cycle.

4 Decontamination and Heat-up cycle button

Press the round button to start a Decontamination and Heat-up cycle.

5 Home button

This button displays the home screen (current screen – highlighted in blue)

6 Tools button

This button will display the TOOLS screen

7 Stats button

This button will display the STATS screen

8 Login button

This button will display the LOGIN Screen

9 Config button

This button will display the CONFIG screen

10 Info button

This button will display the INFO screen

11 Manual button

This button will display the MANUAL screen

12 Chamber pressure

This is the display of the current chamber pressure. It is measured in millibars (absolute pressure).

13 Chamber temperature

This is the display of the current chamber temperature

14 Programmation delayed start

This button will allow you to set up a delayed start of the machine.

5.3 DELAYED START OF A CYCLE

HOME SCREEN – DELAYED START	
11:23:02 AM 12/08/2020 STERIPLUS CYCLES : 00014 ID : MACHINE IDENTIFICATION	
TIME SETPOINT DELAYED START	1 0 H 0
REMAINING TIME DELAYED START	2 0 H 0 MN
HOME TOOLS STATS LOGIN CONFIG INFO MANUAL	
1	Time setpoint delayed start
Enter here a number (hours) to delay the start of the next cycle. E.g. If it is 2PM and you enter 3, the next cycle will start at 5PM	
2	Remaining time delayed start
This is an automatic countdown until the start of the next delayed cycle. It is also visible on the HOME screen	

5.4 RUNNING OF A CYCLE

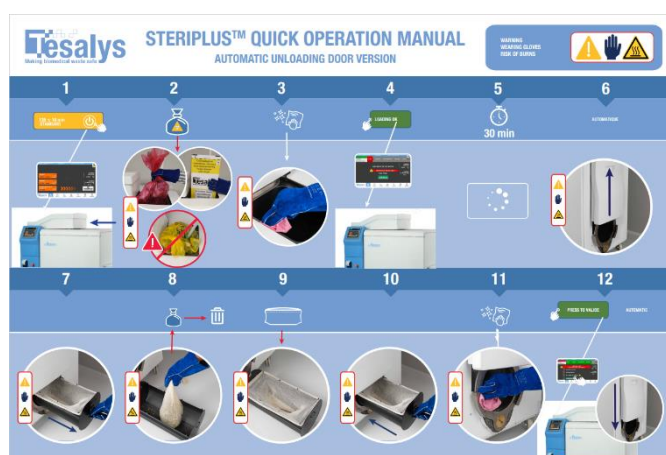
STERIPLUS™ 80 machines are equipped with **an automatic unloading door**.

The poster below was designed to be displayed in the room where the machine is installed. A version of this poster is delivered with the machine, it **must be** displayed in such a way as to be clearly visible to any user.

5.5 CYCLES OF THE MACHINE

STANDARD CYCLE

Machine equipped with automatic loading and unloading doors.



Find the A4 version in [appendix 6](#)

SPECIAL CYCLES

- Decontamination cycle
- Virus + cycle

The indications **in orange** in each table correspond to the actions to be carried out by the user to start a cycle.

5.5.1 STANDARD CYCLE - AUTOMATIC UNLOADING DOOR

1 – HOME SCREEN & CYCLE LAUNCH



After the machine is switched on (see 5.1), the control touch screen, the air compressor and the steam generator start up.

The home screen proposes **three decontamination cycles**:

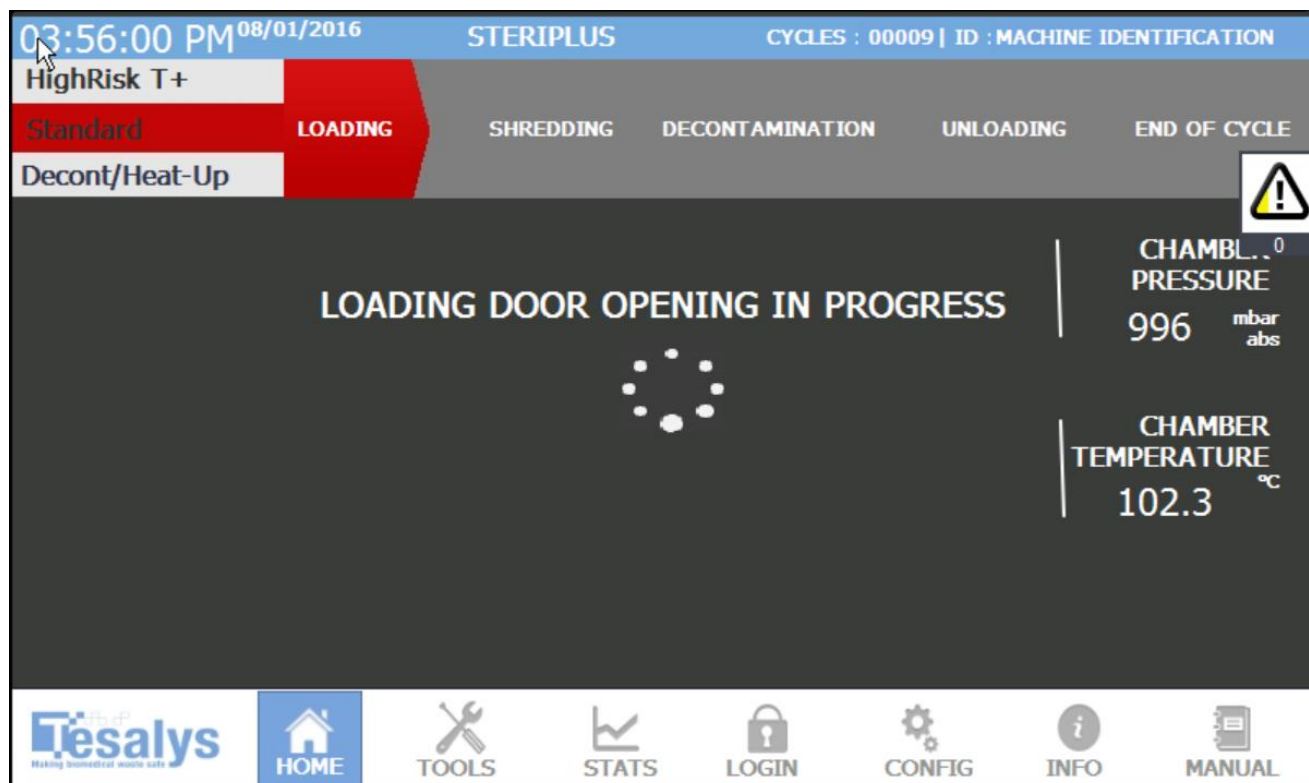
The STANDARD cycle corresponds to a 10 min waste treatment cycle. It is the **classic cycle**.

The HIGH-RISK cycle corresponds to a waste treatment cycle of 20 min. It is a longer decontamination time cycle in case the waste loaded in the machine is highly infected.

The DECONTAMINATION & HEAT-UP cycle is a special waste treatment cycle. Refer to section 3.4 Special Cycles below.

Select the required cycle on the touch screen by pressing the round button  to trigger the opening of the loading door.

2 – CLEANING BEFORE LOADING



After **selecting and pressing one of the cycles on the touch screen**, the loading door located above the machine **automatically slides to the left**.

After opening the loading door and before loading the waste into the chamber, it is important to **briefly clean the upper part of the hopper (1) with a dry cloth**.

(1) Upper part of the pressure vessel where the waste is loaded.

3 – WASTE LOADING

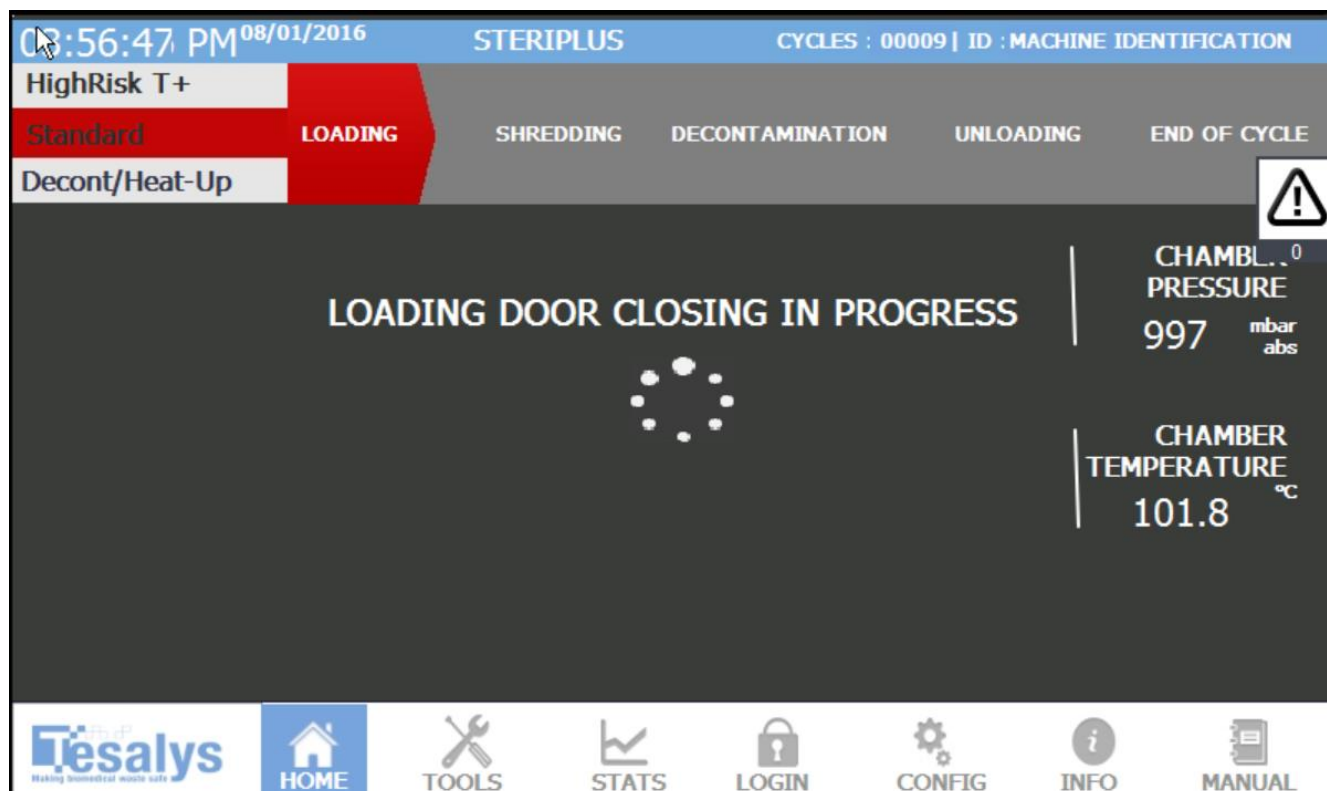


Load the waste into the bags and/or boxes (see 2.4 Accessories) **into the machine by the loading door**, making sure that nothing protrudes from the loading door or that it does not obstruct the system:

- **Do not load waste beyond the upper limit** of the loading chamber.
- **Do not push or squeeze** the waste boxes and bags (either manually or with a tool).
- **Do not attempt to overload the system.** Overloading the machine may result in longer cycles and possible shredding errors.

Once the loading phase is completed, **start the cycle by pressing the button**  **on the touch screen.**

4 – LOADING DOOR CLOSING AND STARTING OF A CYCLE

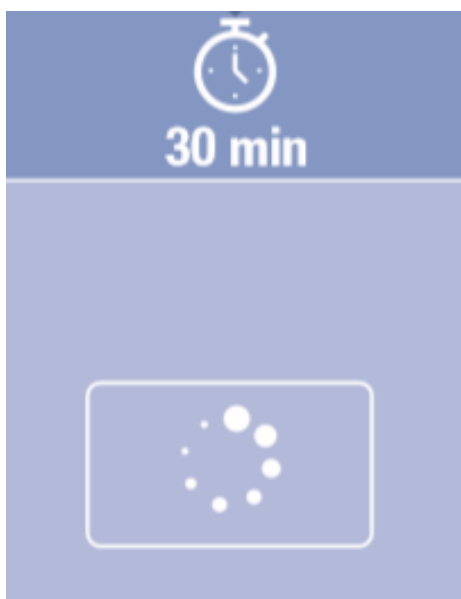


The loading chamber door closes automatically.

The cycle will now start and **run automatically** until the unloading phase.

All intermediate steps will be managed automatically by the machine and will not be accessible to the user. (I.e. grinding, decontamination, effluent draining, and pressure regulation).

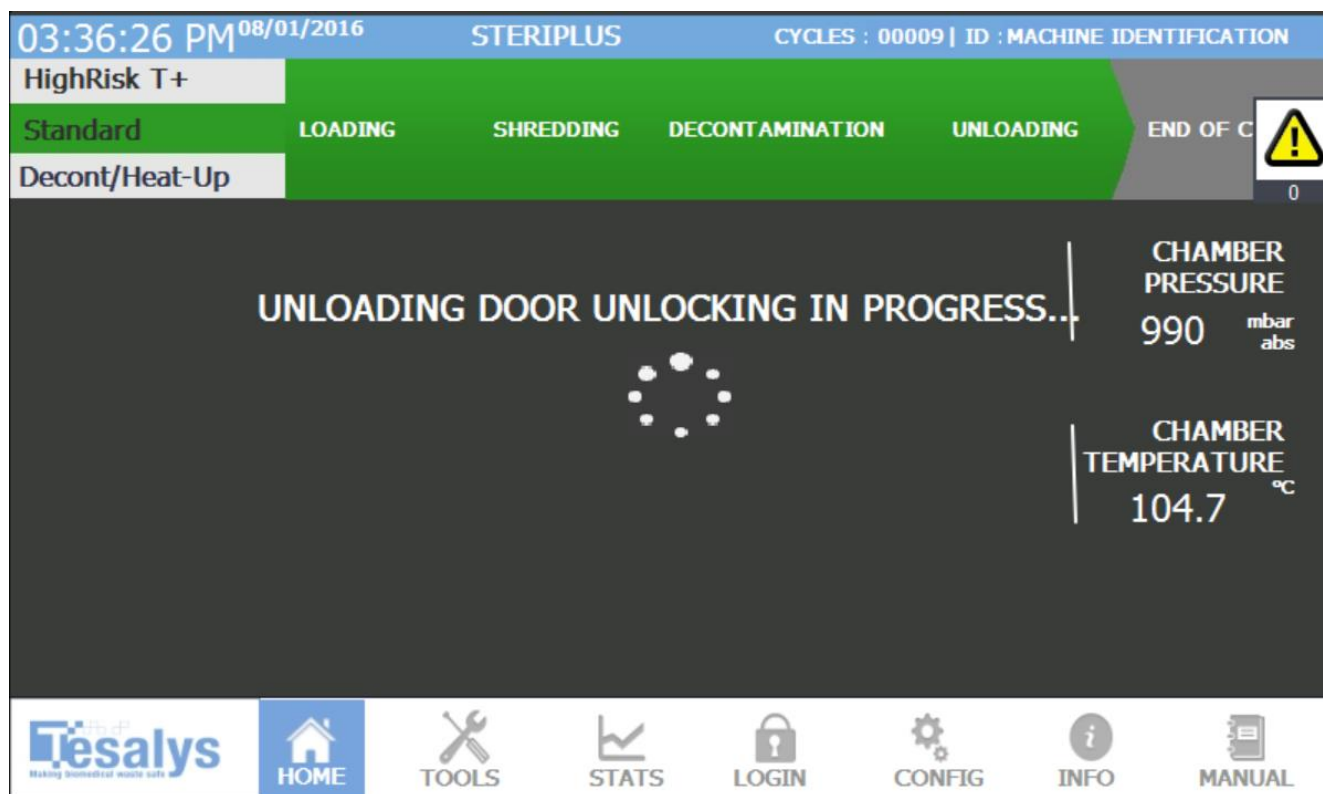
5 – RUN OF THE CYCLE



The treatment cycle will now **start and run automatically through the following phases:**
Shredding, decontamination, effluent draining, and pressure regulation.

