

## ADVANCED BIOMEDICAL WASTE TREATMENT SOLUTIONS



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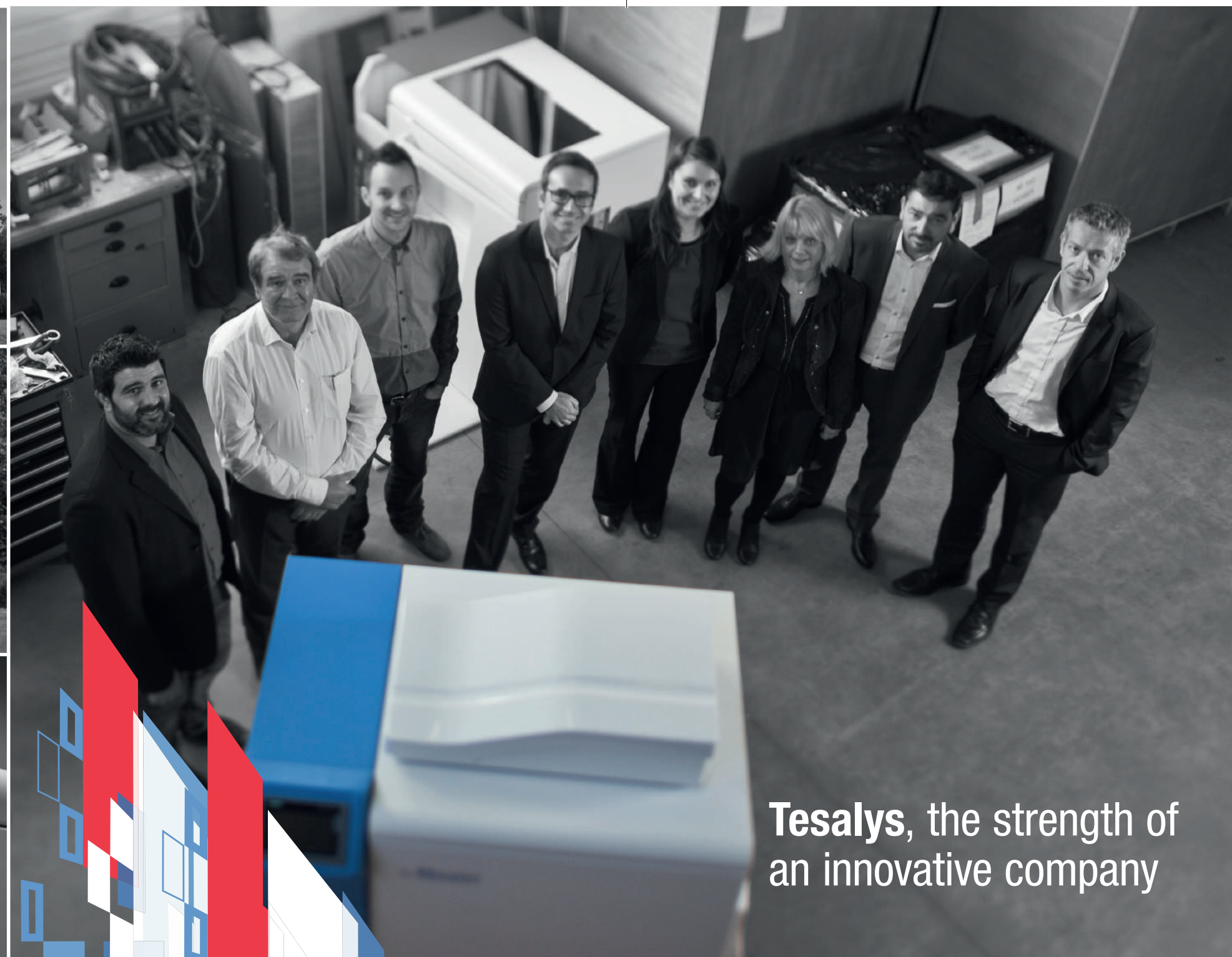
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# Tesalys

Making biomedical waste safe

Tesalys is a French company created in Toulouse, which had a vision of developing a clean and modern technology for processing biohazardous waste, carried out to the highest international standards.

