HOSPITAL SOLID WASTE

The sustainable alternative for the treatment of medical waste

I80 Waste GROUP

Table of contents

Protect yourself and the environment	5
Advantages of on-site treatmenet	6
Services	8
Sterilizer for Hospital Solid Waste	10
Technical specifications	19
Accessories	20
Logistic	24

Protect yourself and the environment

A sustainable alternative for the treatment of medical waste

Newster's Frictional Heat Treatment enables hospitals to process hazardous solid waste in a sustainable and cost-effective way.

The patented technology employs the heat generated by the shredding action to sterilize the waste at the same time without POPs emission into the athmosphere according to the Stockholm Convention.

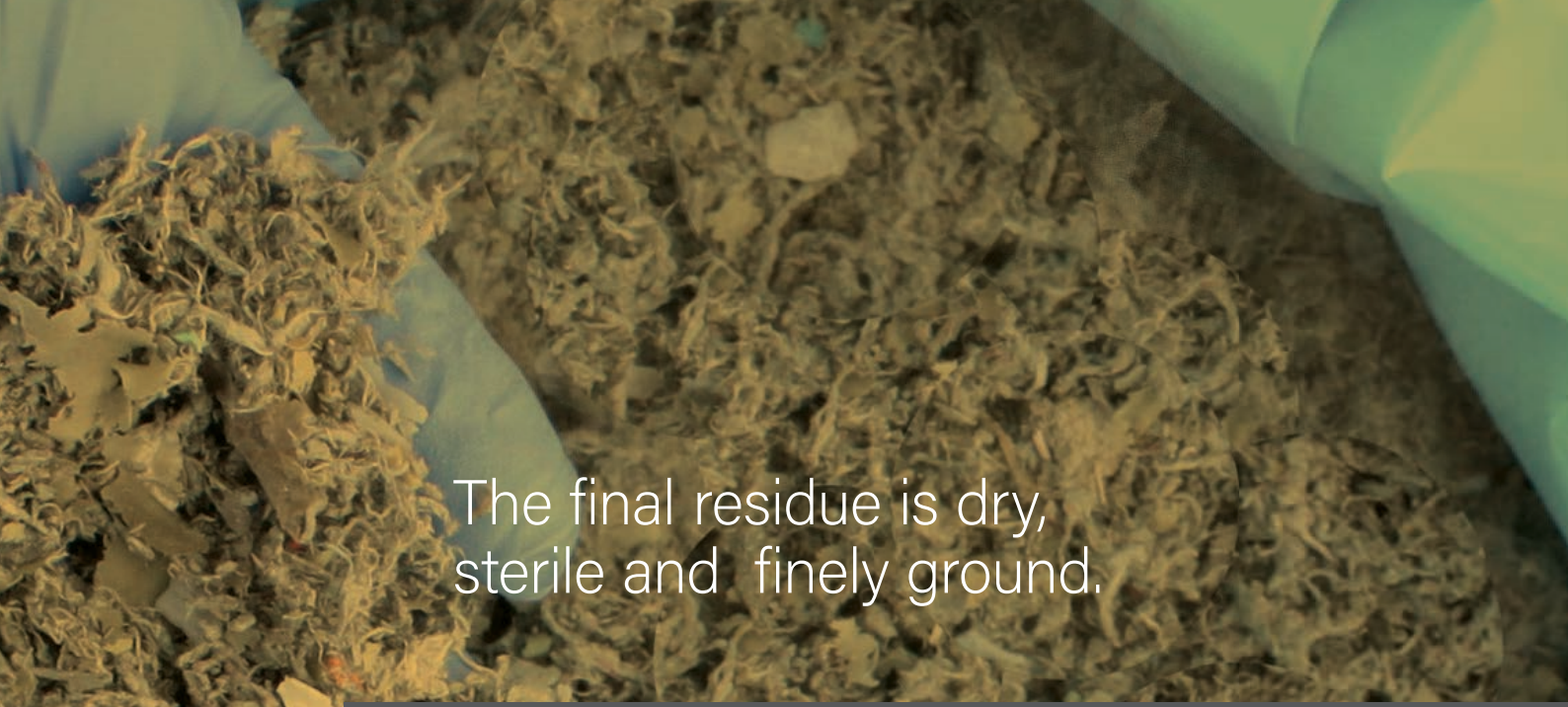
Easy to use, inexpensive and suitable for hospital needs

The equipment is tailored to the needs of the healthcare facility and can be installed on site in a small sized room.

It can be equipped with weighing and bin cleaning systems upon demand. Except power suplly, the connections required are similar to those needed for a industrial washing machine. The technology is easy to use and can be conducted, after a proper Newster training, by an unskilled operator. The machines' downtime risk is minimum.

The running costs inclusive of energy consumption, maintenance, operating staff and consumables allows a significant reduction of the cost of disposal (in Italy it is between 50 and 70%)

Hospital waste before treatment



The final residue is dry, sterile and finely ground.