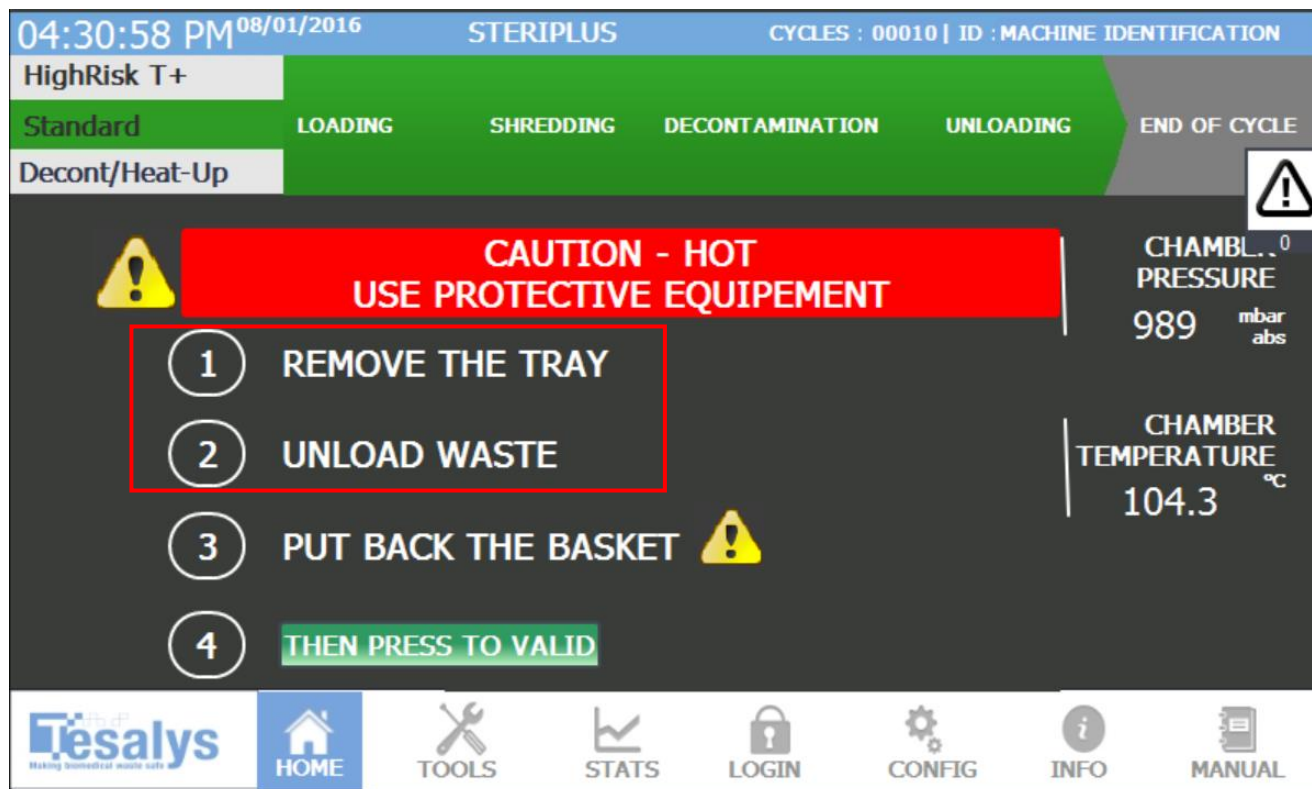
Find all the screens displayed during the cycle in [appendix 3](#).

6 – END OF DECONTAMINATION



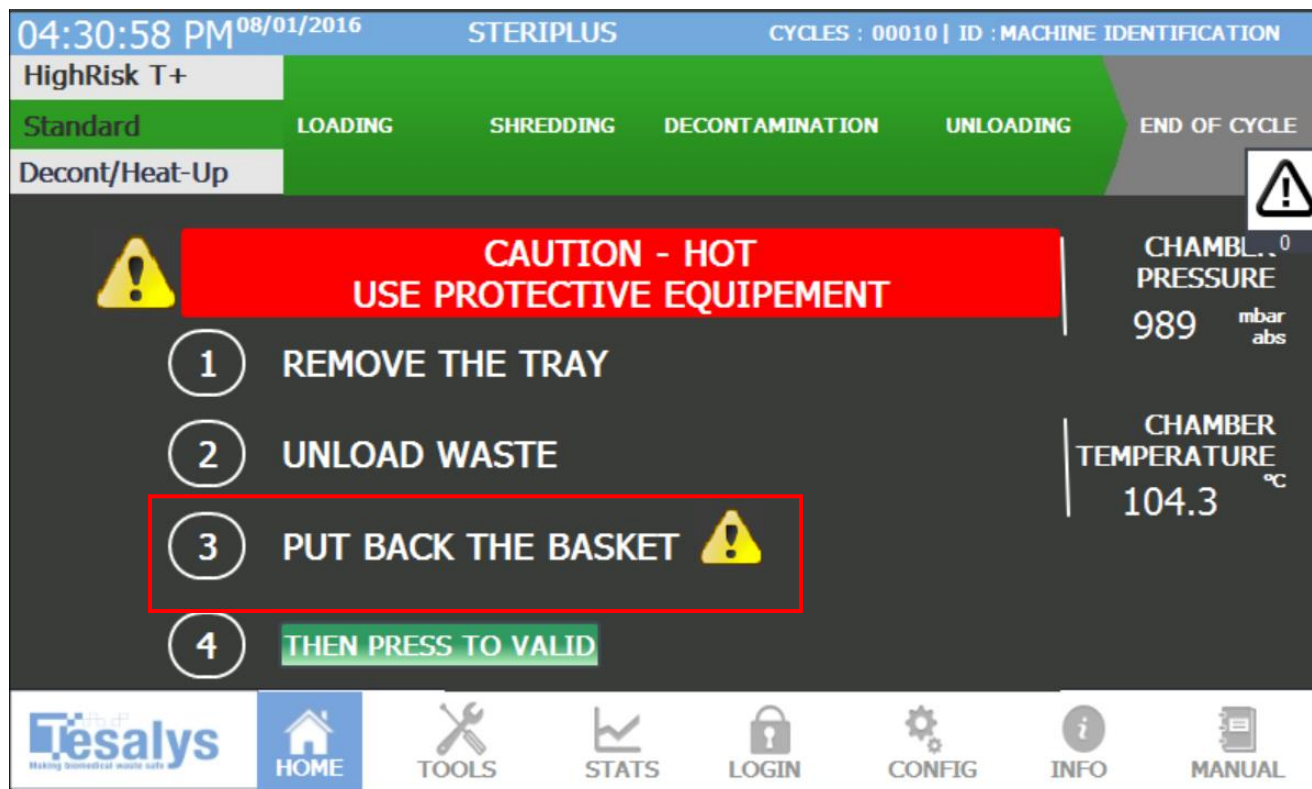
At the end of the decontamination phase, **the unloading door opens automatically.**

7-8 – UNLOADING AND WASTE DISPOSAL



After the automatic opening of the unloading door, **wait a few seconds** to let the remaining steam escape, then **put on the thermal gloves (supplied with the machine) and pull the unloading basket outwards, taking care not to burn yourself. Empty the contents of the basket into a classic garbage can or, if using the TESANET net, remove it and throw it directly into the garbage can.**

9-10 – PREPARATION FOR THE NEXT CYCLE



After throwing all of the solid waste into the trash, **make sure no residue remains in the basket, in which case clean the surface briefly before replacing the basket.**

If TESANET nets are used, the basket does not need to be brushed or cleaned, a new net can be installed directly.

After putting the empty basket back in, it is strongly recommended **to briefly clean the surface of the basket and the treatment chamber before sliding it back inside again.** A second basket can also be used to start a new cycle more quickly.

(Additional baskets are available on quotation. ref: PAN20 / PAN40 / PAN80)

11 – END OF CYCLE VALIDATION

04:30:58 PM 08/01/2016 STERIPLUS CYCLES : 00010 | ID : MACHINE IDENTIFICATION

HighRisk T+ Standard LOADING SHREDDING DECONTAMINATION UNLOADING END OF CYCLE Decont/Heat-Up

**CAUTION - HOT
USE PROTECTIVE EQUIPEMENT**

- 1 REMOVE THE TRAY
- 2 UNLOAD WASTE
- 3 PUT BACK THE BASKET
- 4 **THEN PRESS TO VALID**

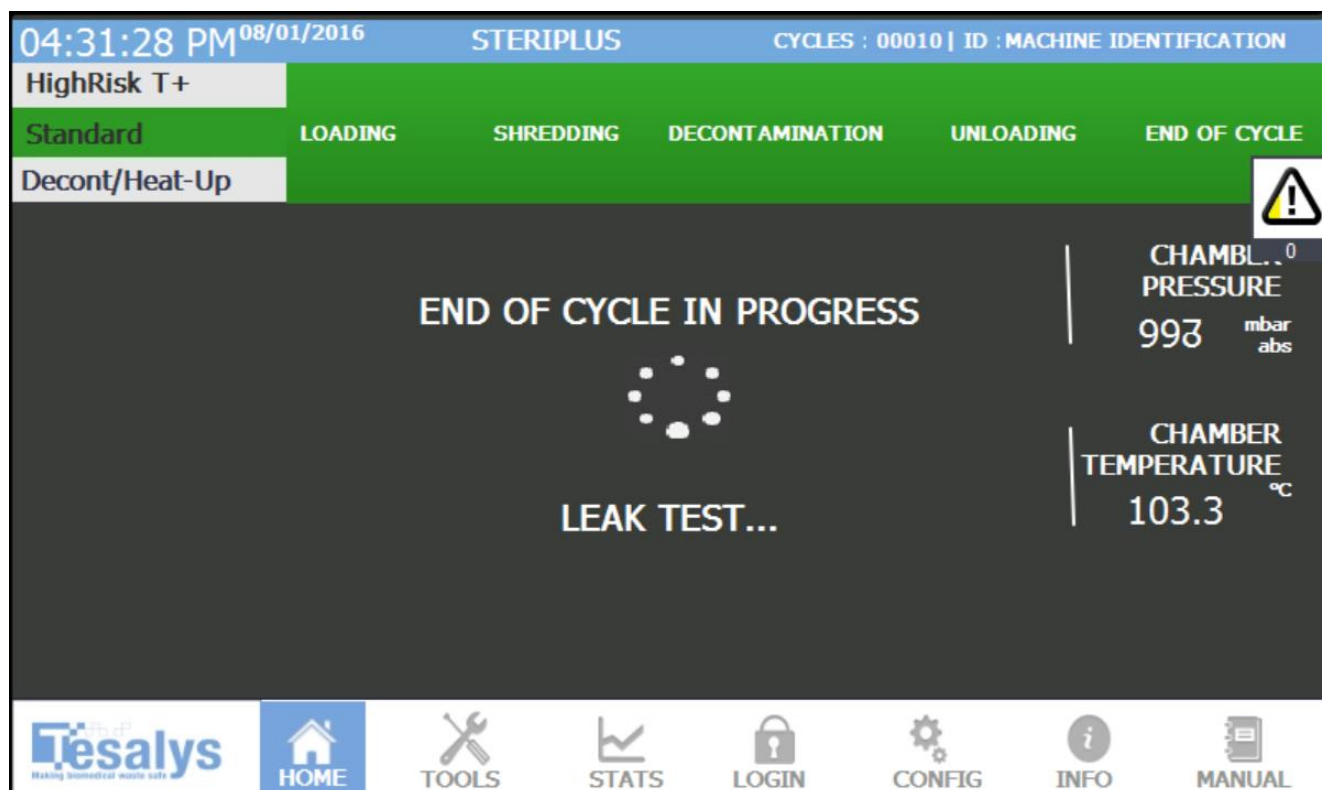
CHAMBL...⁰
PRESSURE
989 mbar abs

CHAMBER
TEMPERATURE
104.3 °C

Tesalys HOME TOOLS STATS LOGIN CONFIG INFO MANUAL

Once the waste has been unloaded and the basket put back into the unloading door, **press the button THEN PRESS TO VALID on the touch screen.**

12 – END OF CYCLE



After validation, the **unloading door closes automatically**.

After the door closing, the machine **automatically carries out a leak test** to ensure that the tank is completely sealed/tight (and therefore ensure that the next cycle will be carried out correctly).

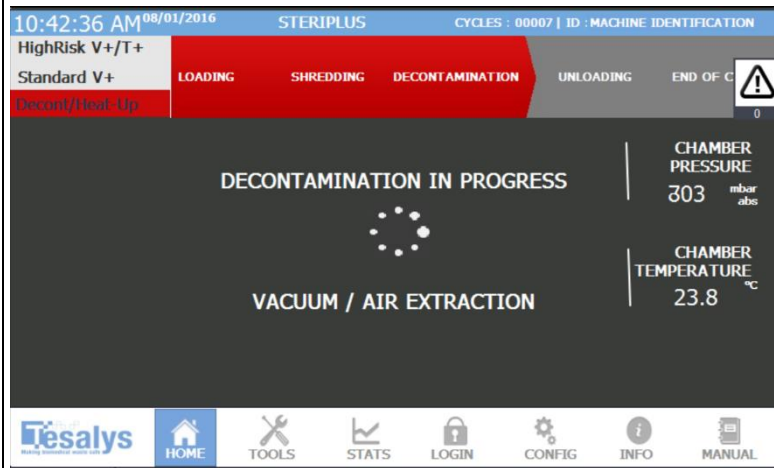
If the test is satisfactory, the machine automatically returns to the "LOAD" mode and is ready to start a new cycle.

5.5.2 DECONTAMINATION CYCLE

The decontamination cycle is a **heating cycle with no waste loading or shredding operations**. It **starts automatically** whatever the selected cycle (Standard, High Risk) **when the machine is considered cold**, i.e. below 40°C. Its cycle length will be the same as that of the last cycle ran on the machine, i.e. 10 min if it was a "STANDARD" cycle and 20 min for a "HIGH RISK" cycle. It is a cycle that is necessarily done without load (the loading door will not open). It allows to **preheat the machine and to carry out a pre-decontamination before the loading of the first cycle**.

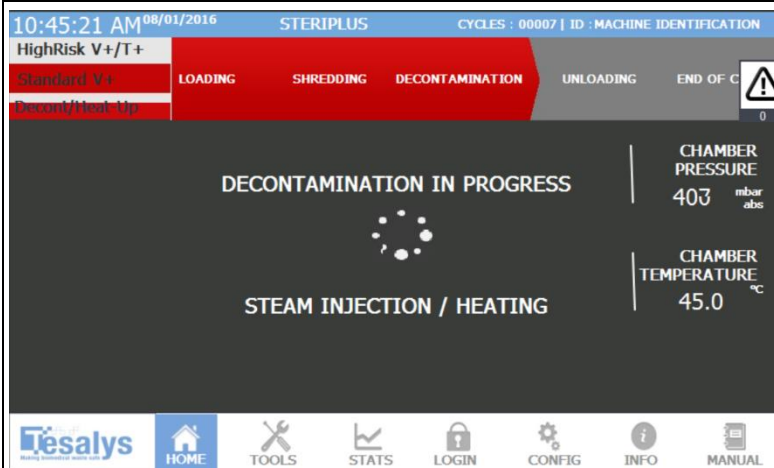
The following are elements that differentiate the decontamination cycle:

1 – STARTING OF THE CYCLE – VACUUM PHASE



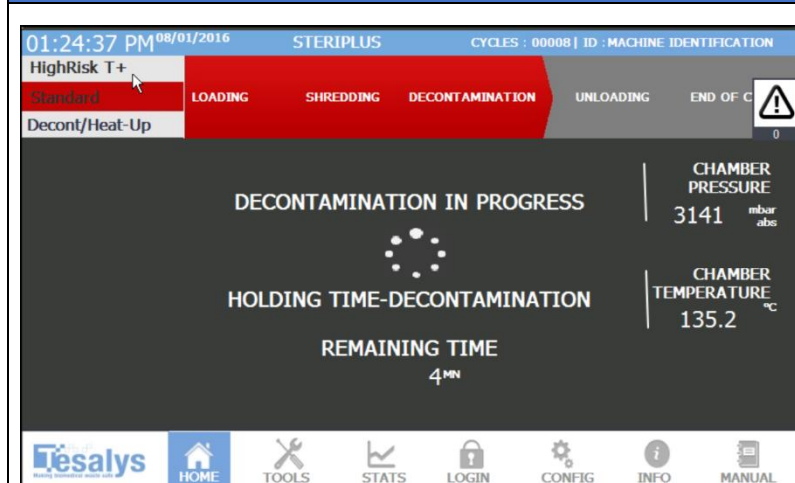
The cycle starts directly in the **decontamination phase with the vacuum step**. In other words, **there is no grinding during a decontamination cycle**.