Its **STERIPLUS™** shredder-sterilizer system simply transforms biohazardous waste into harmless and unrecognizable waste which can then be disposed along with ordinary waste.

Tesalys, a dynamic and innovative company, has already made its name across the world through the ingenuity of its patented technology which is available in more than ninety countries.

#### OUR AWARDS

-  **Winner**  
Midinvest 2013
-  **Jury's prize**  
Inn'Ovations 2015
-  **Export Award**  
Marco Polo 2016
-  **"Born Global" prize**  
EY/L'Express 2016
-  **Export Award**  
Trophées Défis d'Entreprises 2019

**Tesalys, the strength of an innovative company**

## INNOVATION MADE IN FRANCE

### SOME FIGURES

- 10+** YEARS OF EXPERIENCE
- 6** PATENTS
- 30 MIN** TO INACTIVATE YOUR INFECTIOUS BIOMEDICAL WASTE
- 8LOG<sub>10</sub>** MICROBIOLOGICAL EFFICACY

### A WORLD PRESENCE



AVAILABLE IN MORE THAN 90 COUNTRIES



## Process your infectious waste on-site

### LABORATORIES INDUSTRY / RESEARCH

- Hospital Labs
- Analytical Labs
- R&D
- Microbiology/Virology/Bacteriology
- Medical devices
- Veterinary
- Environment
- Industry
- Food Testing
- etc.

### HOSPITALS/ CLINICS

- Public
- Private
- Military
- etc.

### MEDICAL CENTERS

- Medical clinics
- Infirmarys
- Dispensaries
- Veterinary
- Vaccination centers
- Nursing homes/retirement homes
- etc.

### HEMODIALYSIS CENTERS

- Autodialysis centers
- Blood transfusion clinics
- etc.



## STATE OF THE ART SOLUTION FOR ON-SITE TREATMENT OF BIOHAZARDOUS WASTE

The inactivation and disposal of infectious waste is not easy: it implies risks for the environment and people. Also, the costs for collection, transportation and incineration are very high (the producer is responsible for the disposal of their waste until its complete destruction). This process must comply with various procedures and regulations.

Faced with all these restrictions, Tesalys offers innovative solutions to process your infectious healthcare waste by changing its appearance, reducing its volume and weight and minimizing the associated risks and disposal costs.

## INFECTIOUS BIOMEDICAL WASTE



- Plastic or glass consumables: Petri dishes, test tubes, collection tubes, pipettes, etc.
- Single-use material: surgical drapes, gauzes, compresses, bandages, etc.
- Personal protection equipment: gloves, gowns, tapes, coveralls, goggles, masks, caps, shoe covers, etc.
- Contaminated sharps: needles, syringes, scalpels, lancets, blades, slides, etc.
- Single-use care kits, plastic or small metal instruments.
- Single-use surgical instruments.
- Hemodialysis waste: hemodialysis filters, circuits, etc.
- Liquid biohazardous waste or waste containing fluids: blood bags, urine bags, culture media, etc. No more than 30% of total volume of the loading chamber.
- Waste from R&D on medical devices—Destruction of prototypes—Protection of intellectual property.
- Anatomical waste, animal carcasses and derived products (according to local regulations).



# STERIPLUS™

integrated system with preliminary shredding and steam sterilization of your biohazardous waste