As well as meeting the public demand for ecological solutions, it offers many other advantages, such as:

- A valuable ecological solution for hospital directors for proper HCW management, including emergency relief episodes (COVID 19, SARS, MERS, EBOLA, AIDS among others).
- Remarkable reduction of disposal costs.
- Proven excellence in hospital sanitation. Improvement of waste management and hospital hygiene thanks to a sensible reduction of biological hazards.
- Patented technology specific for the treatment of solid infectious healthcare waste, including sharps, dialysis filters, PPEs, non-woven materials and fabrics.
- Reduction of the overall quantity of infectious waste generated thanks to improvement in waste sorting and separation.
- No special transportation and disposal needed as environmental risks have been eliminated.
- Decrease of weight/volume and increase of safe storage period lead to a conspicuous transport and storage cost reduction.
- Sturdy equipment with a minimum **product guarunteed lifespan 5 years.**

TREATABLE MATERIAL

Plastic, paper, fabric,cotton, cellulose, glass, small metallic pieces, plastic films, drainage boxes, etc

IT IS FORBIDDEN TO TREAT

Radioactive, inflammable and explosive materials, stones, etc

Services

Design: made in Italy for the planet

Our technology is wholly designed and made in Italy. Our Project and Development team designs every component manufactured and assembled using state-of-the-art machines according to CE and ISO 9001:2015 standards.
All products undergo strict testing to guarantee maximum safety and reliability. All phases of production are carried out at our facility in Cerasolo di Coriano (RN), Italy, where we also provide the basic training required to operate and maintain the equipment.

Customization: tailored to your needs

To provide the best solution to every client, we collaborate right from the start of the project to assess needs and feasibility, and to outline a plan of action.
We are able to develop customized solutions for specific needs thanks to our in-house expertise and flexible organizational structure that relies on a network of mechanical and electronic experts based at the company facility or belonging to our network of highly skilled partner suppliers.

Training: promoting a new healthcare culture

Training programs are provided to all staff involved in the use of the equipment and maintenance programs are included as added value to healthcare organizations. Staff training on waste management is fundamental in order to achieve high standards of infection control, reduce environmental impact and minimize costs. Staff expertise leads to a more informed workforce, a foundation for the improvement of infection control. In order to face new challenges, Newster is developing a e-learning platform, relating to Vocational Training, suitable for use across the EU as well as in other countries worldwide.

Development support: opening new markets

A very important part of our job is understanding the different needs of clients from all around the world that come to us with specific problems.
As pioneers in ecological waste management solutions and members of several organizations dealing with scientific and legislative issues, we have a deep knowledge of these matters. Through our distributors we are able to collaborate closely and provide the technical, scientific, commercial and legal support our clients need. Our products are designed to meet countries' national standards.

After sales: sharing know-how and experience

Our distributors are trained to provide excellent service directly on site and to satisfy customers' various needs. Technicians are given extensive "hands-on training" directly at our facility and they are then able to supply timely and accurate diagnoses and repairs.

Sterilizer for Hospital Solid Waste

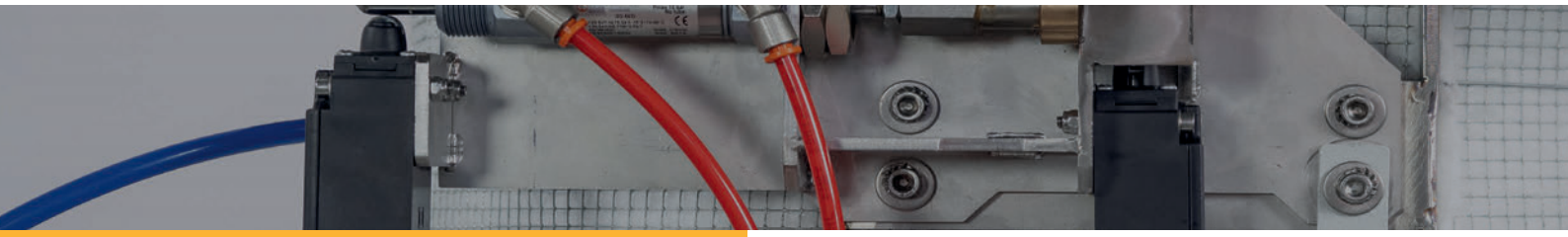
The sterilizing unit is designed for on-site installation up to 150 beds hospitals.

The sturdy design allows the sterilizer to work for several shifts, each lasting 35-40 minutes. The power inverter allows to reduce energy consumption.The automatic treatment takes place in the vessel, which is hermetically sealed during the cycle. The specially designed discharging system allows the operator to easily manage the treated waste without risks.

The unit can be equipped with an optional water recycling system, which increases effectiveness besides further reducing running costs.

newster® NW5

Up to 150 beds hospital



Sterilizer for Hospital Solid Waste

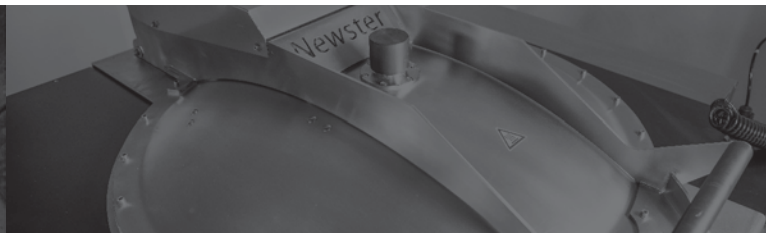
The sterilizing unit is designed for on-site installation up to 300 beds hospitals.