2 – STEAM INJECTION



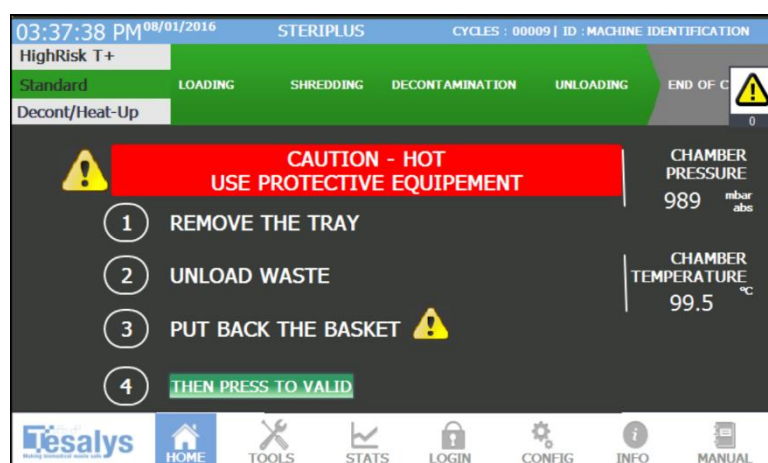
The machine **injects steam** to reach a **temperature of 135°C** throughout the chamber. The cycle will then run as a standard cycle until the decontamination is completed.

3 – DECONTAMINATION



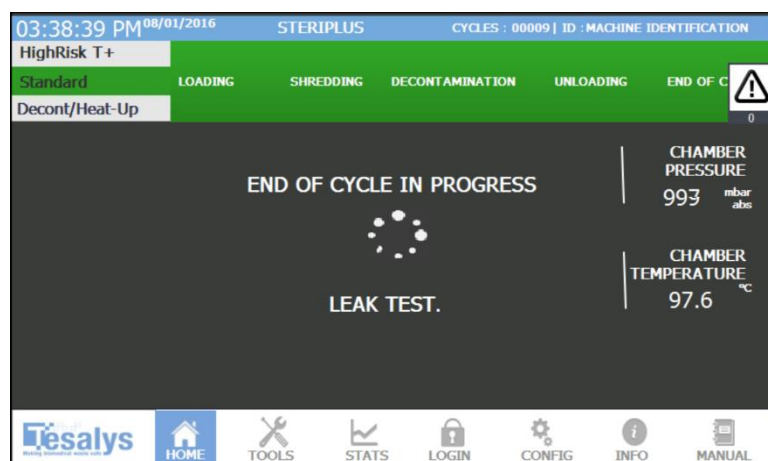
When the temperature of 135°C is reached, the machine starts **the decontamination of the chamber**.

4 – END OF CYCLE



At the end of the cycle, since no waste has been loaded into the machine, **press directly on the button THEN PRESS TO VALID** in order to validate the closing of the unloading door.

5 – LEAK TEST



A **leak test starts automatically** at the end of each cycle and the home screen is displayed again to start a new cycle.

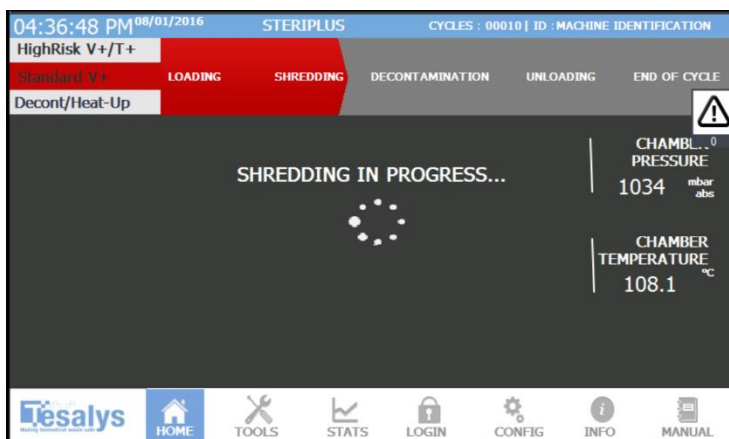
5.5.3 VIRUS + CYCLE

The special "**Virus +**" cycle is optional (Ref.: KI-0025). It is a cycle of **high decontamination**, specially developed for the **treatment of waste infected with viruses that are difficult to eradicate**. This program includes a pre-decontamination phase after shredding at a **minimum temperature of 83°C** (configurable) for 15 minutes to ensure the destruction of viruses even before the standard decontamination cycle starts. The air extracted from the chamber after the pre-vacuum phase is efficiently filtered through a **0.2 µm microbiological filter** to ensure that pathogenic microorganisms are not released into the ambient air. The "Virus +" program provides **double security against viruses**.

Please note that the "Virus +" program can only be activated by your distributor or your competent technical service.

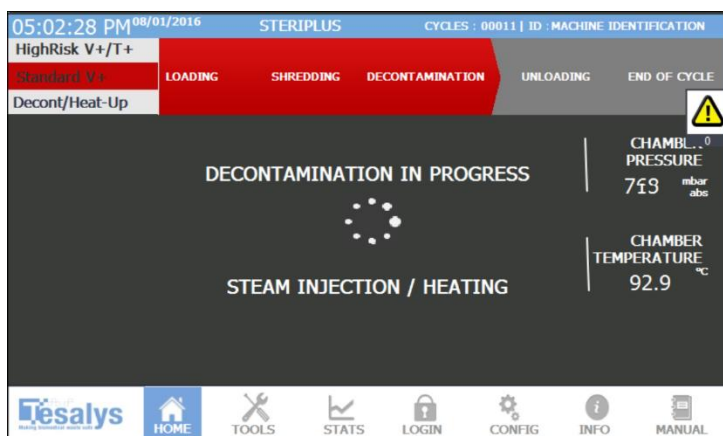
The steps indicated below are those of a standard cycle, after loading the waste, including the "Virus +" program:

1 – START OF THE CYCLE – SHREDDING PHASE



The cycle starts with a **shredding phase**.

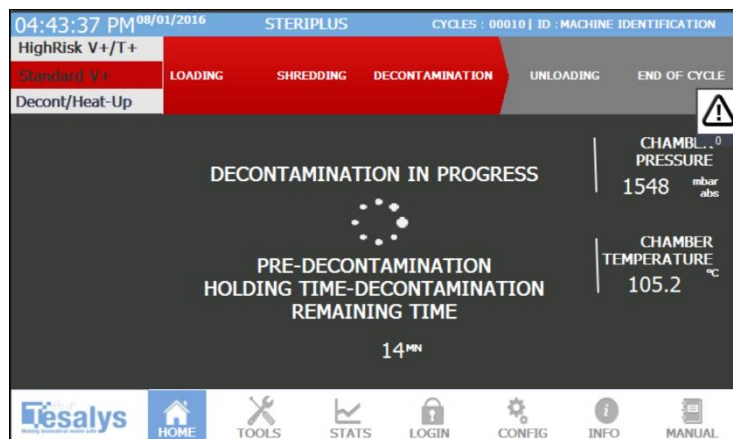
2 – STEAM INJECTION - HEATING



The next step is a steam injection in order to reach a **temperature of 83°C** throughout the chamber.

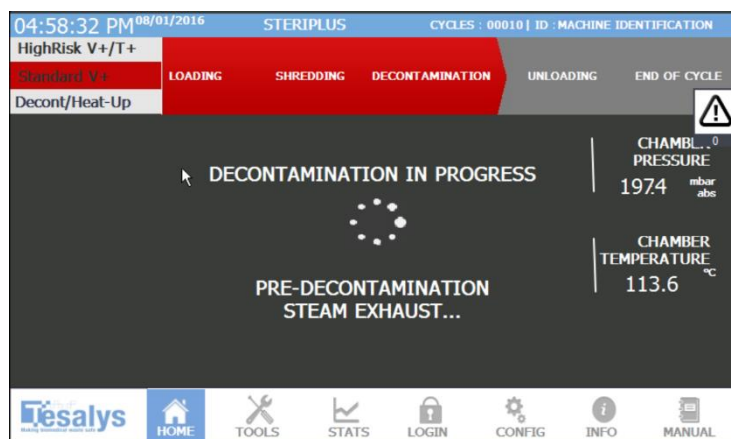
Caution: If the temperature of the machine is low at the time the cycle was started, it may be necessary to restart steam injection once (or twice). Simply press the button that will appear on the screen.

3 – PRE DECONTAMINATION



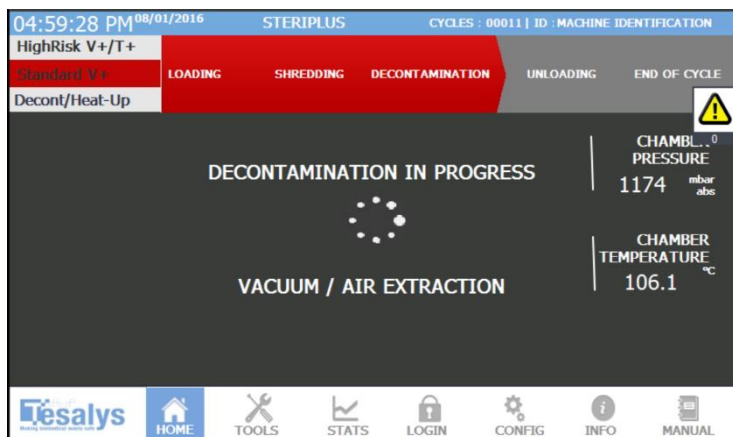
When the temperature of 83°C is reached, the machine starts the **pre-decontamination plateau**.

4 – STEAM EXHAUST



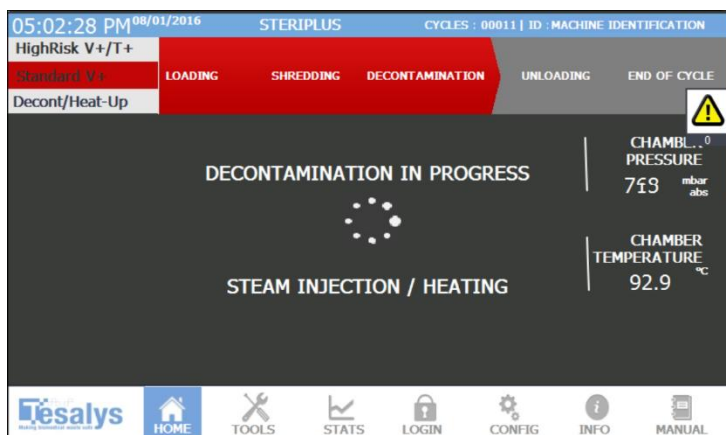
Once the pre-decontamination plateau is completed, **the steam is evacuated through the biological filter**.

5 – VACUUM PHASE



The machine then starts a **vacuum phase**.

6 – END OF CYCLE

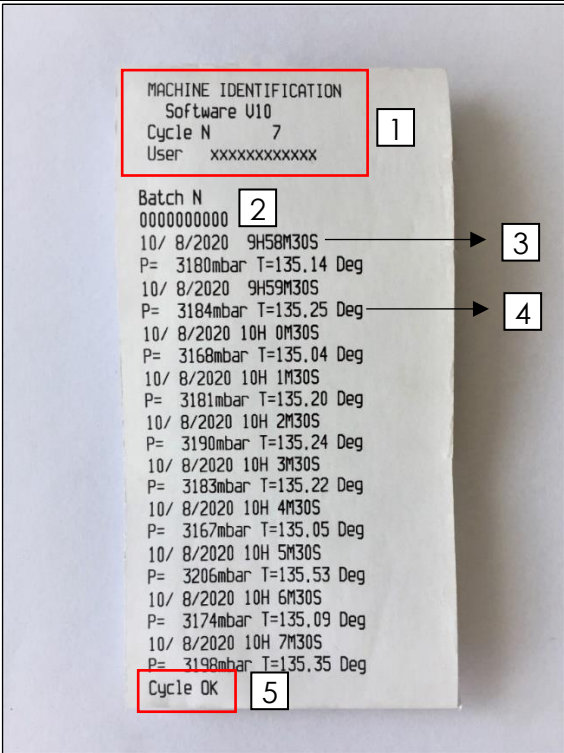


Then the **steam injection** starts again, and the cycle will continue as a standard cycle.

6 - MONITORING AND CONTROL OF THE CYCLE

6.1 CYCLE CONTROL ELEMENTS

6.1.1 TRACKING TICKET

TRACKING TICKET	
	
1	Identification of the machine <i>This part identifies the machine, the software, the cycle number and the user.</i>
2	Batch <i>This part indicates the name of the cycle that can be customized in the INFO part (see INFO touch menu) ex: BATCH TEST COVID</i>
3	Date and time <i>This part indicates the date of the cycle in the form dd/mm/yyyy and the time of data recording in hours minutes and seconds.</i>
4	Pressure and temperature <i>This line shows the pressure (P) and temperature (T) at the date and time indicated on the line above. The data are respectively indicated in millibar (mbar) and degrees (Deg).</i>
5	Cycle OK or Cycle NOK <i>CYCLE OK indicates the end of the cycle. (or CYCLE NOK if the critical parameters have not been respected).</i>

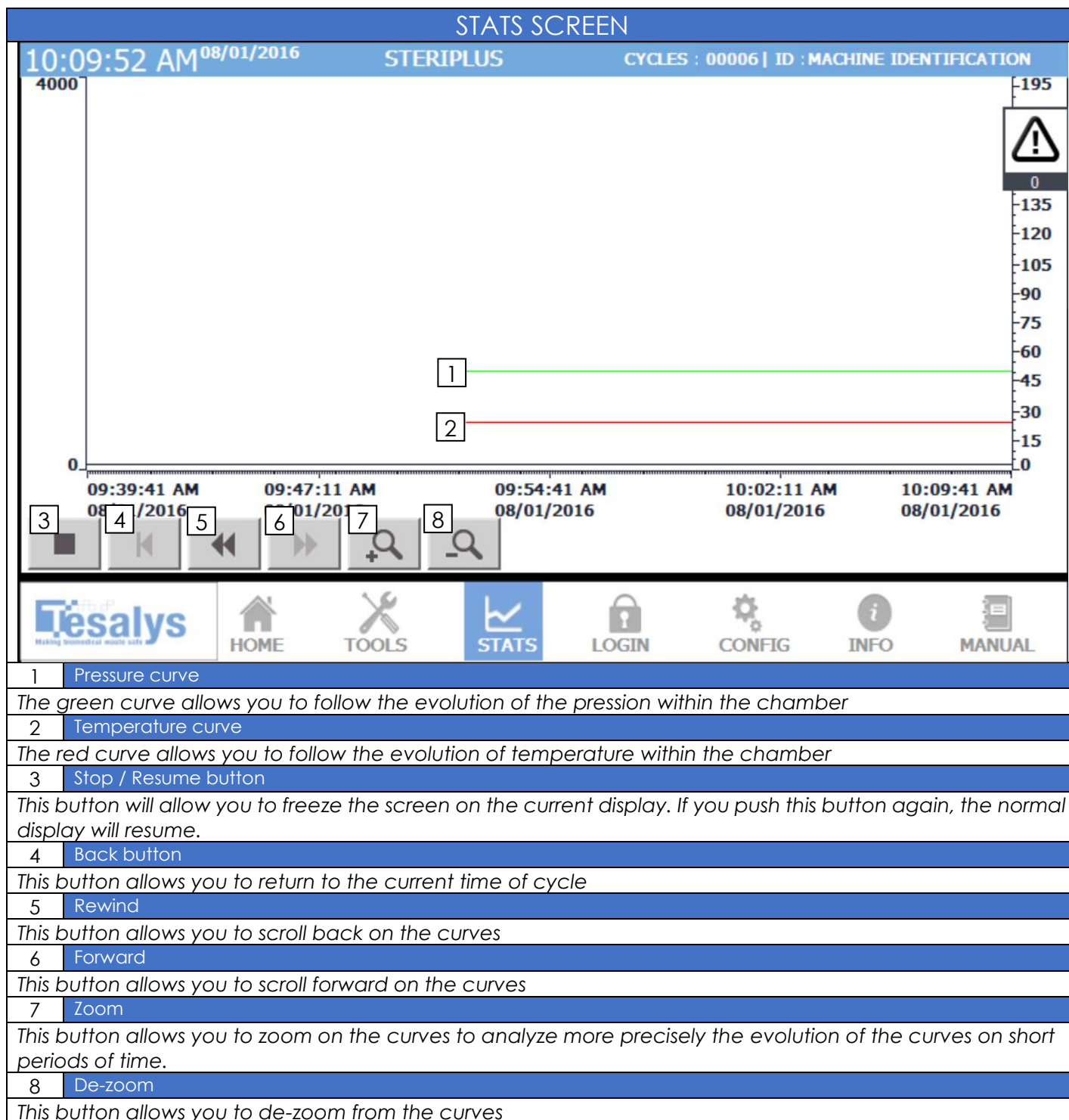
6.1.2 CHANGE OF THE PAPER ROLL

The operation is very simple and possible to perform by the users.

Lift the printer cover and remove the used roll.	
Place the new roll as shown in the picture.	
Close the cover, keeping one side of the roller on the outside.	
Check if the roll is correctly positioned pressing the button twice to release paper.	