YOUR INFECTIOUS  
BIOMEDICAL WASTE  
INACTIVATED AND  
SHREDDED IN  
30 MINUTES

REDUCTION OF 8 LOG<sub>10</sub>  
OF CONTAMINATION  
BY AN AUTOCLAVING  
CYCLE OF STEAM  
AT 135 °C/275 °F

FULL TRACEABILITY  
VIA AN INTEGRATED  
PRINTER AND USB PORT

INTEGRATED WATER  
SOFTENER, WATER  
BOOSTER PUMP AND AIR  
COMPRESSOR

EXHAUST AIR  
FILTRATION AT 0.2 µM



DECONTAMINATION :  
PROVEN INACTIVATION OF 8 LOG<sub>10</sub>  
OF BACTERIAL SPORES

WASTE LOADING CHAMBER:  
AUTOMATICALLY  
DECONTAMINATED BY STEAM  
NON-STICK COATING OF HOPPER  
SURFACE

SHREDDER FEED SYSTEM:  
FULLY SEALED, WITH WASTE LEVEL  
DETECTION AND PTFE COATING

SHREDDER TESASHRED™:  
TRANSFORMS WASTE INTO  
UNRECOGNIZABLE 8-10 MM PIECES

REDUCTION OF SOLID WASTE:  
UP TO 80% IN VOLUME,  
UP TO 50% IN WEIGHT

LIQUID WASTE AND EFFLUENTS  
DECONTAMINATED BEFORE  
DISPOSED OF DOWN THE DRAIN



STERIPLUS™

## THE MOST EFFICIENT SHREDDING/ AUTOCLAVING SYSTEM FOR PROCESSING YOUR BIOHAZARDOUS WASTE

The **STERIPLUS™** systems from **Tesalys** are the ideal solution to inactivate your biohazardous waste on-site and safely. Their integrated shredding system **TESASHRED™** not only reduces the volume and mass of waste but also ensures being fully processed.

The preliminary shredding phase increases the exposure of the micro-organisms to the sterilizing steam thus reducing the microbial load at the start, up to 8 log<sub>10</sub>. This equipment offers a simple, reliable and compact solution to all types of facilities producing biohazardous waste.

## RESPECTING THE ENVIRONMENT



Treating biohazardous waste with **STERIPLUS™** technology is not only an excellent way to prevent biological risks for people and the environment, but it is also an environmentally friendly choice.

- Zero dioxin and furan emissions
- Low water and electricity consumption
- Reduction of "waste footprint"
- Decontaminated effluent discharges
- Clean ambient air by filtration at 0.2 µm
- Energy saving by integrated heat recovery
- Zero chemicals - 100% Water
- Reduce the number of trucks on the road (CO<sub>2</sub> emissions)



AS SIMPLE  
AS 1, 2, 3...



State-of-the-art  
technology, easy to use

#### STEP 1

##### LOAD

the biohazardous waste in your  
**STERIPLUS™**

#### STEP 2

##### PRESS THE START BUTTON

(Fully automated cycle)

- Shreds into grain sized confetti ≈1cm
- Decontamination through saturated steam at 135 °C/275 °F
- Drainage of sterilized effluents

#### STEP 3

##### UNLOAD

the shredded and sterilized solid  
waste disposable with ordinary waste.



#### TESASHRED™ EFFECTIVE AND PATENTED SHREDDING

- Proven efficiency on sharp waste
- Reduction in volume and weight up to 80%
- Automatically decontaminated at each cycle
- High resistance (heavy-duty design)
- 3 times harder than steel



#### STANDARDS & APPROVALS

- Approved by the Ministry of Health and of Ecology and Sustainable Development in France
- CE marked
- In compliance with the latest version of NFX 30 503-1 (FRANCE)
- In compliance with EN 554 and EN ISO 17665 1
- Production under: ISO 9001 QMS



#### QUALIFICATIONS

- Tested and certified by independent bodies
- Installation and Operational/Performance Qualification
- Scientific tests: Quality of shredding/Microbiological efficacy/Operator environment



#### INSTALLATION

- Simple and fast
- By certified personnel
- Across the world



#### TRAINING GUARANTEED

- User training on-site at the client's facility
- Technical training in Toulouse, France
- Support, documentation & software provided
- Certification of personnel



#### MAINTENANCE & TECHNICAL SUPPORT

- Original and consumable parts available
- Fast delivery across the world
- Local customer services



## TESALYS BAGS AND BOXES

Secure handling of  
biohazardous waste

### TESABAG AUTOCLAVABLE BIOHAZARD BAGS

### TESABOX CARDBOARD CONTAINERS FOR BIOHAZARDOUS WASTE

## UNLOADING convenient and ergonomic

### MANUAL UNLOADING BASKET

### TESAXTRACT™ PATENTED DRAWER AND TESANET BAG, SIMPLE AND ERGONOMIC

## A RANGE OF BAGS AND BOXES FOR OPTIMAL USE FOR BIOHAZARDOUS WASTE

### TESABAG AUTOCLAVABLE BIOHAZARD BAGS

- Maximum security bag in accordance with EU directive 94/62/EC
- Does not melt, does not stick
- Autoclavable & withstands up to 140°C/284°F
- Compatible with all types of steam treatment systems
- Increases the service life of the equipment by preventing sediment
- “Biohazard” labeled
- Available in red and yellow