The sturdy design allows the sterilizer to work for several shifts, each lasting 35-40 minutes. The power inverter allows to reduce energy consumption. The automatic treatment takes place in the vessel, which is hermetically sealed during the cycle.

The specially designed discharging system allows the operator to easily manage the treated waste without risks. The unit can be equipped with an optional water recycling system, which increases effectiveness besides further reducing running costs.

newster® NW15

Up to 300 beds hospital



Sterilizer for Hospital Solid Waste

The sterilizing unit is designed for on-site installation up to 600 beds hospitals and external centralized plants.

The sturdy design allows the sterilizer to work for several shifts, each lasting 35-40 minutes. The power inverter allows to reduce energy consumption. The specially designed discharging system allows the operator to easily manage the treated waste without risks.

The unit can be equipped with an optional water recycling system, which increases effectiveness besides further reducing running costs. The system can also be equipped with a **platform lift (see Accessories pag. 13)**.
For larger healthcare facilities Newster Twin, which consists of two mirrored NW50 units sharing a single platform lift, can be supplied.

newster® NW50

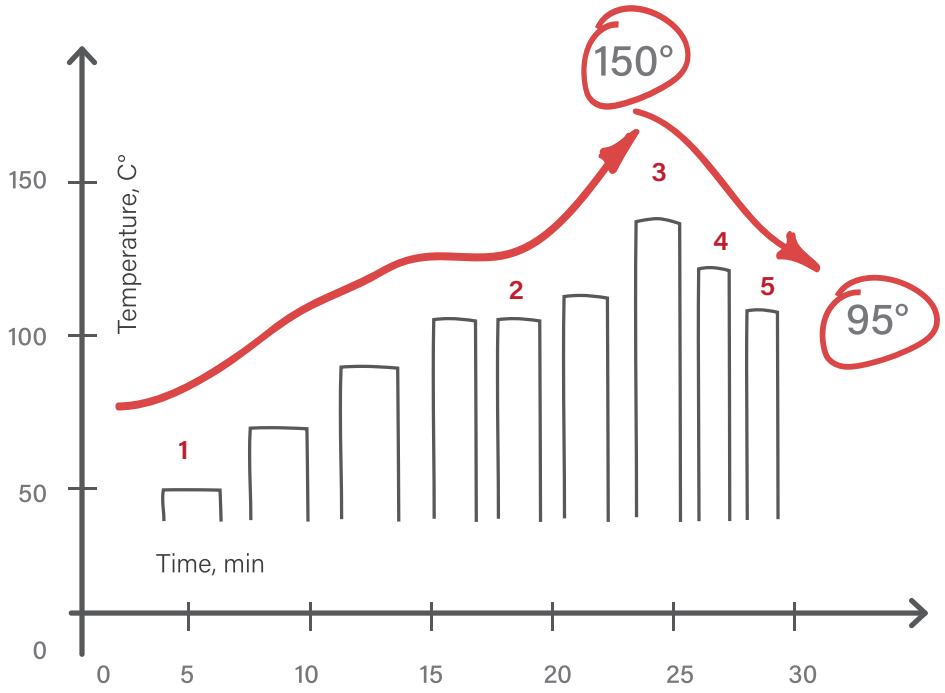
Up to 600 beds hospital and external centralized plants

Newster frictional heat treatment

The treatment is carried out in a single depression chamber without risks to the environment and the operator. No chemicals are used.

During the cycle, the temperature inside the chamber is accurately measured in real time by patented sensors. The duration of the exposure to heat and the cycle parameters are controlled by a PLC. During the cycle, the system automatically generates a printed report, which the operator attaches to the work sheet at the end of each cycle.

Sterilization can be proven by microbiological analysis on the residue and by efficacy tests using biological indicators containing Geobaciullus Stearothermophilus spores with a concentration of Log6.



STAGE 1
Loading and starting

To begin the process, the operator loads the chamber with healthcare waste, closes the lid and presses the cycle start button. Inside the closed sterilization chamber, in negative pressure, a powerful rotor fitted with stainless steel blades finely shreds the waste by impact and friction.

STAGE 2
Evaporation of liquids

As the material is roughly shredded, speed and temperature increase to 100°C, the evaporation phase starts. The temperature remains steady until all the humidity has evaporated.