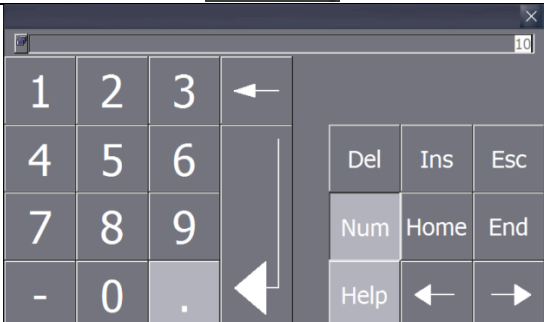
6.1.3 STATISTICS MENU OF THE MACHINE

The "STATS" menu on the touch screen allows you to monitor and control the temperature and pressure levels of the machine during the cycle. The graph allows you to read the data at a specific and precise moment of the cycle by indicating the time and date of the data recording.



7 – TOUCHSCREEN MENU

The icons in the table below can be found on different screens. They are detailed here to ease your user experience.

7.1 PERMANENT ICONS		
		Back <i>When available, this button allows you to get back to the previous screen</i>
		Alarms <i>This button is always displayed with a "0" when no alarms are on. Press it when you see a number appear</i>
		Virtual keyboard <i>Some settings can be modified through this screen. It will pop up when you want to change a setting</i>

The following pages detail only the sections accessible to a user without a password.

Any password-protected section contains technical properties that should not be modified without training and endorsement by Tesimalys.

7.2 TOOLS SCREEN – PAGE 1

10:09:04 AM 08/01/2016
STERIPLUS
CYCLES : 00006 | ID : MACHINE IDENTIFICATION

LOADING DOOR 1
UNLOADING DOOR 2
DOOR INTERLOCK 3
EMERGENCY STOP 4
SAFETY LOOP 5
STEAM GENERATOR
Ready 6
Heating OFF 7
Water Level 8
DRAIN 19
CLOSED
TOOLS 2 20

Atmospheric Press 9
SHREDDER
Torque (intensity) 10 30.0
Rotation 11
CHAMBER
Temperature 12 24.3 °C
Pressure 13 +1012 mbar abs
HOPPER
Temperature 14 24.5 °C
Pusher Position 15 16 17 18
TOP
LEVEL 2
LEVEL 3
BOTTOM


HOME
TOOLS
STATS
LOGIN
CONFIG
INFO
MANUAL

1	Loading door
Green light:	door correctly closed / Red light: door incorrectly closed
2	Unloading door
Green light:	door correctly closed / Red light: door incorrectly closed
3	Door interlock
Green light:	doors correctly locked / Red light: doors incorrectly locked
4	Emergency stop
Green light:	stop deactivated / Red light: stop activated
5	Safety loop
Green light:	Safety loop ok / Red light: safety loop not ok
6	Steam generator – Ready
Green light:	Generator ready / Red light: Generator not ready
7	Steam generator – Heating
	Activates or deactivates the heating of the generator
8	Steam generator – Water level
Green light:	Water level ok / Red light: Water level insufficient
9	Atmospheric pressure
Green light:	Atmos. pressure ok / Red light: Atmos. pressure not ok
10	Shredder -Torque
	Displays the shredder's electrical consumption (in amperes)
11	Shredder – Rotation
	Displays the direction in which the shredder rotates - clockwise or counterclockwise.
12	Chamber – Temperature
	Displays the current chamber temperature
13	Chamber – Pressure
	Displays the current chamber pressure
14	Hopper – Temperature
	Displays the current temperature within the hopper
15	Pusher position – Top
Green light:	current level / Red light: Pusher on another level
16	Pusher position – Level 2
Green light:	current level / Red light: Pusher on another level
17	Pusher position – Level 3
Green light:	current level / Red light: Pusher on another level
18	Pusher position – Bottom
Green light:	current level / Red light: Pusher on another level
19	Drain
	Displays the current status of the drain valve. 2 possible positions: CLOSED or OPEN
20	TOOLS 2
	This button gives you access to the next page of the TOOLS menu

7.3 TOOLS SCREEN – PAGE 2

10:09:28 AM 08/01/2016		STERIPLUS		CYCLES : 00006 ID : MACHINE IDENTIFICATION	
1	Without unloading leak test	☐	OFF	8	
2	Without loading leak test	☒	ON		
3	Enable shredding only	☐	OFF		
4	Enable Pre-Decontamination	☒	ON	Warning : Hardware must be capable	
5	Setpoint shredding cycles	3			
6	Counter shredding cycles	0			

Tesalys		HOME	TOOLS	STATS	LOGIN	CONFIG	INFO	MANUAL
1	Without unloading leak test							
Activates or deactivates the leak test after unloading the waste								
2	Without loading leak test							
Activates or deactivates the leak test before loading the waste								
3	Enable shredding only							
The machine will only shred the waste without decontamination								
4	Enable Pre-Decontamination							
Allows the machine to run a pre-cycle. The machine must be equipped with a specific hardware kit.								
5	Setpoint shredding cycles							
In shredding only mode: number of shredding cycles to be achieved before the opening of the unloading door								
6	Counter shredding cycles							
In shredding only mode: count of shredding cycles achieved since the last door opening								

7.4 CONFIG SCREEN MENU

10:11:51 AM 08/01/2016 STERIPLUS CYCLES : 00006 ID : MACHINE IDENTIFICATION			
1	LANGUAGE	PROGRAM CUSTOMIZATION	MANUAL SERVICE
2	DATE / TIME	PASSWORDS	SETTINGS LEVEL 1
3	BRIGHTNESS SCREEN SAVER	5 SCREEN CALIBRATION	SETTINGS LEVEL 2
4	SCREEN CLEANING	6 MACHINE ID	FACTORY SETTINGS

	HOME	TOOLS	STATS	LOGIN	CONFIG	INFO	MANUAL
--	------	-------	-------	-------	--------	------	--------

1	Language (selection)
Press this button until you find the language that you want to select	
2	Date / Time
Allows you to set up the date and time	
3	Brightness screen saver
Allows you to calibrate the brightness of the screen	
4	Screen calibration
Allows you to calibrate the screen if the precision of the touchscreen changes	
5	Screen cleaning
This option will freeze the screen for a short period of time to allow you a safe cleaning of the screen surface	
6	Machine ID
This section will display information on the machine	

7.5 DATE/TIME

10:12:37 AM 08/01/2016 STERIPLUS CYCLES : 00006 | ID : MACHINE IDENTIFICATION

Date&hour adjust

1

08/01/2016 10:12:33 AM

HOME

TOOLS

STATS

LOGIN

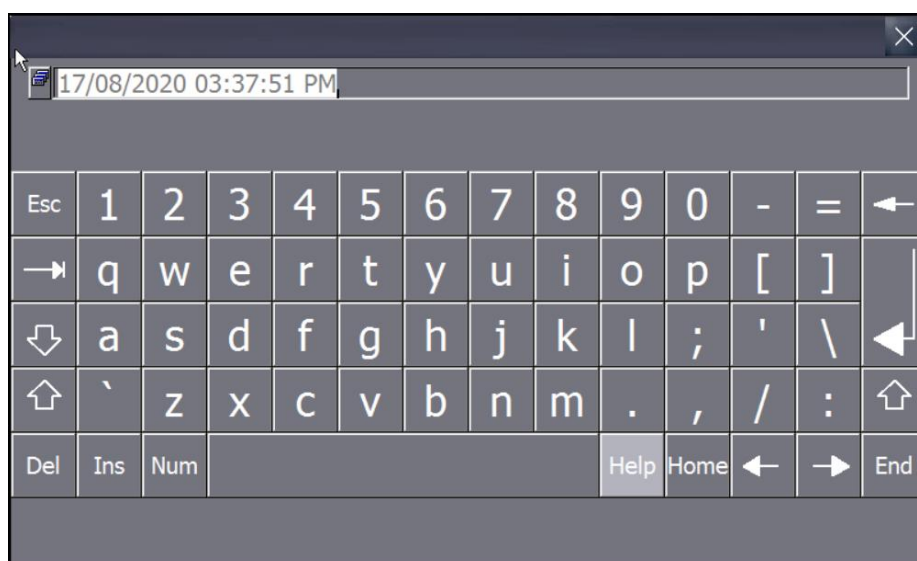
CONFIG

INFO

MANUAL

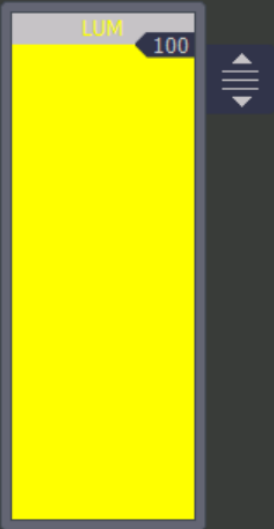
1
DATE & HOUR ADJUST

This field allows you to modify the date and hour to fit the local settings with a virtual keyboard



7.6 BRIGHTNESS SCREEN SAVER

10:13:14 AM 08/01/2016
STERIPLUS
CYCLES : 00006 | ID : MACHINE IDENTIFICATION



HOME

TOOLS

STATS

LOGIN

CONFIG

INFO

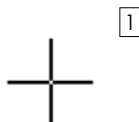
MANUAL

1
BRIGHTNESS ADJUSTMENT

Use the small button to adjust the brightness to your current needs. Limit is 50%

7.7 SCREEN CALIBRATION

Carefully press and briefly hold stylus on the center of the target.
Repeat as the target moves around the screen.



1 SCREEN CALIBRATION

Use this section to calibrate the screen. Follow the instructions on the screen to calibrate it.

7.8 SCREEN CLEANING



Please clean the screen.

1

1

SCREEN CLEANING

A countdown represented by the bar above on the screen will appear. Use this time to safely clean the screen as no input will be taken in account.

7.9 MACHINE ID – PAGE 1

10:17:23 AM
08/01/2016
STERIPLUS
CYCLES : 00006 | ID : MACHINE IDENTIFICATION

Machine number

Machine ID

1

2

Software V11.0.0

MACHINE IDENTIFICATION

Project name:

Creation date

author

Description

Text

Version:

Connection

PLC

SP40_V11_00

18/02/2020

manu

new design

TP700 Comfort 15.0

3

Show The version

ETHERNET

SIMATIC S7 1200

HOME

TOOLS

STATS

LOGIN

CONFIG

INFO

MANUAL

1

Machine number

This line displays the software version

2

Machine ID

This fields allows you to change the machine's designation. The name entered here will be displayed in the banner on top of the screen.



Software V11.0.0

Esc	1	2	3	4	5	6	7	8	9	0	-	=	←
→	q	w	e	r	t	y	u	i	o	p	[	]	↕
↵	a	s	d	f	g	h	j	k	l	;	'	\	↶
↶	`	z	x	c	v	b	n	m	.	,	/	:	↷
Del	Ins	Num							Help	Home	←	→	End

7.10 MACHINE ID – PAGE 2

Components information

Filename	Version
ACE_HMI.dll	V1500.0000.1101.0001
avcodec-57.dll	57.89.100
avdevice-57.dll	57.6.100
avfilter-6.dll	6.82.100
avformat-57.dll	57.71.100
avutil-55.dll	55.58.100
CoRtLibJpeg.dll	6b
Dpslib.dll	V1500.0003.0201.0001
FwBaseRes404.dll	V1500.0003.0201.0001
FwBaseRes405.dll	V1500.0003.0201.0001
FwBaseRes406.dll	V1500.0003.0201.0001
FwBaseRes407.dll	V1500.0003.0201.0001
FwBaseRes408.dll	V1500.0003.0201.0001
FwBaseRes409.dll	V1500.0003.0201.0001
FwBaseRes40A.dll	V1500.0003.0201.0001
FwBaseRes40B.dll	V1500.0003.0201.0001
FwBaseRes40C.dll	V1500.0003.0201.0001
FwBaseRes40E.dll	V1500.0003.0201.0001
FwBaseRes410.dll	V1500.0003.0201.0001
FwBaseRes411.dll	V1500.0003.0201.0001
FwBaseRes412.dll	V1500.0003.0201.0001
FwBaseRes413.dll	V1500.0003.0201.0001
FwBaseRes414.dll	V1500.0003.0201.0001
FwBaseRes415.dll	V1500.0003.0201.0001
FwBaseRes416.dll	V1500.0003.0201.0001
FwBaseRes419.dll	V1500.0003.0201.0001
FwBaseRes41D.dll	V1500.0003.0201.0001

LES : 00020 | ID : MACHINE IDENTIFICATION

11.0.0

0

BACK

IDENTIFICATION

Version

tesalys

HOME

TOOLS

STATS

LOGIN

CONFIG

INFO

MANUAL

3

SHOW THE VERSION

This is just an informative screen. No action can be taken here

7.11 INFO

10:11:07 AM 08/01/2016 STERIPLUS CYCLES : 00006 | ID : MACHINE IDENTIFICATION

1

ALARM

2

ALARM HISTORY

3

STATS HISTORY

4

REPORT

User

5

Batch N°

6

XXXXXXXXXXXX

0000000000

B

0

HOME
TOOLS
STATS
LOGIN
CONFIG
INFO
MANUAL

1	ALARM
	<i>Displays the list of alarms</i>
2	ALARM HISTORY
	<i>Displays the history of alarms</i>
3	STATS HISTORY
	<i>Displays a list of the alarms sent by the machine even after removing them</i>
4	REPORT
	<i>Displays a table with the data (pressure & temperature) collected for the printing of the ticket.</i>
5	USER
	<i>The information entered in this field will be printed on the ticket edited by the machine during the cycle</i>
6	BATCH
	<i>The information entered in this field will be printed on the ticket edited by the machine during the cycle</i>

7.12 INFO – ALARMS

10:39:00 AM^{08/01/2016} STERIPLUS CYCLES : 00006 | ID : MACHINE IDENTIFICATION

No.	Time	Date	Status	Text	Acknowledge group
7	03:38:1...	05/01/2016	AD	vaccum	0
6	03:21:3...	05/01/2016	AD	evacuation door	0
2	06:09:4...	01/01/2016	AD	steam generator water filling	0
1	06:09:2...	01/01/2016	AD	Water Alimentation	0

1 LIST OF ALARMS

Displays the current alarms and the ones that have not been acknowledged

2 TEXT

Displays information on the alarm

3 GROUP ACKNOLEDGEMENT

Does not apply to this software version (no effect)

4 ALARM ACKNOWLEDGEMENT

Acknowledges the alarm and make it disappear

5 REMOVE THE ALARM ICON

Here is the procedure to remove the icon from the screen:

1. Press the button ALARM of the INFO menu (see 7.11 INFO)
2. The screen shown above appears. Once on this menu, acknowledge all the alarms by pressing the icon until all the lines in the list disappear.
3. Once the whole list is empty, the icon disappears from the screen.

