Medium Steam Sterilizers | Large Steam Sterilizers | Medical Waste Solutions | Clean Steam Generators

CELITRON COMPACT SOLUTION FOR BIOHAZARD WASTE DISPOSAL

Integrated Sterilizer & Shredder (ISS)

Advanced Bio Waste Treatment & Sterilization Solutions

celitron
WE THINK GREEN!

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ISO 9001 and **ISO 13485** certified company with **CE** certified products

1. WHO Recommendation for Treating Medical Waste

"Waste generated by health care activities includes a broad range of materials, from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood, chemicals, pharmaceuticals, medical devices and radioactive materials.

Poor management of health care waste potentially exposes health care workers, waste handlers, patients and the community at large to infection, toxic effects and injuries, and risks polluting the environment. **It is essential that all medical waste materials are segregated at the point of generation, appropriately treated and disposed of safely."**

(Source: http://www.who.int/topics/medical_waste/en/)

WHO Guideline:

„Short-term:
Research into and promotion of, on new technology or alternative to small-scale incineration;

Long term:
Effective, scaled up promotion of non-incineration technologies for the final disposal of health-care waste to prevent the disease burden from: (a) unsafe health-care waste management; and (b) exposure to dioxins and furans."

(Source: WHO Safe health-care waste management August 2004)

Celitron's **medical hazardous waste solution**, the Integrated Sterilizer & Shredder (ISS), is a **steam sterilizer with an integrated shredder**, designed for on-site conversion of biological infectious medical waste in hospitals and clinics, **complying the EU and WHO recommendations.**

2. Celitron - Integrated Sterilizer & Shredder (ISS)

The Integrated Sterilizer & Shredder provides health-care facilities the opportunity not only to treat their own waste and with the most advanced, environmentally friendly technology, but also to significantly reduce their costs. The ISS is:

Easy to Operate	No need for special technician qualification.
Environmentally Sound	Shredded waste is reduced to as little as 1/5 its original volume, without emitting harmful substances.
Cost-effective	Inexpensive operation and maintenance.
Totally Safe	Automatic locking door prohibits unauthorized interruption.
Efficient	A single unit can serve any middle size hospital, clinic or laboratory
Easily and quickly installed	Easy to adapt and integrate into the hospital's waste management system.

3. Waste Treatment with the ISS - The Process

The ISS performs both shredding and waste steam sterilization in a single vessel. The vessel is fitted with a motor-driven shaft, with powerful shredding/crushing blades which reduce the size and volume of the waste.

1. LOADING THE WASTE

5-150 kg/h of hazardous medical waste can be loaded into the chamber, without opening the bags/cartons or plastic containers.

Select the required waste cycle on the 5,7 inch color touch-screen display and with pressing one button the door closes, the chamber rotates to the operating position and the waste cycle starts.

2. CREATING VACUUM

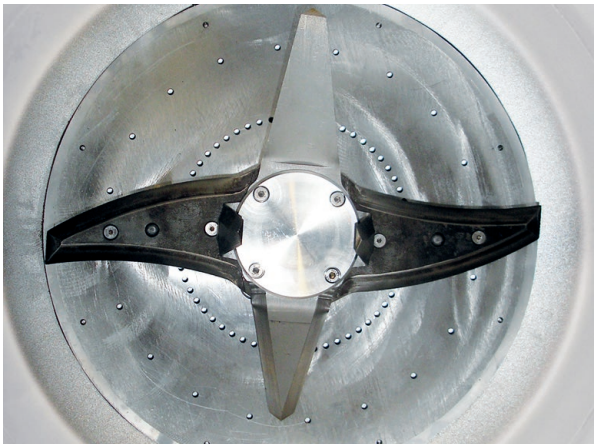
The air is removed from the chamber through the biohazard filter with the help of the powerful vacuum pump.

3. A) HEATING UP TO STERILIZATION

Steam is introduced into the chamber until the sterilization temperature (134°C and pressure of 312kPa) is reached.
The steam is internally produced by a steam generator, supplied by water purification and draining system.