STAGE 3
Reach required sterilization temperature

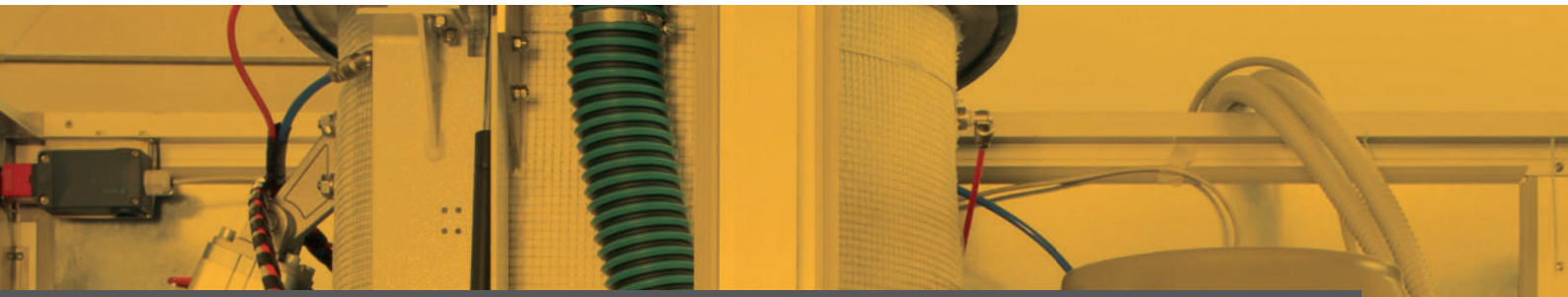
When the humidity has been eliminated, the temperature starts to rise again reaching a peak of 150°C, as required for a complete sterilization according to STAATT Level IV. The finely ground waste is heated to its core and not only on the surface, for the time required to completely destroy microorganisms and bacteria.

STAGE 4
Cooling

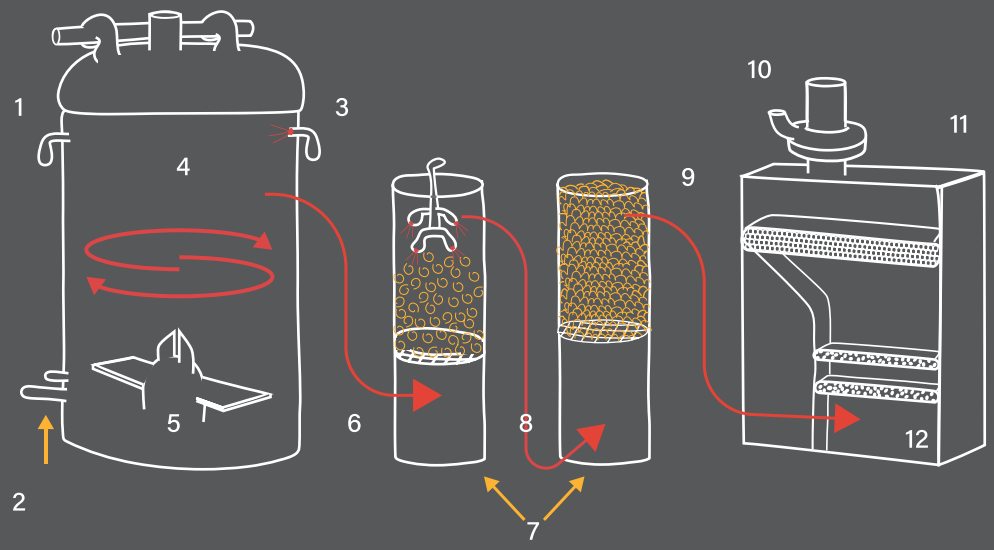
The waste is cooled by sprays of water until it reaches a temperature of 95°C necessary for discharge.

STAGE 5
Unloading

The cycle is over and the treated waste is automatically unloaded. The sterile, finely ground, dry and unrecognizable residue is significantly reduced in weight and volume.



newster® **NW5 NW15 NW50**
Cycle process



1. Air inlet
2. Temperature sensor
3. Water inlet
4. Sterilization cell
5. Grinder
6. Vapour
7. Water outlet
8. Vapour
9. Air
10. Air outlet
11. Absolute filter
12. Carbon actived filter

Technical Specifications		newster. NW5	newster. NW15	newster. NW50
Sterilization method		Frictional Heat Treatment (Unpressurized moist heat)		
Heating method		by impact and friction of the waste		
Processing potential		15 kg/h[1] 240 lt/h	30/40 kg/h[1] 340 lt/h	90-110 kg/h[1] * 840 lt/h
External aspect of treated waste		Homogenious small-sized granules		
Final volume of treated waste		20-25% of initial volume		
Final weight of treated waste		70-75% of initial weight		
Sterilization vessel volume		Roughly 100 liters Ø = 480 mm, H = 550 mm	Roughly 170 liters Ø = 500 mm, H = 856 mm	Roughly 460 liters Ø = 806 mm, H = 965 mm
Overall control system		Programmable logic controller (PLC)		
Temperature measurement		By variable-resistance sensors		
Cycle recording		Time-temperature flow recording		
Final cooling		Roughly 90C° through H_2O evaporation	Roughly 95C° through H_2O evaporation	Roughly 95C° through H_2O evaporation
Dust abatement		In humid environment		
Vessel lid closure		Manual, mechanical blocking and double safety device		
Safety devices		Mechanical blocking system of sterilization vessel lid; power supply to main engine is cut off in case of lid blocking failure. Low voltage command and control panel with automatic power cut-off if panels are open; electrical resistor heating system to be used in case of emergency stop		
Rotating blades and fixed contrblades		Made of special metal alloys		
H_2O Consumption		Roughly 60 lt/h Roughly 50 lt/day with water recycling system (optional)	Roughly 75 lt/h Roughly 50 lt/day with water recycling system (optional)	Roughly 50 lt/day with water recycling system
Water discharge (diameter sewer pipe equipped with a trap)		40 mm		50 mm
Power consumption		overall max 20 kW average 13 kW/h	overall max 30 kW average 18 kW/h	overall max 90 kW average 55-65 kW/h
Size and weight	Sterilizer	80 x 160 x 130 cm	100 x 200 x 160 cm	120 x 250 x 280 cm
	Filter group	80 x 35 x 110 cm	incorporated or	80 x 35 x 160 cm
	Electrical board	60 x 45 x 120 cm	separated	-
	Control panel	-	50 x 80 x 160 cm	80 x 45 x 110 cm
	Master switch	-	-	50 x 80 x 180 cm
	Total weight	740 kg	-	2700 kg
			1060 kg	