7.13 INFO – ALARM HISTORY

10:39:51 AM 08/01/2016 STERIPLUS CYCLES : 00006 ID : MACHINE IDENTIFICATION						
No.	Time	Date	Status	Text	Acknowledge	group
7	04:01:0...	05/01/2016	AD	vaccum	0	
7	03:38:1...	05/01/2016	A	vaccum	0	
7	03:36:1...	05/01/2016	AD	vaccum	0	
7	03:33:1...	05/01/2016	A	vaccum	0	
6	03:22:5...	05/01/2016	AD	evacuation door	0	
6	03:21:3...	05/01/2016	A	evacuation door	0	
6	03:16:1...	05/01/2016	AD	evacuation door	0	
6	12:36:3...	05/01/2016	A	evacuation door	0	
6	07:49:5...	02/01/2016	A	evacuation door	0	
2	06:13:0...	01/01/2016	AD	steam generator water filling	0	
1	06:12:5...	01/01/2016	AD	Water Alimentation	0	
2	06:09:4...	01/01/2016	A	steam generator water filling	0	
1	06:09:2...	01/01/2016	A	Water Alimentation	0	
2	06:08:5...	01/01/2016	AQD	steam generator water filling	0	
1	06:08:5...	01/01/2016	AQD	Water Alimentation	0	
6	08:59:5...	11/12/2019	AD	evacuation door	0	
6	08:58:1...	11/12/2019	A	evacuation door	0	

2

3

4

HOME

TOOLS

STATS

LOGIN

CONFIG

INFO

MANUAL

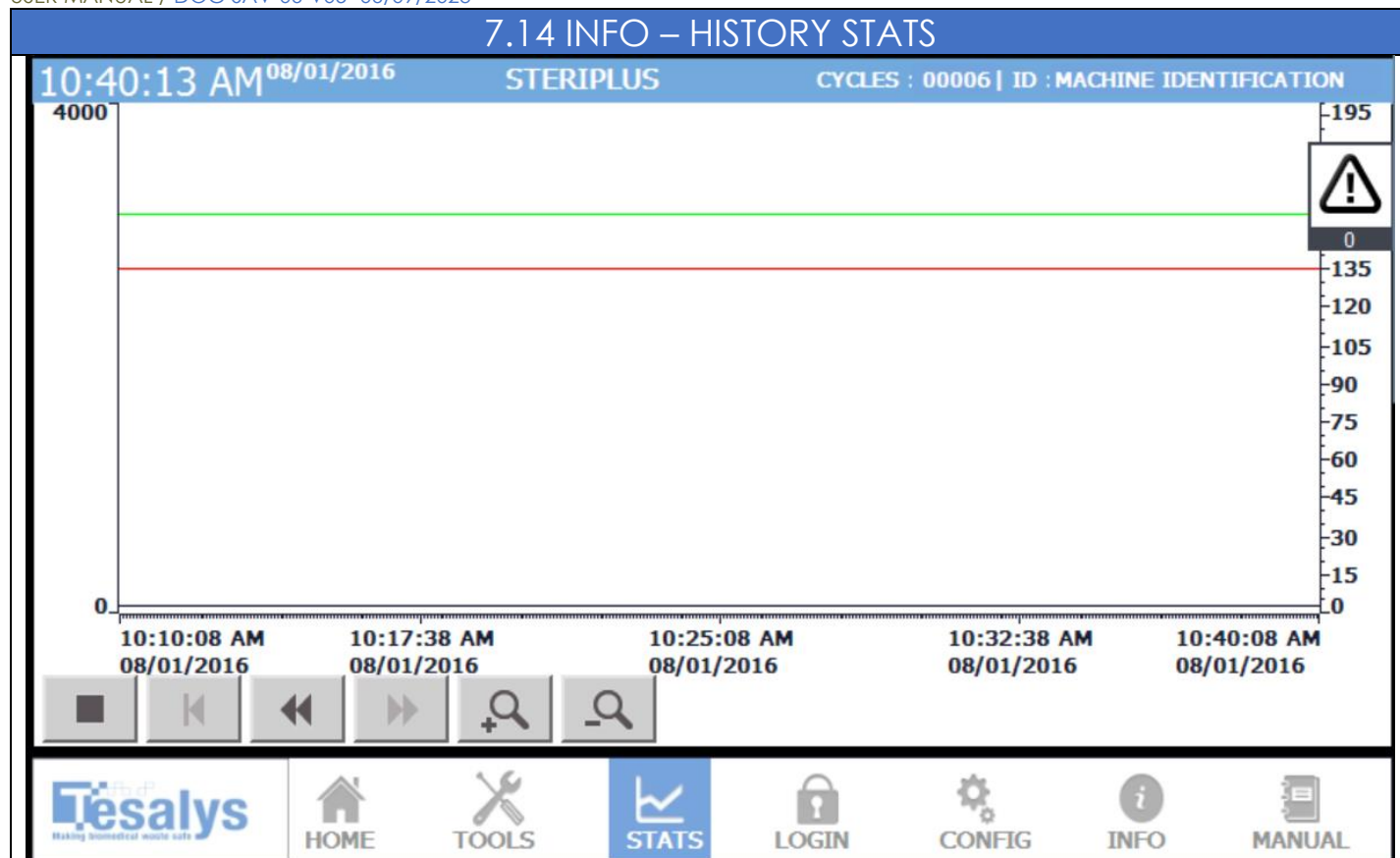
- HISTORY OF ALARMS
Displays the list of alarms
- TEXT
Displays information on the alarm
- GROUP ACKNOWLEDGEMENT
Does not apply to this software version (no effect)
- ALARM ACKNOWLEDGEMENT
Does not work on the history screen

Legend of status

A = appeared – the alarm has appeared

D = Disappeared – the alarm has disappeared (can happen without an action of the user)

AQ = Acknowledged – the alarm has been acknowledged by the user (by pressing a button: see 7.12)



Stats history will send you back to the stats screen. See page 64 for all the details.

7.15 INFO – REPORT

Timer Step: 10 Machine number : Software V11.0.0
Cycle N° : 6 Machine ID: MACHINE IDENTIFICATION

PRINT
PDF

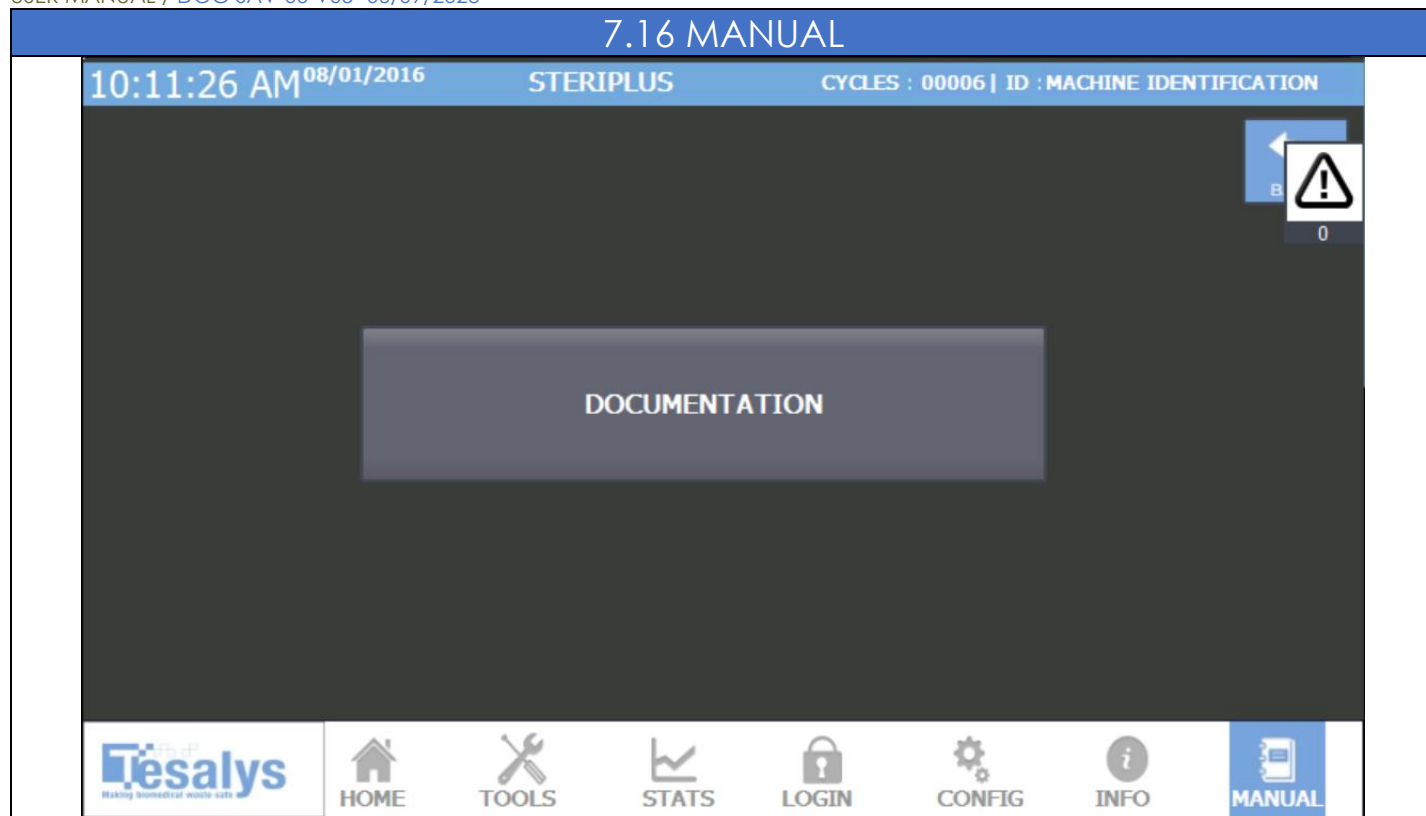


05/01/2016 05:00:54 PM			05/01/2016 04:02:53 PM			05/01/2016 04:02:53 PM		
	mbar	C		mbar	C		mbar	C
	3118	135.0		0	0.0		0	0.0
1	3122	135.0	21	0	0.0	41	0	0.0
2	3135	135.1	22	0	0.0	42	0	0.0
3	3145	135.3	23	0	0.0	43	0	0.0
4	3143	135.3	24	0	0.0	44	0	0.0
5	3145	135.2	25	0	0.0	45	0	0.0
6	3139	135.1	26	0	0.0	46	0	0.0
7	3129	135.1	27	0	0.0	47	0	0.0
8	3119	135.0	28	0	0.0	48	0	0.0
9	3135	135.1	29	0	0.0	49	0	0.0
10	0	0.0	30	0	0.0	50	0	0.0
11	0	0.0	31	0	0.0	51	0	0.0
12	0	0.0	32	0	0.0	52	0	0.0
13	0	0.0	33	0	0.0	53	0	0.0
14	0	0.0	34	0	0.0	54	0	0.0
15	0	0.0	35	0	0.0	55	0	0.0
16	0	0.0	36	0	0.0	56	0	0.0
17	0	0.0	37	0	0.0	57	0	0.0
18	0	0.0	38	0	0.0	58	0	0.0
19	0	0.0	39	0	0.0	59	0	0.0



1 DATA

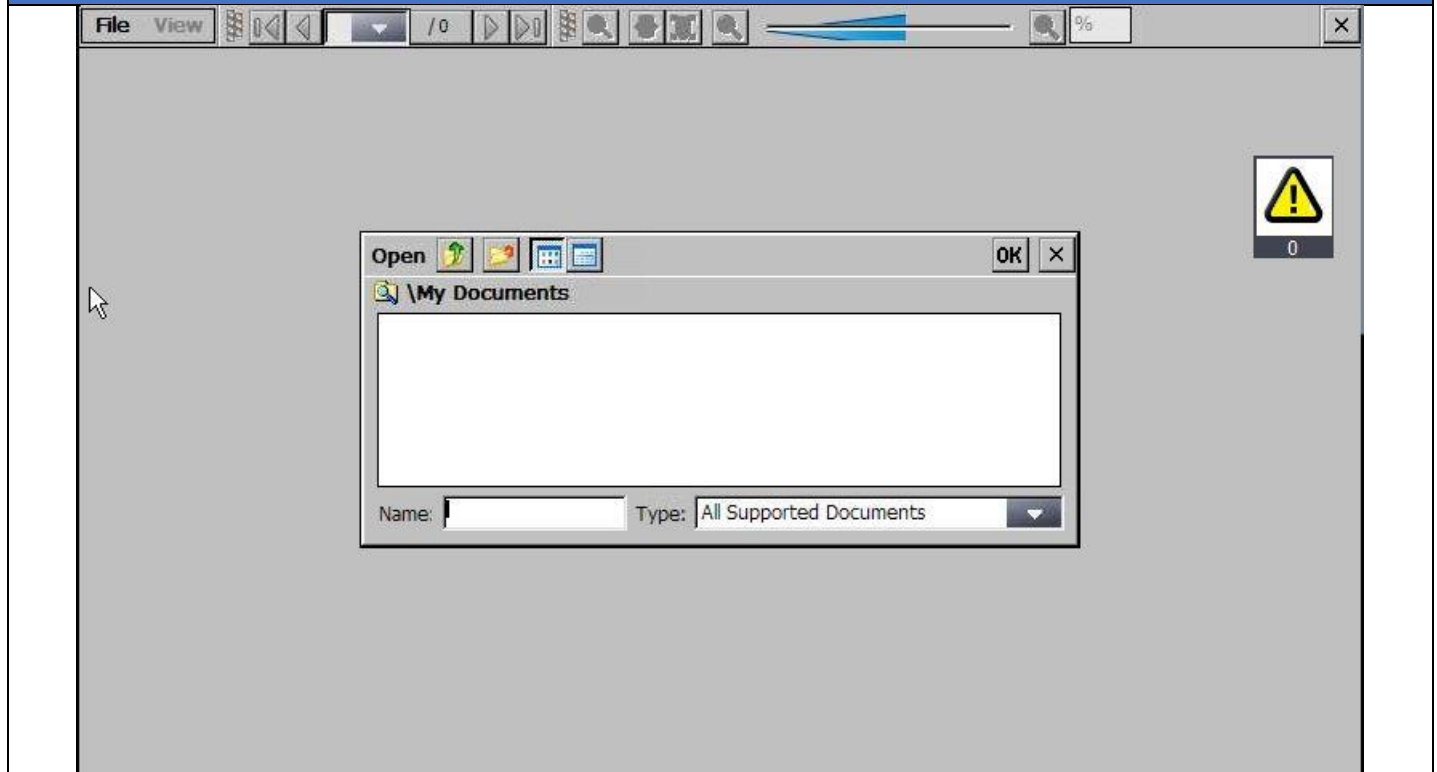
The collected data are printed on the ticket of the machine and saved for the PDF report.



1 DOCUMENTATION

Pressing the documentation button will display the documents loaded in the machine. When delivering the machine there are no documents attached in the section

7.17 MANUAL – DOCUMENTATION



1 MY DOCUMENTS

Loaded documents will appear in My Documents

8 - SAFETY AND MAINTENANCE INSTRUCTIONS

8.1 EQUIPMENT

When you see one of the icons below, please note that the use of an equipment will be necessary. Make sure that you are equipped with the proper protective equipment, tool, part, or consumable required to execute the task correctly.

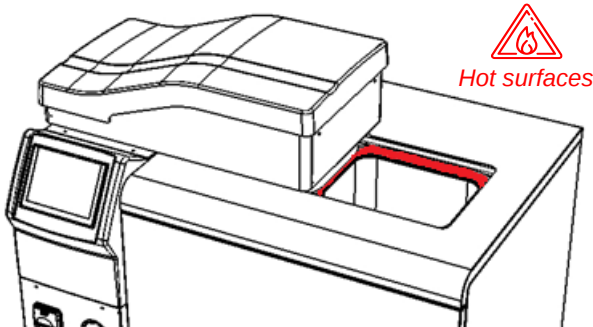
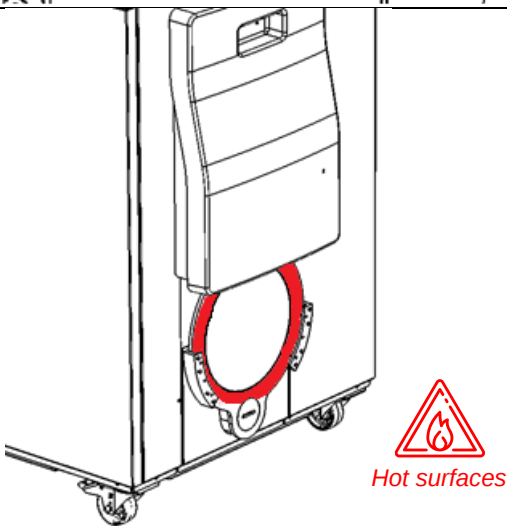
ICONE	DESIGNATION	DETAILS
	Work gloves	The use of standard protecting gloves is recommended for the operation
	Thermic gloves	The use of thermic gloves is recommended for the operation.
	Protective glasses	The use of protective glasses is recommended for the operation
	Paper towel or cloth	Use paper towel or a soft cloth
	Brush	Use a brush adapted to the task. Metallic brushes can be used to clean the grids.
	Spray	Use a non-aggressive cleaning product (usually soap)
	Consumable	Use the recommended consumable for the operation

8.2 USER MAINTENANCE OPERATIONS

8.2.1 DAILY MAINTENANCE

8.2.1.1 Loading and unloading area cleaning

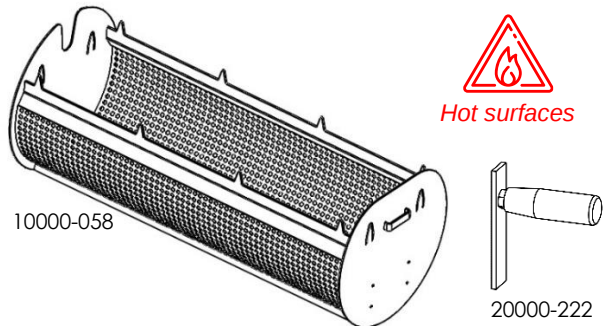
EQUIPMENT	
	

PLAN	STEPS
	The zones highlighted in red must be cleaned during every loading and unloading phases. This flat zone is where the seal inflates, which means that if it is not clean, the seal will inflate on waste or debris. Of course, it can cause an early wear of the seal.
	

These operations should be executed **for every cycle** ran on the machine. The cleaning of the flat surface where the seal inflates is important for multiple reasons:

- It will preserve the lifetime of the seal.
- It prevents it from bursting because of waste leftovers.
- Seals are ensuring the security of the people using the machine.