### TESABOX CARDBOARD CONTAINERS FOR BIOHAZARDOUS WASTE

- Rigid and sealed, with internal plastic lining
- 12 l to 46 l useful capacity, adapted to **STERIPLUS™** systems
- Maximum weight 5/8/15 kg (11/18/33 lbs.)
- Labeled according to French standard NFX 30–507
- Approved for biohazardous waste road transport (ADR standard)

## TWO WASTE UNLOADING SOLUTIONS

### MANUAL UNLOADING BASKET

The most economic option consists of unloading the waste after processing using a stainless steel unloading basket with non-sticking PTFE coating which can be removed from the machine via a handle.

### UNLOADING WITH TESAXTRACT™

This is the most simple and ergonomic patented unloading system. It includes:

- An extractable drawer-basket fixed to the inside of the chamber
- A disposable and biodegradable cotton cover for collecting the solid waste (TESANET)



EVERYTHING IS  
CONTROLLED

INTERNATIONAL  
APPROVALS

SCIENTIFICALLY  
TESTED

FULL  
TRACEABILITY

REMOTE  
SURVEILLANCE  
AND REMOTE  
MAINTENANCE

## SCIENTIFICALLY PROVEN EFFICIENCY

### SCIENTIFIC TESTS AND APPROVALS

The **STERIPLUS™** systems were designed specially to respond to one of the strictest standards for waste decontamination equipment (French standard NFX 30-503-1) and to WHO recommendations. The sterilization cycle has been validated according to international standards NF EN 554 and EN ISO 17665-1.

The tests were carried out by the independent lab Biorisk Expertise and the system has been officially approved by French authorities (LNE - Laboratoire National d'Essais). The technology used in **STERIPLUS™**, using a mixture of shredding and steam sterilization, allows a more efficient decontamination cycle. The reports for the tests performed are available on request.

## TRACEABILITY AND MAINTENANCE

### TRACEABILITY

- Printing of a conformity report for every cycle
- As an option, it is also possible:
  - to identify the operator and the batch number using a bar code reader
  - to export the printouts in .pdf via USB

### REMOTE SURVEILLANCE AND REMOTE MAINTENANCE

- Full remote access via Internet for remote maintenance by authorized technical personnel



PRODUCT SPECIFICATIONS



French standard for  
appliances to process  
HCW by non-burn  
technologies

- Designed and manufactured in France (in compliance with French standard NF X30-503-1 and approved by LNE)
- Conformity (European Directive 2006/42/EEC, harmonized standards for machinery safety)
- In compliance with international standards (EN 554 and EN ISO 17665-1) and with the WHO recommendations



