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WE THINK GREEN!

Medical waste disposal with

Integrated Sterilizer & Shredder (ISS)

www.celitron.com

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.**

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.

Loading the waste

150 kg per hour of hazardous medical waste can be loaded into the chamber without opening the bags/ cartons or plastic containers.

Heating up to sterilization

Steam is introduced into the chamber until the sterilisation temperature and pressure of is reached.

Shredding the waste

Powerful crushing blades reduce the size of the waist down to 20% of the original volume.

Sterilization, exhaust & drying

When do you need it reaches 134 Celsius 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.

Unloading the waste

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

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

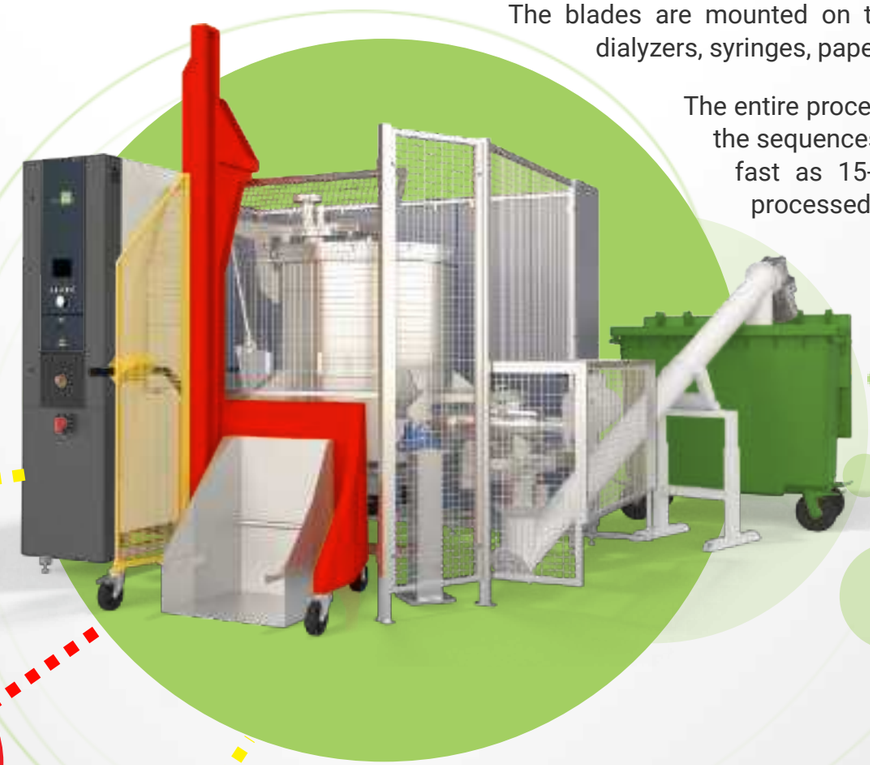
Sharps Waste

- 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

ISS 500L:

Fully automatic unit for large quantity of medical waste

Model ISS	ISS 500L
Chamber dimensions Inner dia. x Depth	840 x 923 mm
Chamber volume	560 l
External dimensions W x H x D	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	1500 kg
Average processable waste kg/h	100-150 kg/hour *
Power supply **	3-Ph. 380-400 V, 50/60 Hz
Power with steam generator	110 kW
Available sterilization cycles	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 densitiy of the waste
** Adjustable to different voltage systems

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 generators (72 kW) are automatically operated by the control system.

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

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

Oil free direct driven air compressor. The hobby series consists of oilless air compressors designed for D.I.Y. enthusiasts. Compressor without air collection. Thanks to the compact and safe constructional design and to the reduced weight, these compressors may be easily used and transported anywhere by anybody. They are complete with a pressure reducer and electrical lead with plug ready for immediate use. The housing in shock proof material safeguards the user from exposure to the internal rotating components and hot surfaces.

ISS AC-575:

Recommended for middle size hospitals

Model ISS	ISS AC-575
Chamber dimensions Inner dia. x Depth	500 x 800 mm
Chamber volume	150 l
External dimensions W x H x D	1290 x 2150 x 2039 mm
Approximate weight	880 kg
Average processable waste kg/h	45-67 kg/h *
Power supply**	3-Ph. 380-400 V, 50/60 Hz
Power with steam generator	36 kW
Available sterilization cycles	Waste 134 °C / Textiles no Cut 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 densitiy of the waste
** Adjustable to different voltage systems

Standard featues 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.

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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

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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).

ISS 25L:

Compact solution for small clinics

Model ISS	ISS 25L
Chamber dimensions Inner dia. x Depth	260 x 482 mm
Chamber volume	25 l
External dimensions W x H x D	1070 x 1025 x 725 mm
Approximate weight	280 kg
Average processable waste kg/h	5-7,5 kg/h *
Power supply**	3-Ph. 380-400 V, 50/60 Hz
Power with steam generator	12 kW
Available sterilization cycles	Waste 134 °C / Textiles no Cut 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 densitiy of the waste
** Adjustable to different voltage systems

Standard featues 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

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.

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

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After Sales Service

Our Service Department provides product support, parts and repair for our units. Genuine Celitron parts ensure that you continue to receive the maximum performance you expect from your steam sterilizer. At any time, if you experience a problem with the unit, we're ready to help. Contact our service team and get personal help for all your questions.

About us

Celitron is a Hungarian (EU) manufacturing company with R&D focus on sterilization and infectious waste treatment systems. We have an international presence, in over 80 countries worldwide.

Celitron develops and manufactures steam sterilizers (autoclaves) for infection control in dental offices, clinics and hospitals and infectious waste treatment solutions for hospitals.

Our vision is to fulfil the market needs with our autoclaves and integrated sterilizer & shredders, these using only green technology and provide clean and sterile environment.

Our ISS units comply with the following international standards and directive guidelines:

General Applicable Directives:

Machinery Directive – 2006/42/EC

Pressure Equipment Directive – 2014/68/EU

Electromagnetic Compatibility Directive – 2014/30/EU

RoHS II Directive – 2011/65/EU

General Applicable Standards:

IEC 60204-1:2016 – Safety of machinery. Electrical equipment of machines. Part 1: General requirement

IEC 61000-6-2:2016 – Electromagnetic compatibility (EMC). Part 6-2: Generic standards. Immunity standard for industrial environments

IEC 61000-6-3:2006 – Electromagnetic compatibility (EMC). Part 6-3: Generic standards. Emission standard for residential, commercial and light-industrial environments

IEC 61000-6-4:2018 – Electromagnetic compatibility (EMC). Part 6-4: Generic standards. Emission standard for industrial environments

References


Peru


Bangladesh


Lybia


Lybia


Nicaragua


Algeria


Philippines

Lebanon


Indonesia

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WE THINK GREEN!

Who are we?

Celitron is a Hungarian (EU) manufacturing company with R&D focus on sterilization and bio waste treatment systems. We have an international presence, with more than 500 deployed medical waste treatment units and over 5000 deployed steam sterilizers in over 80 countries worldwide.

Celitron Medical Technologies Kft.

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ISO 9001 and ISO 13485 certified company with CE certified products