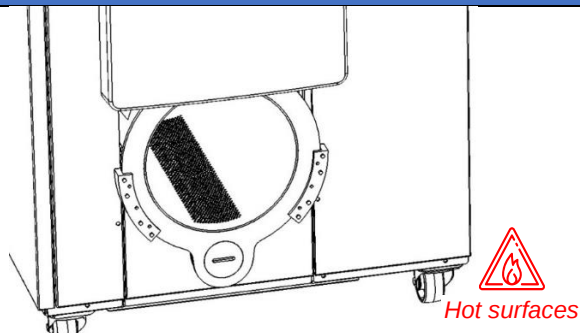
EQUIPMENT			
			

PLAN	STEPS
 10000-058 20000-222 Hot surfaces	- Clean the basket so the holes are not clogged with remnants of waste.

This operation should be done wearing thermic gloves to avoid any burning risk.

PARTS	
10000-058	Metallic basket
20000-222	Basket handle
CO-0040	Tesanet

EQUIPMENT	
	

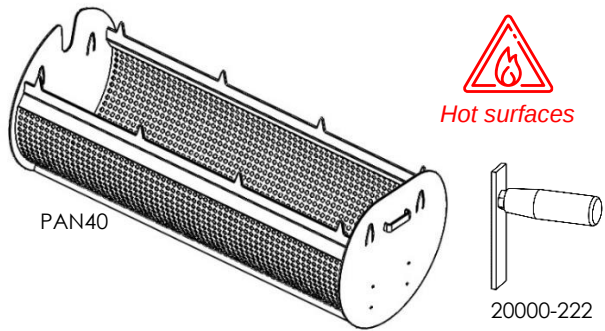
PLAN	STEPS
	- Clean the grid so the holes are not clogged with remnants of waste.

The grid of the chamber needs to be cleaned on a regular basis for the same reason as the metallic basket. Without a regular cleaning the liquids loaded in the machine will not be able to flow to the bottom of the chamber.

8.2.2 WEEKLY MAINTENANCE

8.2.2.1 Metallic basket cleaning – WITH USE OF TESANET

EQUIPMENT			
			

PLAN	STEPS
 PAN40 20000-222 Hot surfaces	- Clean the basket so the holes are not clogged with remnants of waste.

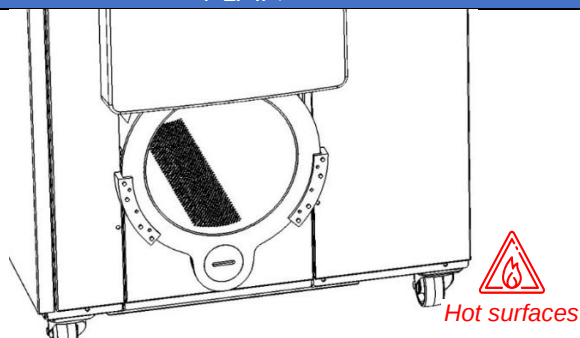
The use of TESANET will reduce the need of cleaning. However, the basket will still need to be regularly cleaned to let the liquids flow easily to the chamber located below it.

This operation should be done wearing thermic gloves to avoid any burning risk.

PARTS	
10000-058	Metallic basket
20000-222	Basket handle
CO-0040	Tesanet

8.2.2.2 Filter grid cleaning – **WITH USE OF TESANET**

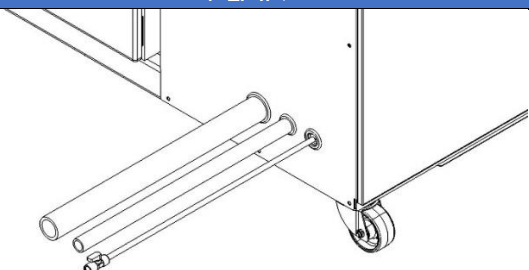
EQUIPMENT	
	

PLAN	STEPS
	- Clean the grid so the holes are not clogged with remnants of waste.

The grid of the chamber needs to be cleaned on a regular basis for the same reason as the metallic basket. Without a regular cleaning the liquids loaded in the machine will not be able to flow to the bottom of the chamber.

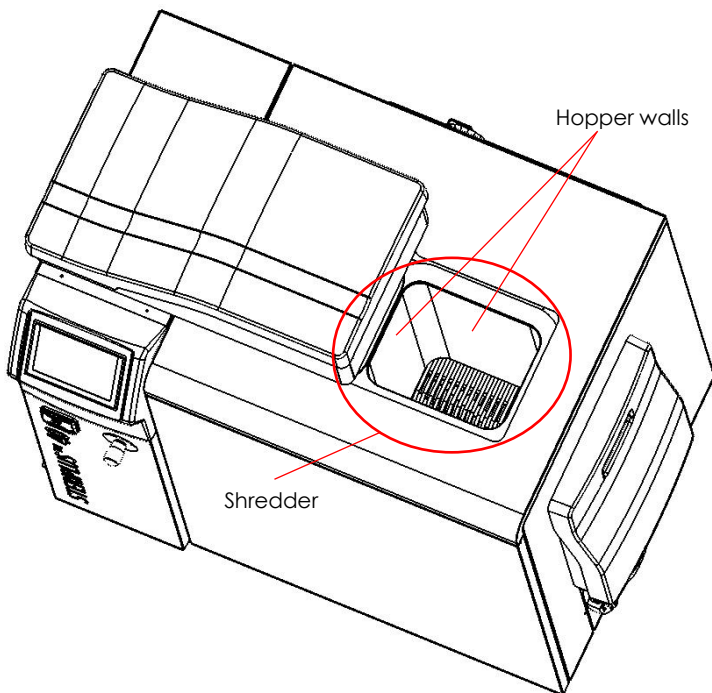
8.2.2.3 Air tank purge*

EQUIPMENT


PLAN	STEPS
	- The machine must be on but not in a cycle - Open the butterfly valve until the pressure drops down. - Close it back.

*Depending on the version of the machine ordered an automatic purge system may be equipped.

EQUIPMENT		
		

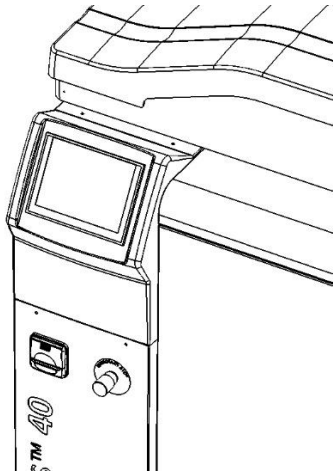
PLAN	STEPS
	- Remove potential remnants of waste with a tool or with the hand. - Apply generously compressor oil (or the adapted consumable) on the hopper surfaces and on the shredder blades. - Then, start a standard cycle (user) or start shredding manually (distributor) forward and backwards to perform a complete lubrication of the shredder.

PARTS	
CO-0024	Compressor oil

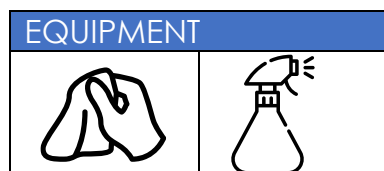
8.2.3 COMFORT CLEANING

8.2.3.1 Touchscreen surface

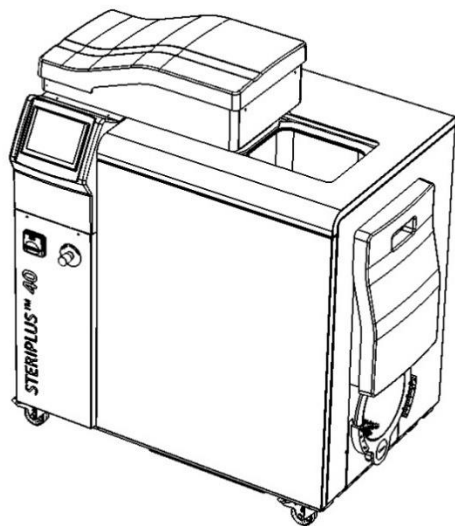


PLAN	STEPS
	- Wipe the screen surface with a dry & soft cloth. Do not use aggressive products

8.2.3.2 Panels surfaces



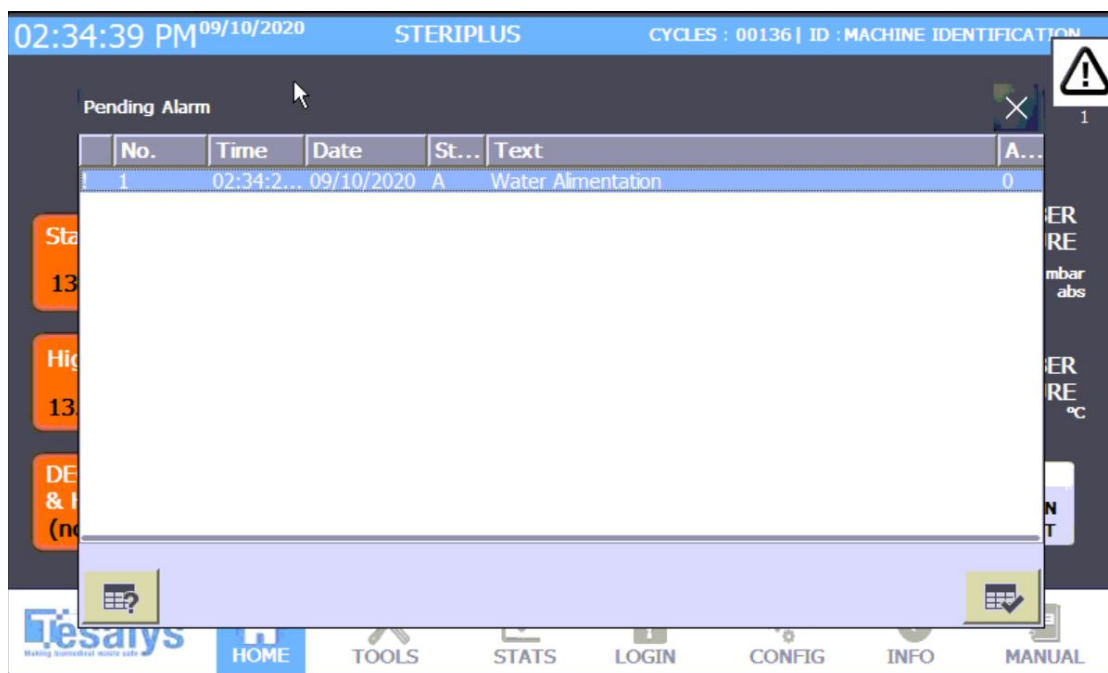
PLAN	STEPS
	- Clean all the panels surfaces. Use water and soap, no aggressive products.



9 - ALARMS

In the event of a malfunction or problem on the machine, an alarm is triggered with an error message.

Here is an example of the screen displayed when an alarm is triggered:



The table below summarizes all existing alarms as well as the actions to be carried out if they are triggered.

ALARM

ACTION TO PERFORM

WATER ALIMENTATION

No.	Time	Date	St...	Text
1	02:34:2...	09/10/2020	A	Water Alimentation

Problem with the valve or water inlet circuit / or the float on the water box.
The cycle is stopped until the problem is fixed.

Please **check the water supply** of the room. Contact technical service if the problem persists.

STEAM GENERATOR WATER FILLING

No.	Time	Date	St...	Text
2	02:44:3...	09/10/2020	A	steam generator water filling

There is no water in the steam generator. The cycle is stopped until the problem is fixed to prevent any damage on the machine.

Please **check the water supply** of the room. Contact your distributor or Tesalys technical support if the problem persists.

INCOMPLETE SHREDDING

No.	Time	Date	St...	Text
3	03:43:1...	09/10/2020	A	Incomplete Shredding

The error message is displayed. The cycle continues with the decontamination phase to decontaminate the untreated waste.

Remove unshredded waste at the next cycle (**No risk, waste is decontaminated**). If the shredder seems stuck, contact your distributor or Tesalys technical service.

LOADING DOOR

No.	Time	Date	St...	Text
5	02:47:5...	09/10/2020	A	loading door

The alarm is triggered if the loading door takes longer than 15 seconds to close.

Press the Reset button to restart the door closing. The door will close automatically. Contact your distributor or Tesalys technical service if the problem persists.

EVACUATION DOOR

No.	Time	Date	St...	Text
6	03:40:1...	09/10/2020	A	evacuation door

The alarm triggered if the unloading door takes longer than 15 seconds to open. **(For automatic door)**

Press the Reset button to restart the door opening. The door will open automatically. Contact your distributor or Tesalys technical service if the problem persists.

VACCUM ERROR

No.	Time	Date	St...	Text
7	03:11:4...	09/10/2020	A	vaccum

Problem with vacuum phase.

Press the alarm confirmation button and then press the reset button to restart the vacuum phase. Contact your distributor or Tesalys technical service if the problem persists.

DECONTAMINATION PLATEAU

No.	Time	Date	St...	Text
8	03:34:3...	09/10/2020	A	Plateau

Problem on the decontamination plateau / Safety discharge is triggered automatically.

Press the alarm confirmation button and then press the reset button to restart the decontamination phase. Contact your distributor or Tesalys technical service if the problem persists.

STEAM INJECTION

No.	Time	Date	St...	Text
9	03:17:0...	09/10/2020	A	steam injection

The alarm rises during steam injection if the tray temperature of 135°C has not been reached after X minutes.

Press the Reset button to restart steam injection. Contact your distributor or Tesalys technical service if the problem persists.

10 - ENVIRONMENTAL IMPACT

10.1 LIQUID EFFLUENTS (*DRAIN*)

Liquid effluents from the unit include **the liquid part of the waste, as well as the effluents produced by the unit during treatment (condensed steam)**. Liquid effluents are discharged only once the decontamination cycle has been validated and labelled "CYCLE OK" by the machine (or PLC), they can consequently be **considered free of biological risk and be discharged into the normal drain circuit**. They are filtered by a **triple filtering system**: at the basket: Ø 3 mm, at the bottom of the treatment chamber Ø 2mm, at the removable filter level (sump) Ø1.5 mm. Normal outlet temperature is around 90°C without cooling option.

10.2 AIR EMISSIONS

During the pre-vacuum phase, **the air sucked from the chamber is filtered via a 0.2 µm filter** to avoid any exposure of potentially contaminated aerosols on staff and environment

10.3 STEAM (*HEAT DISSIPATION*)

When opening the unloading door, it's completely normal that a small amount of steam can come out of the opening. Using an air extractor or a hood, can help controlling the temperature and humidity of the room. **Heat dissipation generated by the unit is 25 10³ kcal/h. Thermal loss is around 30%.**

10.4 ODORS

The thermal treatment of waste might release some odors when opening the unloading door. The best solution to dissipate the odors is to have an air extractor/hood as explained above. Additional solutions can be considered: using autoclave deodorant capsules or installing a portable air purification device with active carbon filters.

10.5 NOISE POLLUTION

The unit **complies with CE regulations on noise emissions** as all components used comply themselves: shredder < 50 dB, vacuum pump < 60dB, air compressor < 45dB. The shredder works at low speed which generates very low amount of noise compare to "blender" type shredders.

10.6 NO-BY PRODUCTS

The unit does not require any consumable like disinfectants or specific packaging. Thus, it **does not create by-products (additional waste) during the treatment process**.