1 - Depending on the percentage of humidity and density

** Excluding handling*

The above specifications are intended for information purposes only and may be subject to change without prior notice.

Accessories

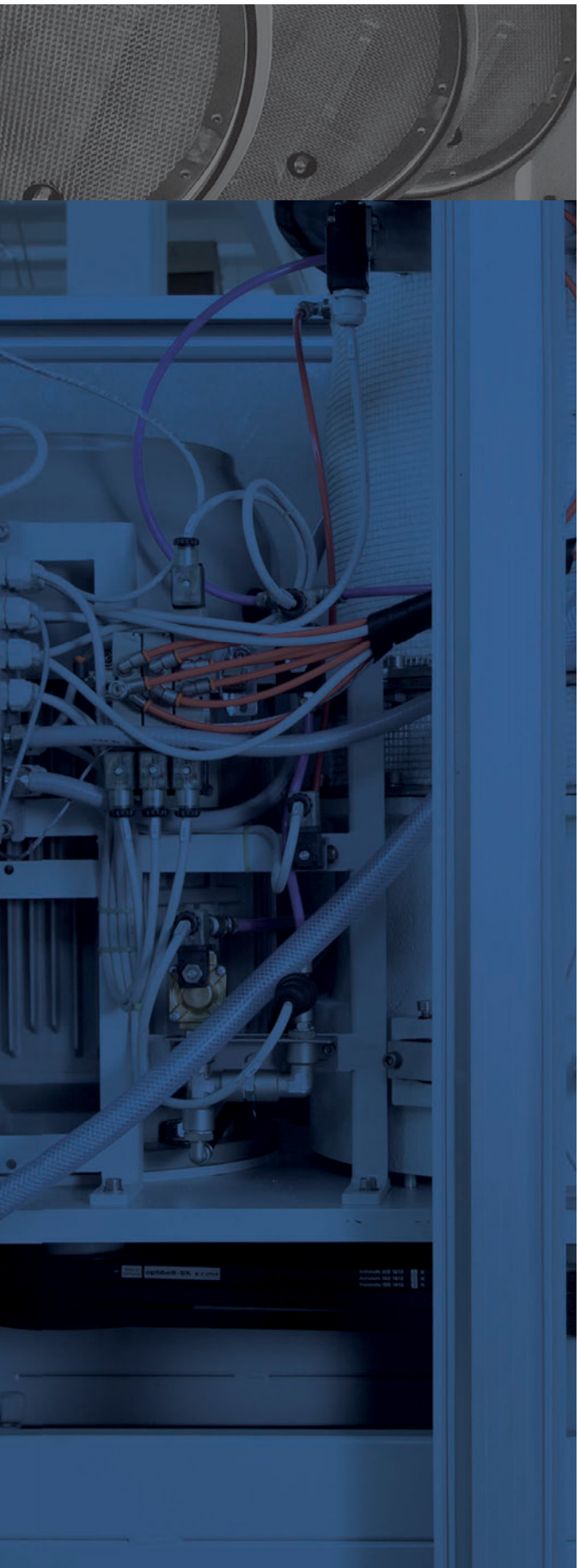
Remote control

Newster products can be equipped with a PLC with Ethernet port. Via this port the systems can be connected to a router and an internet cloud service.

Remote monitoring can be done from any computer connected to the internet. Multiple machines can be checked at the same time.

Platform lift

The platform is designed and manufactured to facilitate the lifting and loading operations. Especially indicated when using 100-liter bins.



Water recycling system

The water recycling system is designed to reduce water consumption and recycle the wastewater resulting from the treatment and sterilization of the medical waste. The system collects the resulting wastewater from the Newster sterilizer, pumps it into a water cooler and then pumps it back to the sterilizer.
The water recycling system reduces water consumption by 90%.