3. B) SHREDDING THE WASTE

The stainless steel vessel is fitted with a motor-driven shaft, with powerful crushing blades that can rotate in two directions to reduce the size of the waste down to 20% of the original volume. The motor is sufficient to rotate the shaft with an RPM of 400-1700 for various operations. The blades are mounted on the shaft and are designed to shred waste such as sharps, dialyzers, syringes, papers, cloth, plastic, frozen blood and glass. Shredding is important as it enhances the steam penetration therefore improves the overall sterilization results.



4. STERILIZATION, EXHAUST AND DRYING

When the unit reaches 134°C, it starts sterilizing for at least 3 minutes. During the exhaust stage, the steam is being removed from the chamber and the drying is done by pushing air inside.

5. UNLOADING THE WASTE

The waste can be easily removed with different methods, according to the type of the ISS. The waste is rendered, fragmented, non-toxic, largely solid and dry and therefore safe to be disposed of as regular municipal waste.

4. Celitron - Medical Waste Disposal Process

1 WASTE COLLECTION AND SEGREGATION

The segregation is required for safe and effective biomedical waste management, with responsibility of all involved employees at the hospital, and it is done at the stage of the waste generation. The medical waste may be broadly classified into four types:

- metallic waste and metal sharps
- glass waste and glass sharps
- plastics
- ....easily biodegradable waste like paper, cloth, cotton and pathological waste

The different types of waste are collected separately in color-coded plastic bags or sealed containers.

Non-Infectious Waste

- Paper/Packaging material
- Food

Infectious Waste

- Gauze/Dressing
- Blood/IV fluid lines
- Gloves

Highly Infectious Waste

Anatomical waste
- Teeth
- Placenta

Pathological waste
- Sputum container
- Test tubes containing specimens

Sharps Waste

- Infusion sets
- Broken slides
- Broken vial
- Broken ampules
- Lancet
- Retractables
- Scalpels
- Blades
- Needles

Note: Any segregation method to be implemented shall be in compliance with local rules and regulations.

2 WASTE STORAGE

Between collection and disposal, the biomedical waste needs to be stored safely in a separate refrigerated storage room according to local protocols.

With the ISS, the medical waste can be treated on a continuous basis and there is no need to maintain a special storage place.

3 WASTE TREATMENT WITH THE ISS

The ISS performs both shredding and steam sterilization of the waste in a single vessel. The vessel is fitted with a motor-driven shaft, with powerful shredding/crushing blades which reduce the size and volume of the waste.

The blades are mounted on the shaft and are designed to shred waste such as sharps, dialyzers, syringes, papers, cloth, plastic, frozen blood and glass.

The entire process is automatic, including the opening and closing the door and the sequences of shredding and sterilization. The total cycle time can take as fast as 15-35 minutes and between 5 to 150 kg/h of waste can be processed.

4 DISPOSAL OF TREATED WASTE

After treatment with the ISS, the waste is sterile. The liquid components of the waste are steamed out of the vessel, re-condensed and drained to a municipal sewer. As the waste is dehydrated, there is no risk of contaminated waste water. The waste is rendered fragmented, non-toxic, largely solid and dry and therefore safe to be disposed as regular municipal waste.

With the Integrated Sterilizer & Shredder, health-care facilities are able to reduce their cost on medical waste disposal.

- **Eliminate costs to the medical waste hauler**
- **Waste volume reduction**
- **No need for special storage room**

5. ISS - Features and Accessories

STANDARD FEATURES AND ACCESSORIES

Control System with 5,7" Full Color LCD Touch -Screen
A microprocessor based control system, state of the art "Freescale" technology, automatically controls all programs including the sterilization cycle. The system includes a 5.7" digital touch-screen graphic display, communication, self and remote diagnosis and PC connection for external documentation and printing.
It ensures a reliable, safe and user-friendly operation. The displayed information is available for users in a variety of languages.
During the sterilization cycle the control system measures, controls and shows in digital display: the time, chamber temperature and pressure, and sterilization status.