10.7 WATER AND ELECTRICITY CONSUMPTION

The tables below show the average water and electricity consumption during a cycle on a STERIPLUS™ 40 machine:

STANDARD MACHINE

	Water consumption (in liters per cycle)	Electricity consumption (in Kw/h)
Standard Cycle	15 liters	3 Kw/h
Decontamination Cycle (morning)	85 liters	9 Kw/h
High Risk Cycle	18 liters	3,6 Kw/h

STANDARD MACHINE WITH DRAIN COOLING

	Water consumption (in liters per cycle)	Electricity consumption (in Kw/h)
Standard Cycle	22 liters	3 Kw/h
Decontamination Cycle (morning)	127,5 liters	9 Kw/h
High Risk Cycle	27 liters	3,6 Kw/h

MACHINE WITH VIRUS+ KIT

	Water consumption (in liters per cycle)	Electricity consumption (in Kw/h)
Standard Cycle	30 liters	3 Kw/h
Decontamination Cycle (morning)	170 liters	9 Kw/h
High Risk Cycle	36 liters	3,6 Kw/h

MACHINE WITH VIRUS+ KIT & DRAIN COOLING

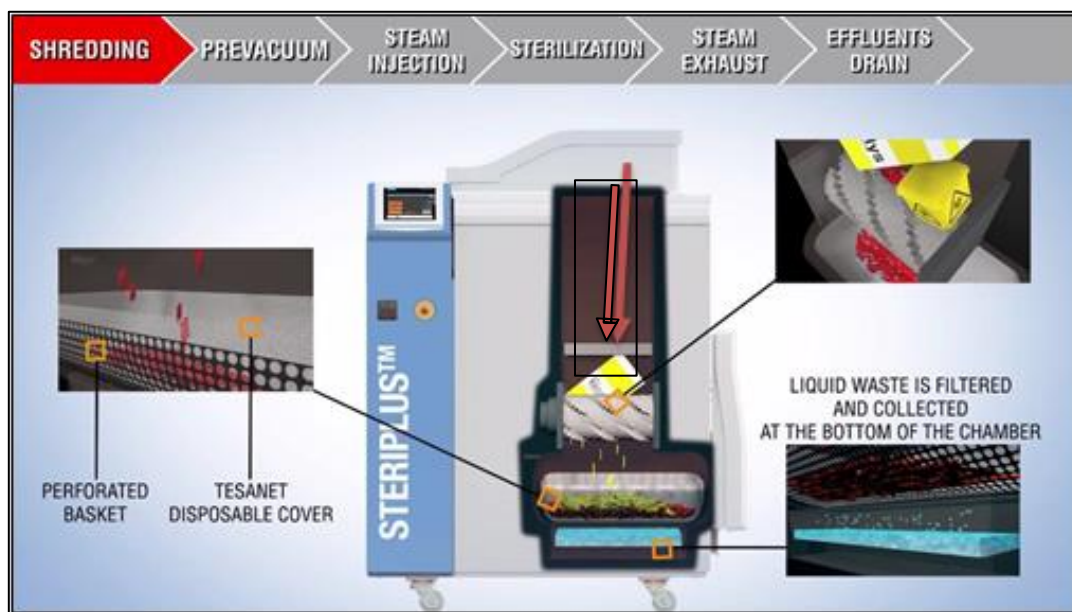
	Water consumption (in liters per cycle)	Electricity consumption (in Kw/h)
Standard Cycle	45 liters	3 Kw/h
Decontamination Cycle (morning)	255 liters	9 Kw/h
High Risk Cycle	54 liters	3,6 Kw/h

11- APPENDIX

APPENDIX N° 1.1 : PROCESS STEPS

1. SHREDDING

A pressing plate, compressed-air driven, moves vertically from top to bottom inside the loading chamber, pushing the waste into the shredder. During the shredding phase, the shredder blades rotate alternatively clockwise and anti- clockwise ensuring optimal grinding. If blocked, the shredder automatically reverses its spinning direction, and keeps trying several times to shred the blocking waste. The unit can detect the level of the pressing plate, and therefore can monitor the quantity of unshredded waste remaining in the loading chamber.

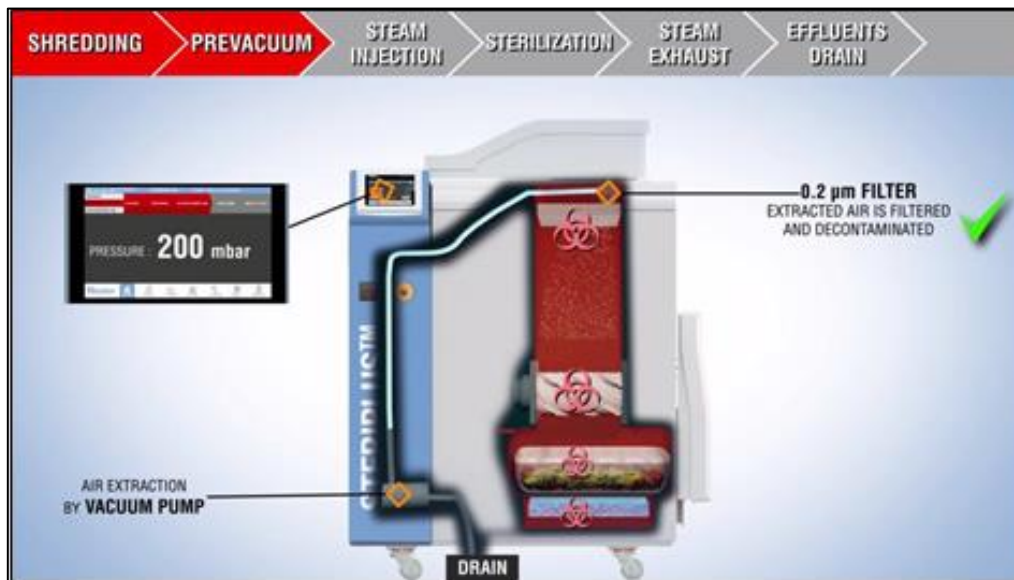


Shredded waste fall by gravity in a perforated basket under the shredder, located in the treatment chamber. The perforated basket enables the liquids contained in the waste to flow naturally into a lower compartment where all the liquids remain until the end of the sterilization plateau ensuring their full decontamination. The shredding phase lasts a maximum of 15 minutes.

2. DECONTAMINATION BY STEAM INJECTION

The decontamination phase is based on an autoclaving process (steam sterilization) :

PRE-VACUUM



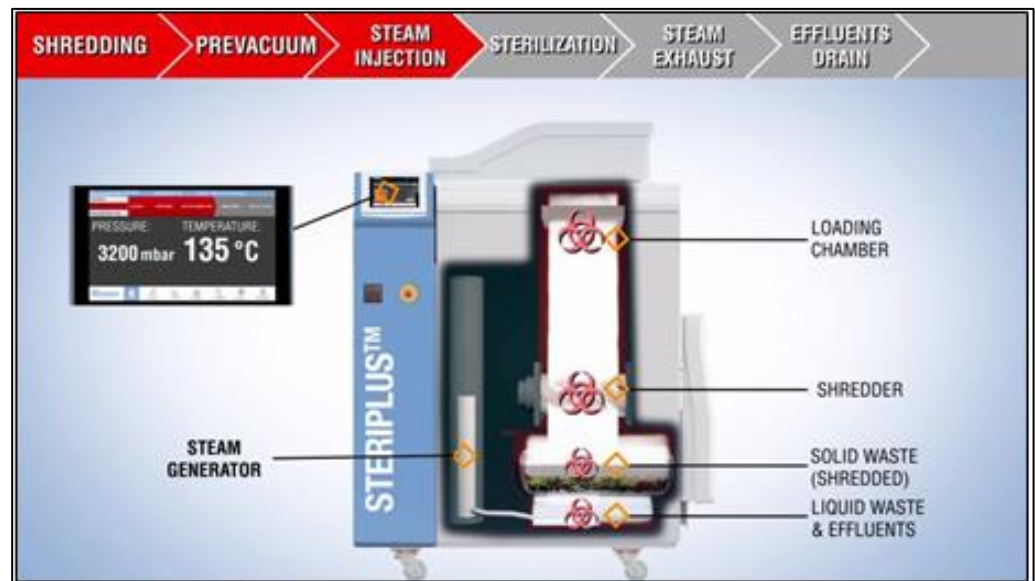
The vacuum pump removes the air from the whole pressure vessel. This operation ensures removal of air bubbles and optimize the action of the sterilizing steam (the vacuum goes down to 200-250 mbar abs). At this stage of the cycle, because the air contains potentially contaminated aerosols, it must go through a 0.2 µm filter to ensure biocontainment.

The pressure contained in the chamber is equal to atmospheric pressure (1000 mbar), when the cycle starts, the pressure starts to decrease and the vacuum is reached in 3 min: the first 2 minutes the pressure must reach a minimum of 550 mbar, otherwise the vacuum is considered insufficient to trigger an effective decontamination. During the last minute, the pressure can go down to 200 mbars, ensuring a complete vacuum (a vacuum is considered sufficient when it is between 550 and 200 Mbars).

The vacuum value varies according to the type of waste (liquids, solids, residues), to the maintenance of the machine, to the density and to the quantities introduced in the hopper. All of these factors affect the time required to obtain the vacuum.

STEAM INJECTION

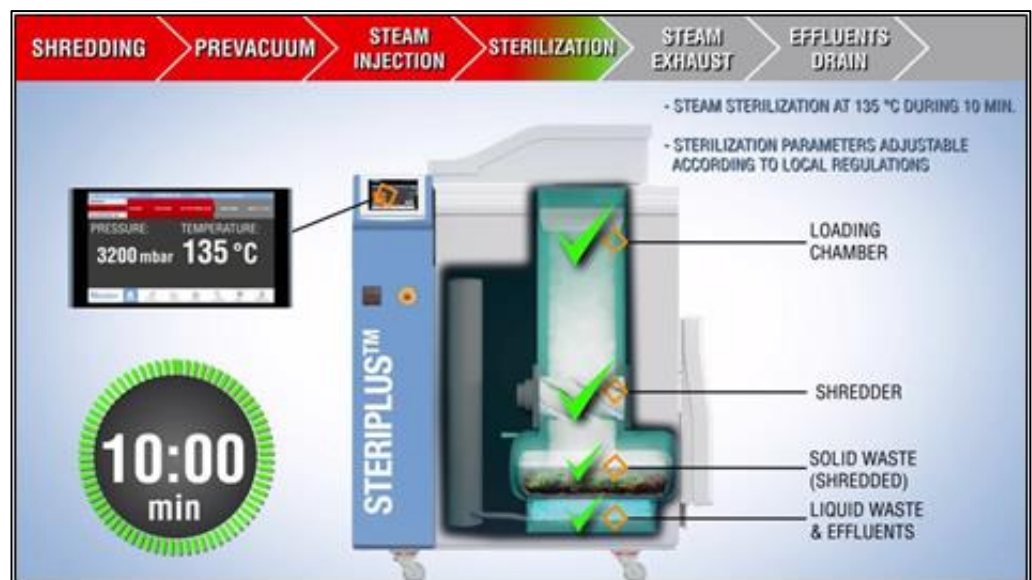
The steam generated by the built-in steam generator is injected in the treatment chamber by the bottom of the chamber. This way, steam goes through the liquids in the bottom of the chamber, through the solid waste in the basket of the treatment chamber as well as the shredder, the loading chamber and up to the loading door. When



the required temperature is reached (135°C , equivalent to 3.2 bar abs), the sterilization plateau starts. The temperature probe for the regulation of the cycle is located in the upper part of the loading chamber.

THERMAL TREATMENT (DECONTAMINATION PLATEAU)

When the temperature of 135°C is reached, the physical conditions are kept steady for 10min for the standard cycle, 20 min for High-risk cycle. If the temperature goes below 134°C for more than 30 sec during that temperature plateau, the cycle stops, and a failure alarm (see section ALARMS) pops up. All doors remain locked in such case to ensure safety of staff and environment.



APPENDIX N° 1.2: BIORISK CONFORMITY CERTIFICATE



Référence : certificat 20191002

TESALYS
7, rue du Cassé
31240 SAINT-JEAN

The undersigned, on behalf of:

BIORISK EXPERTISE
1 rue Jeanne d'Arc – 59350 Saint-André-lez-Lille, France

Hereby **certifies** that the following TESALYS devices:

STERIPLUS™ range:
STERIPLUS 20/STERIPLUS 40/STERIPLUS 80

Have been designed to process "Waste from human or animal healthcare and/or related research" (mainly categories 18 01 01, 18 01 03, 18 02 02, 18 02 02 of the European Waste Catalogue, excluding waste containing BSL4 pathogens).

These devices render healthcare waste unrecognizable and non-infectious.

Tests have been carried according to the NFX 30-503 standards to prove that healthcare waste processed with the above-mentioned devices can be considered as non-hazardous waste and can be collected and disposed of without special techniques and without risk to people and the environment. The treated waste can be considered as "Municipal wastes (household waste and similar commercial, industrial and institutional waste)" category 20 of the European Waste Catalogue.

Signed in Saint-André, France, on October 7, 2019

A handwritten signature in blue ink, consisting of a large, stylized 'M' and 'F' followed by a horizontal line.

Dr Marie-Florence Gireaudot, PhD
Microbiologist, Risk Management Expert

BioRisk expertise
1 rue Jeanne d'Arc - 59350 Saint-André-lez-Lille
info@biorisk.fr - 03 20 47 39 65

APPENDIX N°2 : TESABOX CLOSURE

Tie the bag inside the TESABOX so that it is closed as tightly as possible by surrounding the top of the bag with the zipper pulls provided for this purpose.



Fold down the first panel, as shown in the photo, inserting the foldable part inside the box.



Detach the two parts with a lock and insert them into the slots provided for this purpose. Once inserted, the TESABOX is sealed.



Fold and fold again the two handles on the ends for a better grip of the TESABOX.



The TESABOX is ready to be loaded into the hopper.
Check that the carton is well sealed and that nothing is sticking out.

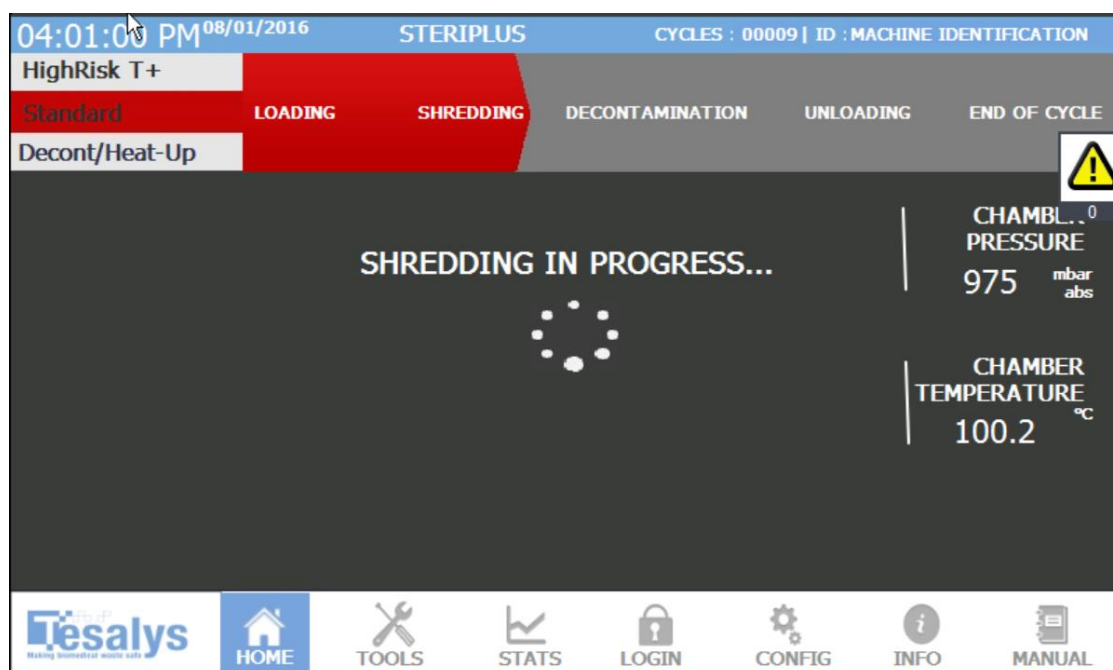
ATTENTION

Remember to flatten both handles against the carton during loading so that they do not protrude from the hopper and are therefore torn off when the loading door is closed. To avoid this, the TESABOX can be loaded by turning it upside down so that the upper part is at the bottom of the loading chamber.