The system consists of the following components:

- Stainless steel Heat Exchanger*
- Water cooler
- Pump group

**Mandatory accessory for the water recycling system.*

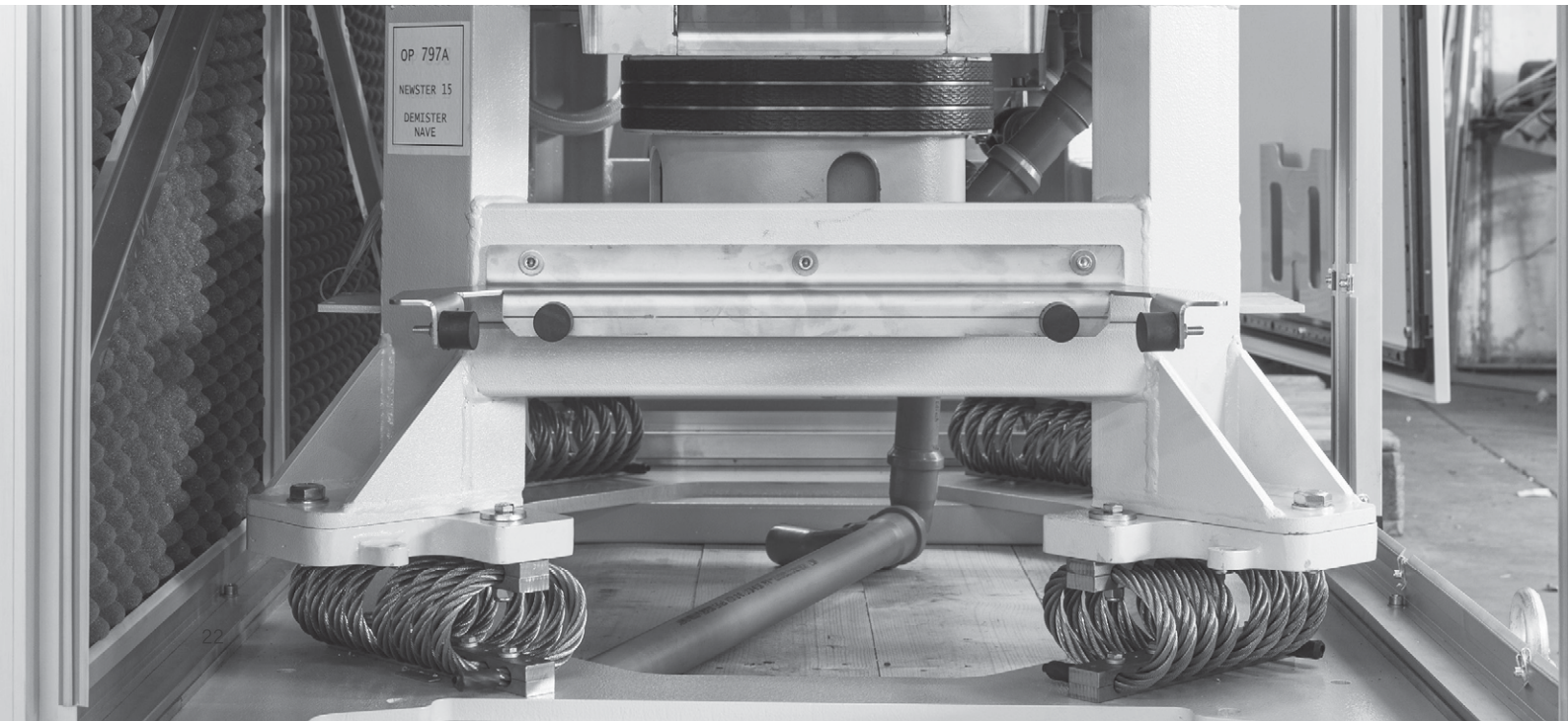
Newster *on board* accessories

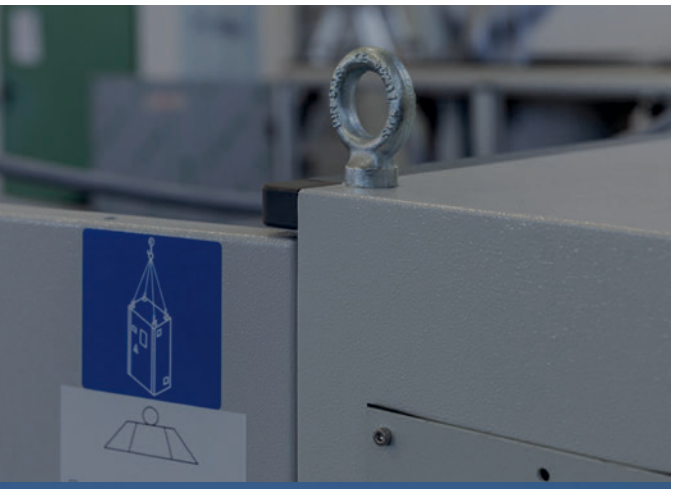
Telescopic rod block

The locking system prevents the panels from closing and slamming inadvertently in the event of oscillations, avoiding any danger during maintenance or operation.