Steam Generator
The steam generator is automatically operated by the control system.

Integrated Ink printer
For a clear and concise documentation of processes, the control unit is provided with a printer, connected to the processing unit.
This releases a hard copy printing of the relevant information regarding operation during the cycle, such as temperature, pressure, sterilization and number of cycles, etc. In case of an uncompleted cycle, the print-out indicates the cycle failure and the cause of the failure.

RS 232 Communication Port
for connecting the sterilizer to the computer.

External Reverse-Osmosis System
A Reverse-Osmosis system shall be used to improve the quality of the water used to generate steam in the electric steam generator.
The use of mineral-free water will contribute to better performance and longer life of the Shredder's chamber.

SD Card & Card Reader
Cycles' data can be collected online on a SD Card through an optional SD Card Slot, and can be downloaded into a computer equipped with proprietary PC Software.

OPTIONAL ACCESSORIES

HMI PC Software
Powerful PC Windows based software is available for monitoring, logging, control and service.

Silent Air Compressor
The silent air compressor features a special soundproofing system made up of a metal soundproof panel, painted with epoxy paint, which guarantees remarkably low noise levels plus the total elimination of vibrations (acoustic pressure < 70 dB).

6. ISS - Specifications

Model ISS	ISS 25L	ISS AC-575	ISS 500L
Chamber dimensions Inner dia. x Depth	260 x 482 mm	500 x 800 mm	840 x 923 mm
Chamber volume	25 l	150 l	560 l
External dimensions W x H x D	1070 x 1025 x 725 mm	1290 x 2150 x 2039 mm	with housing W x H x D: 2710 x 2030 x 2300 with autoloader W x H x D: 2710 x 2900 x 2800
Approximate weight	280 kg	880 kg	1500 kg
Average processable waste kg/h	5-7,5 kg/h *	45-67 kg/h *	100- 150 kg/h *
Power supply**	3-Ph. 380-400 V, 50/60 Hz		
Power with steam generator	12 kW	36 kW	110 kW
Available sterilization cycles	Waste 134 °C / Textiles no Cut 134 °C / Special Waste 134 °C / Glass 134 °C		Waste 134 °C / Special Waste 134 °C / Glass 134 °C
Available test and other cycles	Dynamic test / Cleaning cycle		
Touch-screen display	LCD 5.7 " Color Graphic		
Cabinet	Painted steel		
Chamber door	Automatic door locking system with advanced safety features		

* Depends on the density of the waste
** Adjustable to different voltage systems

7. ISS - Standards

The ISS AC-575 complies with the following international standards and directive guidelines:

- Machinery Directive 2006/42/EC.
- Pressure Equipment Directive- PED 2014/68/EU.
- 2006/95/EC Low Voltage Equipment Directive.
- EMC Directive 2004/108/EC Article 7 (1).
- RoHS II Directive 2011/65/EU.
- EN 60204-1:2006+A1:2009 Safety of machinery- Electrical equipment of machines- General requirements.
- EN 61000-6-2:2005 Electromagnetic compatibility (EMC)- Generic standards- Immunity for industrial environments.
- EN 61000-6-4:2007+A1:2011 Electromagnetic compatibility (EMC)- Generic standards- Emission standard for industrial environments.

The CE mark first applied in: 2010

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COMPANY PROFILE

Celitron Medical Technologies is a developer and manufacturer of medical waste solution systems and sterilization equipment, steam sterilizers, autoclaves.

Our product portfolio offers a full solution for infection control and decontamination procedures in hospitals, dental clinics, dialysis and medical centers.

Celitron intends to grow globally by developing new solutions for the Medical, Dental, Medical Waste and Dialysis markets of tomorrow. With selected and tailor-made models for OEM partners and distributors in these markets, Celitron secures a stronghold in almost all continents by means of high service quality and strong delivery capacity.

To meet stringent requirements, we control, measure and analyze all processes secured in our Quality Management System in accordance with the international standards and apply the most efforts to protect the environment as part of our quality policy.

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