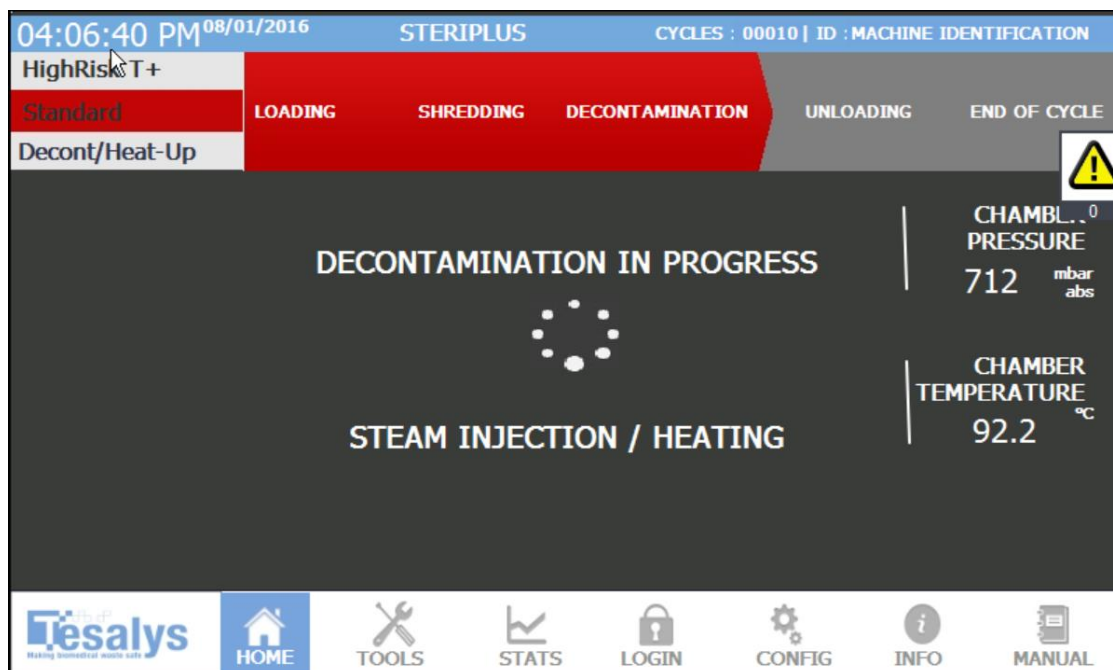
APPENDIX N°3: THE SCREENS DISPLAYED DURING THE CYCLE

SHREDDING



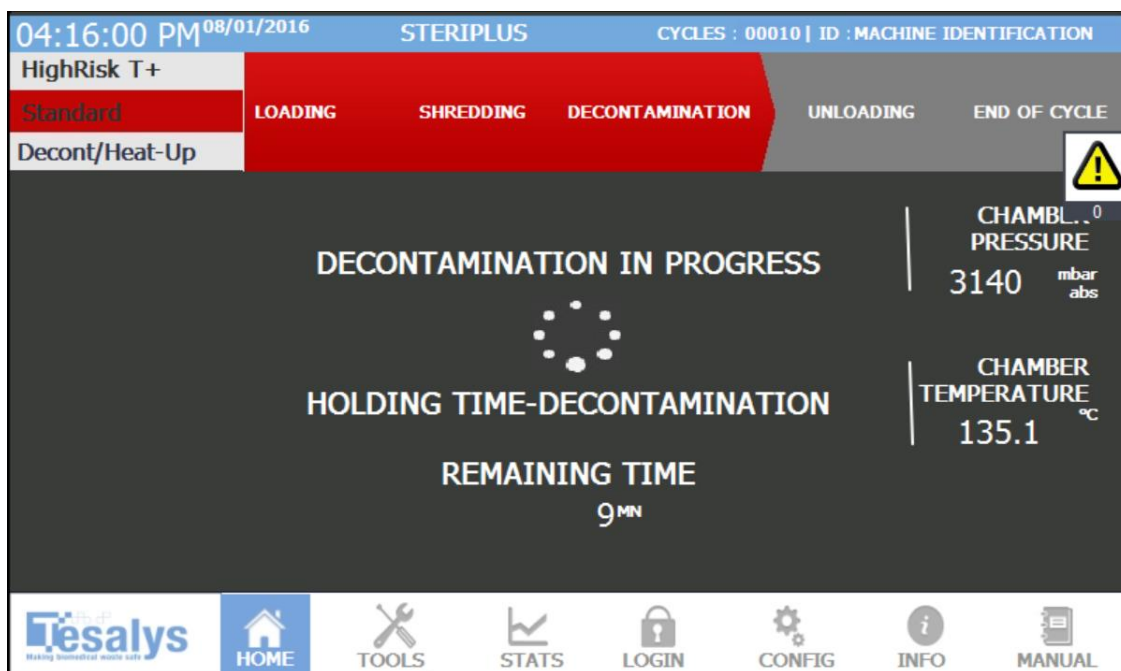
This screen is displayed during the **shredding phase**, whatever cycle is selected. It also shows the pressure and temperature in the tank in real time (data on the right side of the screen).

STEAM INJECTION



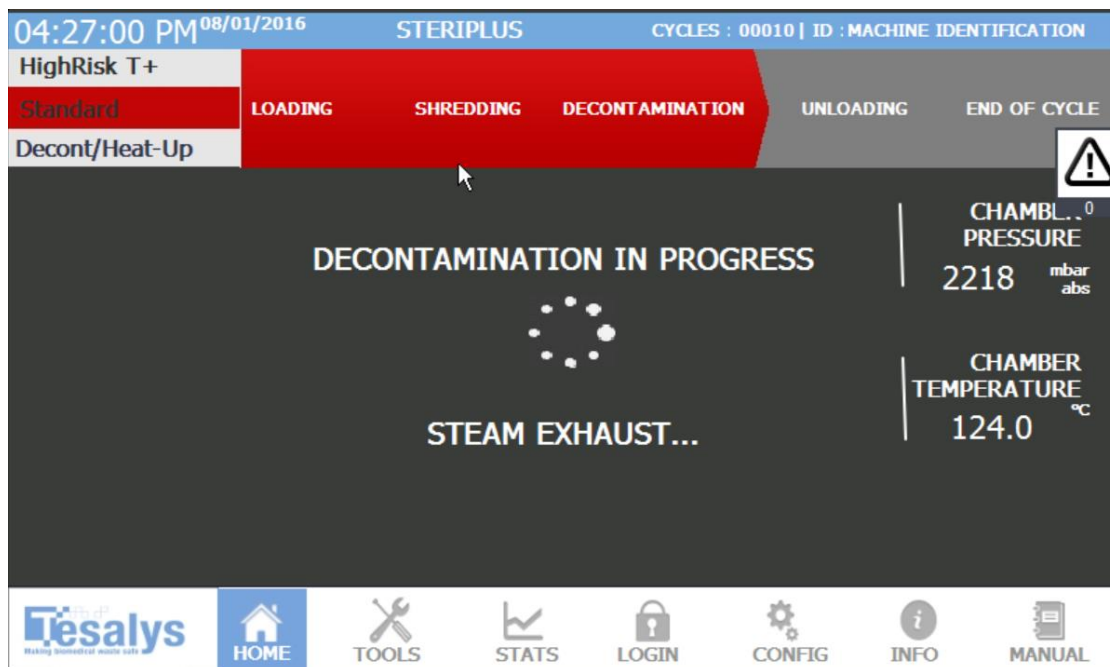
This screen is displayed during the **steam injection phase**. The machine has finished shredding the loaded waste and is now starting to sterilize it.

STERILIZATION



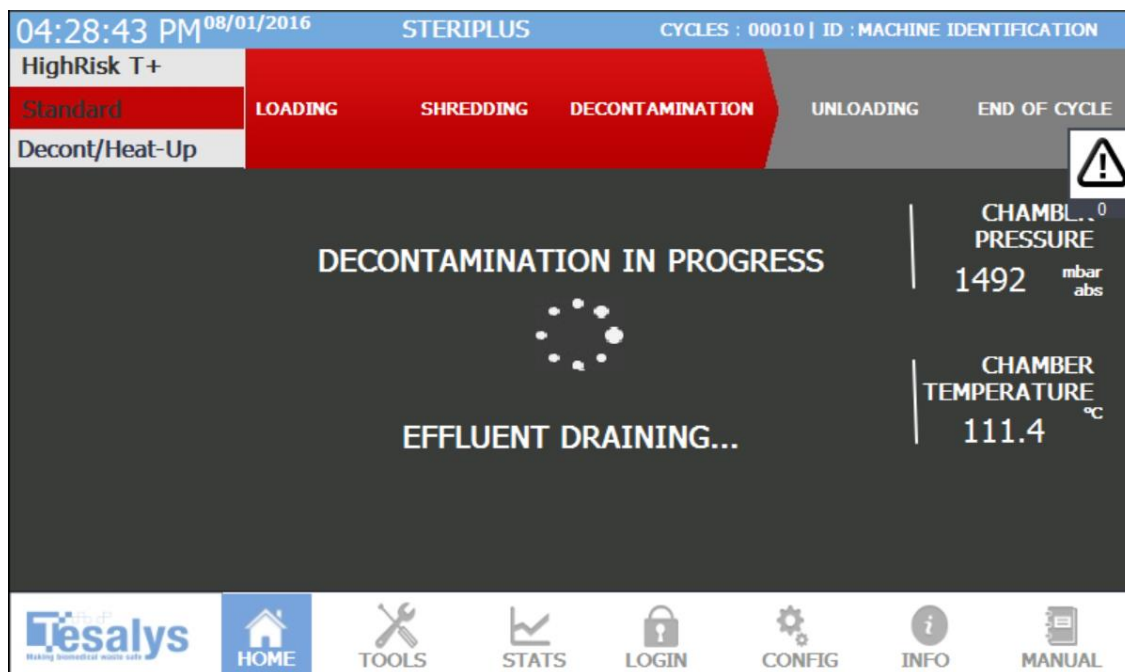
This screen is displayed during **the sterilization phase**, after steam has been injected into the vessel. A countdown of the time remaining before the end of the current phase is also displayed at the bottom of the screen.

STEAM EXHAUST



Steam exit/drainage. At the end of the decontamination phase, the machine empties and purges itself in order to completely remove all condensation residues and evacuates all the steam present in the tank. This step does not involve any risk of contamination since the steam is sterilized.

EFFLUENTS DRAINING



Effluent drainage. At the end of the decontamination plateau, the liquid waste and effluents generated by the machine, once decontaminated, are discharged/evacuated by the sewers or by the plant's emptying system.

The depressurization is done progressively through the unloading valve. The discharge of all effluents is complete/total when the pressure in the tank is equal to atmospheric pressure. Once discharged, the liquids are filtered through the perforated basket, the perforated surface of the treatment chamber, and the last tubular filter.

APPENDIX N° 4: COMPLIANCE WITH THE REQUIREMENTS OF STANDARD NF X 30-503 (PARAGRAPH 4.1)

The units of the STERIPLUS™ RANGE comply with the requirements of paragraph 4.1 of the **NF X 30-503-1 standard**:

- 1- They reduce the microbial contamination of infectious waste by a heat treatment process using saturated and dry steam at 135°C.
- 2- They modify the appearance of the infectious waste to reduce the mechanical risk and make them unrecognizable thanks to prior shredding.
- 3- The shredding and heat treatment steps are carried out in the same container in a consecutive and automatic process, in a sealed enclosure.
- 4- They are designed to allow the pre-treatment of infectious waste packed in packages in accordance with Art. R 1335-6 of the Public Health Code.
- 5- They allow the introduction of germ carriers to carry out efficacy tests.
- 6- They consider the evacuation system adapted to the outcome of the pre-treatment (DAOM system).
- 7- They do not use chemical products.
- 8- They are equipped with a device allowing the collection of liquid waste for maintenance/control purposes (flexible drain hose).

The technology used does not generate, in the liquid waste:

- 1- Suspended solids (several consecutive filters allow to retain a maximum of solid matter in the unit).
- 2- Gases, vapours, or toxic substances (the technology used only uses water and energy to heat it).
- 3- Microbial contamination (the device has been tested to verify the absence of bacterial indicators in the liquid waste).

APPENDIX N° 5: TROUBLESHOOTING GUIDE - FAQ

The most likely incidents are detailed below in a Frequently Asked Questions (FAQ) format with an analysis of the possible causes and actions to be taken for each case. When the machine is in "fail" mode, a signal is displayed on the control screen. If any other incident occurs, please contact the TESALYS technical service.

WHAT TO DO IF THE MACHINE DOES NOT START?

If you encounter problems starting the machine, it may be one of the following three incidents:

The main switch is not in the "ON" position.

Turn the main switch located on the back of the machine to the "ON" position.

Incorrect connection

In this case, have the electrical circuit checked by an authorized technician.

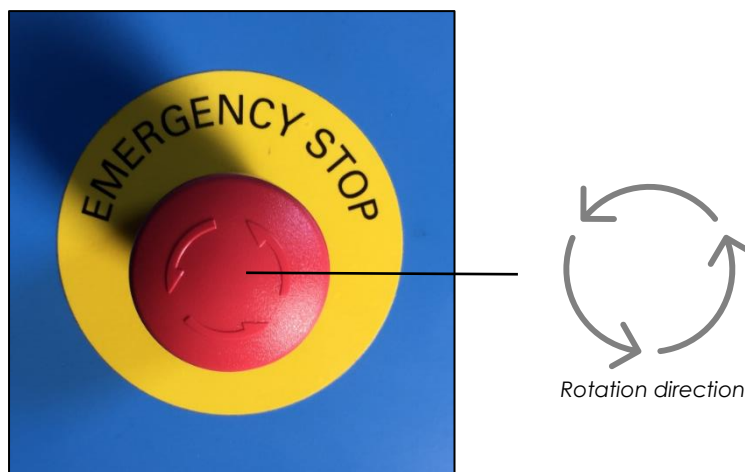
The main circuit breaker of the electrical system is lowered.

Call your facility's technical service department to verify that power is flowing in the room where the machine is installed, and if this is a general problem in the facility.

WHY THE CYCLE DOES NOT START?

The emergency stop button is activated

Check why it has been switched on before any action is performed. To reset it, turn it in the direction of the arrows as indicated.



The steam generator is not ready

If the display turns black once the cycle has been selected, it means that the steam generator is heating up and is not ready yet. Wait a few minutes during the heating time, then the cycle will start automatically.

WHAT TO DO WHEN THE TOUCH SCREEN IS NOT DISPLAYING ANYTHING?

The screen is inactive

After a certain period of inactivity, the screen will automatically go into standby, in this case simply press the screen to reactivate it.

Connections are poor

It can also be a problem with the connection(s), so you need to check its connection(s) and call a technician.

THE PRINTER DOES NOT EDIT THE TICKET

The roll is empty

Check the paper roll. If it is empty replace it with a new roll.

Connections are poor

It may also be a problem with the electrical connection, make sure the connections are not interrupted.

STEAM ESCAPES

When draining the effluent, if the hose is not tightened properly, a small amount of steam may be released. In this case, check the fastening of the drain hose on the machine.

WATER UNDER THE MACHINE

Connection problems

Check the water supply hose connection.

Check the drain hose connection.

Condensation de la vapeur

Condensation may have formed due to steam injection, creating a puddle when the unloading door is opened. Therefore it is important to use the drip tray (ref. AC-0027) to collect water and liquids that may leak from the machine when unloading.

Visually inspect the entire machine to verify that there is no run-off elsewhere.

In the following cases, or for any other question, please refer to your distributor or Tesalys technical support:

My loading door does not open

My unloading door does not open

My cycle does not end after the effluent is drained

Steam escapes during the cycle



STERIPLUS™ QUICK OPERATION MANUAL
AUTOMATIC UNLOADING DOOR VERSION



DO ✓		DON'T ✗	
	INFECTIOUS WASTE • NONWOVEN FABRICS, SWABS, NAPPIES, DIALYZERS, BLOOD BAGS... • FAECES, URINES, BLOOD, SPUTUM...		PATHOLOGICAL & ANATOMICAL WASTE* • LARGE BONES & RECOGNISABLE HUMAN BODY PARTS
	PATHOLOGICAL & ANATOMICAL • ORGANS, TISSUES, SMALL BODY PARTS • PLACENTAS, BIOPSY SAMPLES, SMALL BONES		HAZARDOUS PHARMACEUTICAL WASTE • EXPIRED, UNUSED SPILT & CONTAMINATED PRODUCT • DRUG, VACCINS • CYTOTOXIC • GENOTOXIC
	HAZARDOUS CHEMICAL WASTE* • GENERATED DURING DISINFECTING & CLEANING PROCESS • NON EXPLOSIVE RESIDUES • SMALL QUANTITIES OF OUTDATED PRODUCTS		HAZARDOUS CHEMICAL WASTE • TOXIC • CORROSIVE • FLAMMABLE
	SHARPS SMALL SIZE • NEEDLES • BLADES • SMALL SURGERY INSTRUMENTS (Stainless Steel <5MM THICK)		WASTE WITH A HIGH CONTENT OF HEAVY METALS • CADMIUM OR MERCURY FROM THERMOMETERS, MANOMETER
	HIGHLY INFECTIOUS WASTE • MICROBIAL CULTURE EQUIPMENT, PETRI DISHES • BODY FLUIDS		PRESSURIZED CONTAINERS • SPRAY CANS
	OTHERS • SOFT OR RIGID PLASTICS, RUBBER MATERIAL • PAPER, CARDBOARD • GLASS		LARGE QUANTITIES OF LIQUIDS • MORE THAN 30% OF TOTAL VOLUME OF THE LOADING CHAMBER
	LIQUID INFECTIOUS WASTE • LESS THAN 30% OF TOTAL VOLUME OF THE LOADING CHAMBER		LARGE METALLIC PARTS • STAINLESS STEEL PARTS >5MM OF THICKNESS • TITANIUM PROTHESIS • LARGE METALLIC INSTRUMENTS (E.G . FORCEPS)
			TEXTILE AND PLASTER STRIP • BLOUSE, PANTS, SHOES, SHEET, PLASTER STRIP
			DOMESTIC • BOOK, DISC...
			RADIOACTIVE WASTE

*Refer the local legislation

*Refer the local legislation

USE AND MAINTENANCE BROCHURE

CERTIFICATION DOCUMENTS

CONTACTOS UTILES



+33 5 62 10 18 91



info@tesalys.fr
service@tesalys.fr



7, rue du Cassé
31240 Saint-Jean
(Toulouse)
FRANCE



www.tesalys.fr