Shock absorbing feet

Suitable for air and naval transport, support the machine firmly hooked to the ground, ensuring its stability even in case of vertical oscillations and strong accelerations.



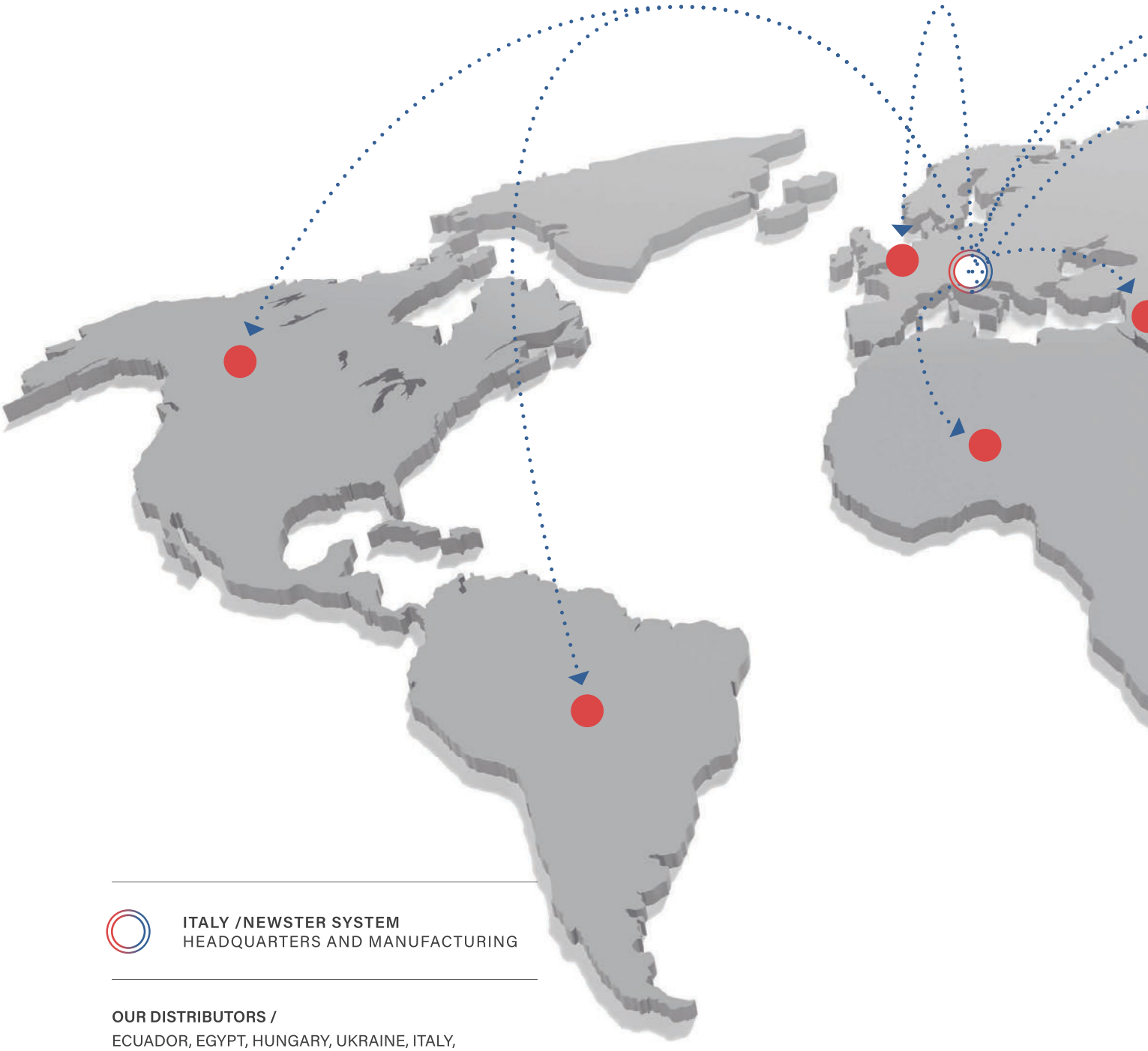


Machine frame Suitable for safe maneuvering with crane

The machine frame has been designed with dedicated hooks to facilitate the handling of the machine and its insertion from above inside the ship