For perfect integration  
into your premises



TECHNICAL DATA

	STERIPLUS™ 20	STERIPLUS™ 40	STERIPLUS™ 80
LOADING CHAMBER CAPACITY	20 L	40 L	80 L
LOADING CHAMBER USEFUL DIMENSIONS (W x D x H)	320 x 247 x 273 mm	320 x 247 x 520 mm	370 x 360 x 628 mm
LOADING CAPACITY (CONTAINERS)	1 X TESABOX 20	1 X TESABOX 40 or 2 X TESABOX 20	1 X TESABOX 80 or 2 X TESABOX 40 or 4 X TESABOX 20
TOTAL CYCLE TIME (NF X30-503-1 standard) (1)	30 to 35 min	30 to 35 min	30 to 35 min
TOTAL CYCLE TIME IN WORKING CONDITIONS (2)	30 to 50 min	30 to 50 min	30 to 50 min
LOADING CAPACITY (KG/CYCLE)	Based on an average waste density of 0,08 to 0,12kg/L for HealthcareWaste		
	1,6 to 2,4 kg/cycle	3,2 to 4,8 kg/cycle	6,4 to 9,6 kg/cycle
	Based on an average waste density of 0,12 to 0,2kg/L for Lab/Humid/Liquid Waste		
	2,4 to 4 kg/cycle	4,8 to 8 kg/cycle	9,6 to 16 kg/cycle
TREATMENT CAPACITY (KG /H) (3)	Based on an average waste density of 0,08 to 0,12kg/L for HealthcareWaste		
	2 to 3 kg/h	4 to 6 kg/h	8 to 12 kg/h
	Based on an average waste density of 0,12 to 0,2kg/L for Lab/Humid/Liquid Waste		
	3 to 5 kg/h	6 to 10 kg/h	12 to 20 kg/h
MAX QUANTITY OF LIQUID RECOMMENDED PER CYCLE (4)	6 L	12 L	24 L
EXTERNAL DIMENSIONS (W x D x H)	1300 x 895 x 1210 mm	1300 x 895 x 1450 mm	1550 x 1200 x 1800 mm
NET WEIGHT	530 kg	580 kg	1300 kg
LOADING CHAMBER	Stainless steel with PTFE coating	Stainless steel with PTFE coating	Stainless steel with PTFE coating
TREATMENT CHAMBER	AISI 304L stainless steel	AISI 304L stainless steel	AISI 304L stainless steel
STEAM GENERATOR	AISI 304L stainless steel (chamber) & Highly corrosion-resistant Hastelloy®		
WATER SOFTENER	Optional (external)	Built-in	Built-in
WATER BOOSTER PUMP AND AIR COMPRESSOR	Built-in	Built-in	Built-in
WASTE SHREDDER	Structure: AISI 304L stainless steel & Blades: High-strength steel		
PIPING	Stainless steel/PTFE flexible hosing	Stainless steel/PTFE flexible hosing	Stainless steel/PTFE flexible hosing
CHASSIS	Painted steel	Painted steel	Painted steel
BODYWORK	Composite material/Painted steel	Composite material/Painted steel	Composite material/Painted steel
CYCLE TRACEABILITY Through printout	Built-in	Built-in	Built-in
USB PORT	Built-in	Built-in	Built-in

(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 50m in d 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 catalog are non-binding and given as a guide only. Treatment capacities and cycle times are given as mere examples and may vary depending on the type of waste, installation conditions, operator's availability and skills.

CONFIGURATION  
OPTIONS

- Manual/automatic doors
- Cooling of effluents
- Full traceability solution
  - Identify the operator and the batch number using a bar code reader
  - Exportable printout via USB port
- Full remote access
  - Local wireless access
  - Remote maintenance via Internet by authorized technical personnel
- TESAXTRACT™  
Easy unloading system

ACCESSORIES AND  
CONSUMABLES

- Start-up kit
- Annual maintenance kits/emergency spare parts
- Biodegradable cotton nets  
TESANET
- “Biohazard” autoclave bags  
TESABAG
- Cardboard containers for biohazardous waste  
TESABOX
- Deodorizing capsules and powder
- Spare parts kits



UTILITIES

	STERIPLUS™ 20	STERIPLUS™ 40	STERIPLUS™ 80
WATER			
Needs Consumption	Softened water 4-8°TH 5 to 6 liters/cycle	Softened or drinking quality water Approx. 10 liters/cycle	Softened or drinking quality water Approx. 15 liters/cycle
ELECTRICITY			
Needs Consumption	380–400V III N, 50 Hz/60 Hz, 10 kW 1 kWh/cycle	380–400V III N, 50 Hz/60 Hz, 15 kW 1,5 kWh/cycle	380–400V III N, 50Hz/60Hz, 20 kW 3,5 kWh/cycle
DRAIN	32 mm ø internal (heat-resistant) (1.2")	32 mm ø internal (heat-resistant) (1.2")	32 mm ø internal (heat-resistant) (1.2")
STEAM / COMPRESSED AIR	Produced by the integrated generator and compressor; no external connection required		

STERIPLUS™, TESASHRED™ and TESAXTRACT™ are Tesalys brands names.