celitron
medical technologies

COMPANY PROFILE

Celitron Medical Technologies is a dynamic company developing and manufacturing high quality infection control equipments and medical waste sterilization & management systems.

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

Our products are certified in accordance with the requirements of the applicable directives, especially the Directive of Equipment under Pressure (97/23/CE) and Directive of Medical Devices (93/42/CE). So as to meet stringent requirements, we control, measure and analyze all processes secured in our Quality Management System in accordance with the international standards.

Celitron intends to grow globally by developing new solutions for the Medical, Dental and Laboratory markets of tomorrow. Celitron's strong innovative drive is based on close relationships with partners and the know-how of the research and development team as well as the quality manufacturing of the Hungarian team.

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high-tech in sterilization

Professional Sterilizers and Medical Waste Solutions

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CELITRON COMPACT SOLUTION FOR BIOHAZARD WASTE DISPOSAL

Integrated Sterilizer and Shredder (ISS)

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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 and promotion 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 COMPACT ENVIRONMENTALLY SOUND MEDICAL HAZARDOUS WASTE SOLUTION, THE INTEGRATED STERILIZER & SHREDDER, IS A LARGE STEAM STERILIZER WITH AN INTEGRATED SHREDDER, DESIGNED FOR ON-SITE CONVERSION OF BIOHAZARD WASTE IN HOSPITALS AND CLINICS, COMPLYING WITH 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
Compact	Room of only 3 x 4 meters is necessary.
Easily and quickly installed	Within one day.

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

15-25kg 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 5,5kW motor is sufficient to rotate the shaft with an RPM of 300-1100 for various operations. The blades are mounted on the shaft and are designed to shred waste such as sharps, dialyzers, syringes, papers, cloth, plastic 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 chamber rotates to the unloading position and the fragmented and non-toxic waste is evacuated to the bin.

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 and glass.

The entire process is automatic, including the opening and closing the door, turning and rotating of the vessel and the sequences of shredding and sterilization. The total cycle time can take as fast as 25-35 minutes and between 15 to 25 kg 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 (18 kW)
The steam generator is built-in to the housing and 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.

OPTIONAL ACCESSORIES

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.

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).

7. ISS - Specifications

Model ISS	ISS AC-575
Chamber Size (dia x depth)	500 x 800 mm
Chamber volume	150 l
Weight with/without housing	880/600 kg
External dimensions with housing (W x H x D)	1290 x 2150 x 2039 mm
External dimensions without housing (W x H x D)	900 x 1200 x 1420 mm
Chamber door	Automatic door with advanced safety features
Sterilization temperature	134° C
Steam Source	Built-in steam generator (with possibility of external steam connection)
Steam pressure (relative)	3 bar (43.5 psi)
Compressed air	6.0-8.0 bar (87-116 psi)
Water source	Filtered tap water
Water pressure	1.0-6.0 bar (14.5-87 psi)
Power supply*	3-Ph. 380-400 V, 50/60 Hz
With steam generator	25 kW

**Adjustable to different voltage system*

6. ISS - Required Utilities

- Electrical: 400V 3-ph, 16 or 25 kW
- Optional- External Steam: 30 KG/hr. at 6 bar
- Water: 30 l/min. cold water, ½" connection
- Drain: 2"-4"
- Compressed Air: 6 bar
- HVAC: Standard computer environment, 10 air exchanges/hour in room, machine connection to outside vent.
- Connection to building ventilation.

8. ISS - Standards

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

Technical Standards

- Machinery Directive 2006/42/EC.
- Pressure Equipment Directive PED 97/23/EC.
- 2006/95/EC Low Voltage Equipment Directive.
- EMC Directive 2004/108/EC Article 7 (1).
- EN 60204-1 Safety of machinery- Electrical equipment of machines - General requirements.
- EN 61000-6-2 Electromagnetic compatibility (EMC)- Generic standards- Immunity for industrial environments.
- EN 61000-6-4 Electromagnetic compatibility (EMC)- Generic standards- Emission standard for industrial environments.

Quality Standards

- ISO 9001:2008– Quality Management System- Requirements.