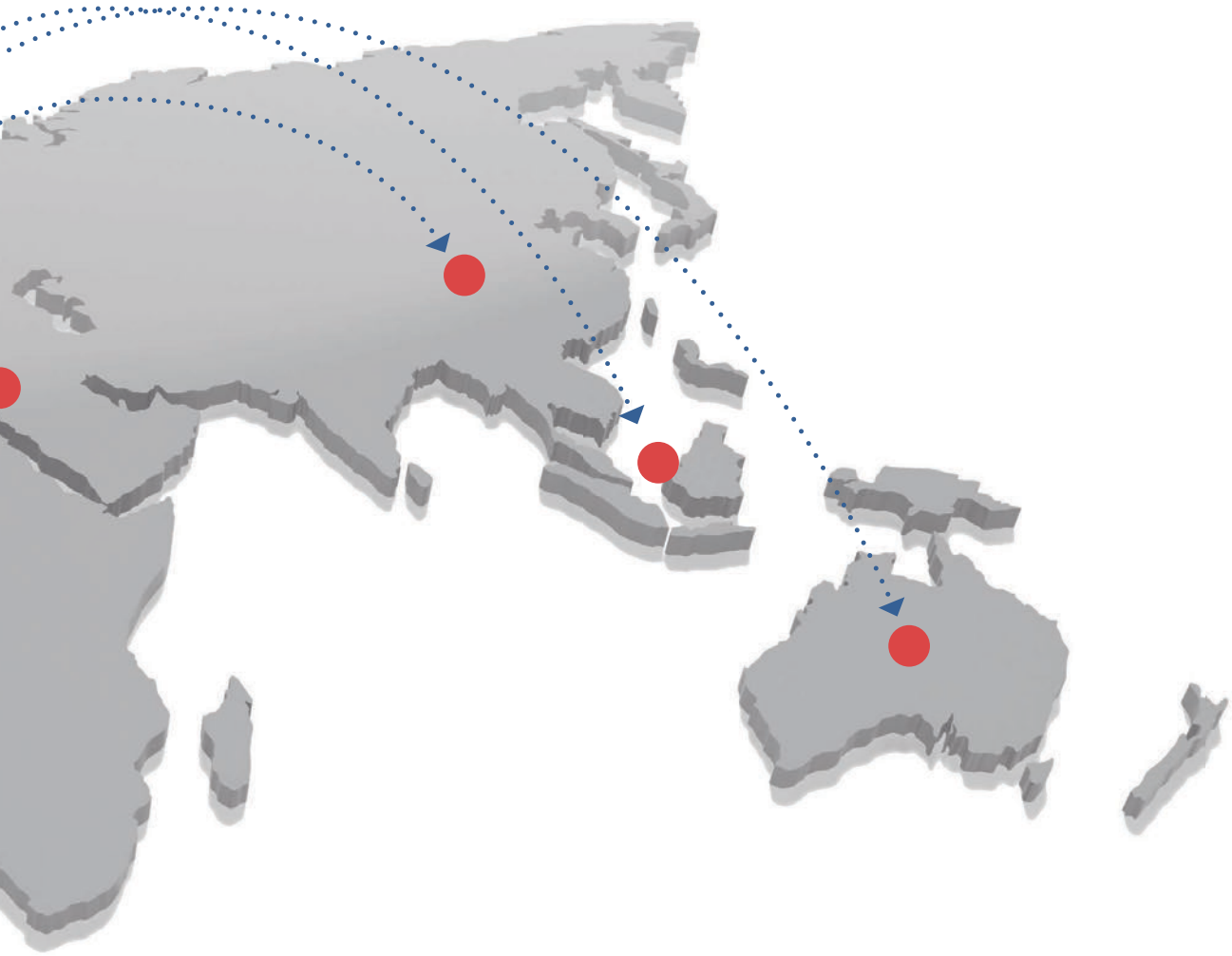
Halogen free cables

Choosen to avoid risks in case of fire, they guarantee the non-toxicity of the fumes, allowing for a quick evacuation and facilitating the operations of the rescue teams.



ITALY /NEWSTER SYSTEM
HEADQUARTERS AND MANUFACTURING

OUR DISTRIBUTORS /
ECUADOR, EGYPT, HUNGARY, UKRAINE, ITALY, PARAGUAY, ROMANIA, RUSSIA, KINGDOM OF SAUDI ARABIA, VENEZUELA, ALBANIA, SOCIALIST REPUBLIC OF VIETNAM, INDIA, AUSTRALIA, CROATIA, PAKISTAN, MAROCCO, PERU, COLOMBIA, NEPAL, TUNISIA, SOUTH AFRICA, PANAMA, GREECE, PHILIPPINES, INDONESIA, TURKMENISTAN, AZERBAIJAN, UZBEKISTAN, TAJIKISTAN , KAZAKHSTAN, NORTH MACEDONIA, SRI LANKA, ALGERIA, CHINA, MOZAMBIQUE, GHANA, NIGERIA, MALDIVE, MALAYSIA, NAMIBIA, ZIMBABWE, RWANDA.



Logistic department

Opening new markets

Newster logistics office, thanks to the consolidated experience acquired in the sector, is able to efficiently manage machinery and spare part orders, transport and shipments worldwide. In the last 20 years we have delivered our goods in Europe, Russia, Asia, Africa, South America and Australia. Our shipping methods are based on the established International Commercial Terms (Incoterms 2020).

Our logistic expert provides customers with the most convenient transport cost rates and provide documentations and certifications required for every country to locally facilitate customs clearance and timely deliver your goods. Newster logistic support includes: document preparation, packing list, international standards regarding packaging, coordination of road, rail, air and sea freight as foreseen in the relevant contract.

Certified by

180Waste
GROUP

P.O. Box 7100
Yarralumla ACT 2600

Ph. 1800 073 904
info@180wastegroup.com
www.180wastegroup.com