



# Dutch Medical Waste System

The most cost effective solution for the treatment of Medical waste

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## The problem


During many processes in the medical world, medical waste is generated. This type of waste, such as disposable needles en syringes, bandages, artificial kidneys etc, as specified in Eural cat 18.01.03, may not be used as landfill. Medical institutions are responsible for the safe disposal of this material, and should protect the public and the environment from the dangers of contamination and infection during its transportation and treatment.

## The Solution

The Dutch Medical Waste System, DMWS, offers the solution for the treatment of this specific type of waste.

The DMWS was developed by a joint venture of Nido Recyclingtechniek B.V., Mesys B.V. and Monvicon B.V.

The DMWS is specially designed for the continuous, environmentally friendly treatment of medical waste into a decontaminated, dry, high caloric product.



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# The DMWS

## Benefits of the DMWS

- Unique environmentally friendly treatment, without chemicals.
- Destroys all micro-organisms at a temperature of  $> 200^{\circ}\text{C}$ .
- Waste is reduced to 20% of its original volume.
- Continuous process with a capacity up to 500 kg/hr.
- Residue can be used as a high caloric fuel.
- Mechanical parts are modular and easy to replace, resulting in minimum down time.
- Suitable for medical waste under Eural codes 18.01.03 b-c-d-e and 18.01.04.
- The DMWS is installed in a 30 ft container.
- Available as a mobile or stationary unit.
- System management, failsafe, PLC/PC with data / output.
- Automatic printout of the process parameters for the logistics.
- Remote Monitoring by manufacturer.
- Self-decontamination cycle at the end of the day.
- The DMWS complies with all European Safety Standards.

## Optional features

- A self supporting DMWS with its own electric power generator.
- The DMWS can be equipped with a lift system for easy placement on a flatbed trailer.
- Connection to an existing computer network.



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# How it works

## First Stage

The containers with medical waste are placed on a lift platform, which leads to a lock. This lock regulates distribution to the shredder and acts as a seal. By using below atmospheric pressure, contaminated air cannot escape. The lock turns, allowing the container to fall into the shredder.

The four-shaft shredder then reduces the size of the material.

The medical waste is now ready for the next step. The shredder is programmed to reject indestructible materials such as prostheses.

The shredder will rotate in the opposite direction and stop. A signal indicates that the object should be removed manually.

### In this first stage the following options are available

- A conveyer belt for easy loading of containers.
- A system detecting radioactivity of the containers before they are put into the DMWS. If positive, the process is interrupted. The lift stops and the system will generate an alarm. The container can be manually removed and should be treated as radioactive waste.
- A mechanism that automatically ejects radioactive containers, so as not to interrupt the process.



## Second stage

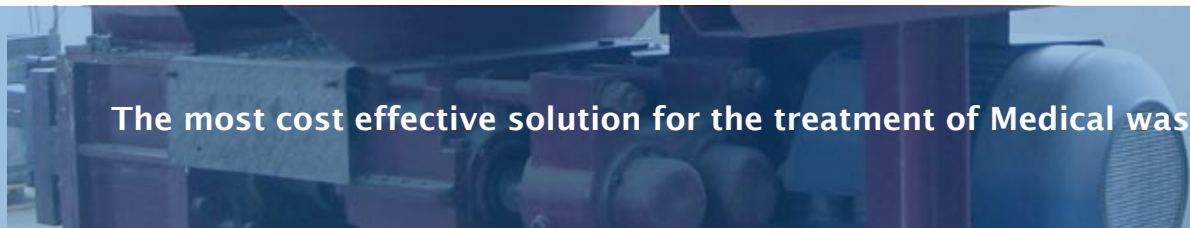
The shredded material is taken into the screw conveyor. Here the liquid and solids are mixed to a moisture content of 15 % maximum.

This homogenous mixture is then compressed. The temperature rises through compression and friction. This process causes the moisture to evaporate, and eventually the mixture reaches a temperature over 200°C. This temperature is maintained until the complete mass is decontaminated. When the mixture leaves the compression chamber the remaining sterile moisture evaporates, and the solid residue will cool down. After this process the temperature of the material is 120°C to 140°C, and can still be easily reshaped. The last step is to break up the material into briquettes or pallets, for easy transportation and storage into containers or big bags. The residue is gray, completely free of pathogens, high caloric and unrecognizable.

### In the second stage the following options are available

- A quick cool-down program.
- A mechanism to transport the residue to an external storage container.

If the supply of medical waste stops, the process will end automatically. Subsequently a two-hour self-decontamination program will start. The air that is extracted during the process is sterilized and filtered before it is discharged. There is no need for a drain, since all liquid evaporates.



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## Operating the DMWS

The operator's tasks are:

- General supervision of the DMWS.
- Control the supply of medical waste containers.
- Removal of the residue.
- Processing of the daily production reports.

## Breakdown

A breakdown is automatically reported to the manufacturer. The system then asks if the self-decontamination program should be started.

After the decontamination process is completed, any repairs can be performed without risk.

## Contact

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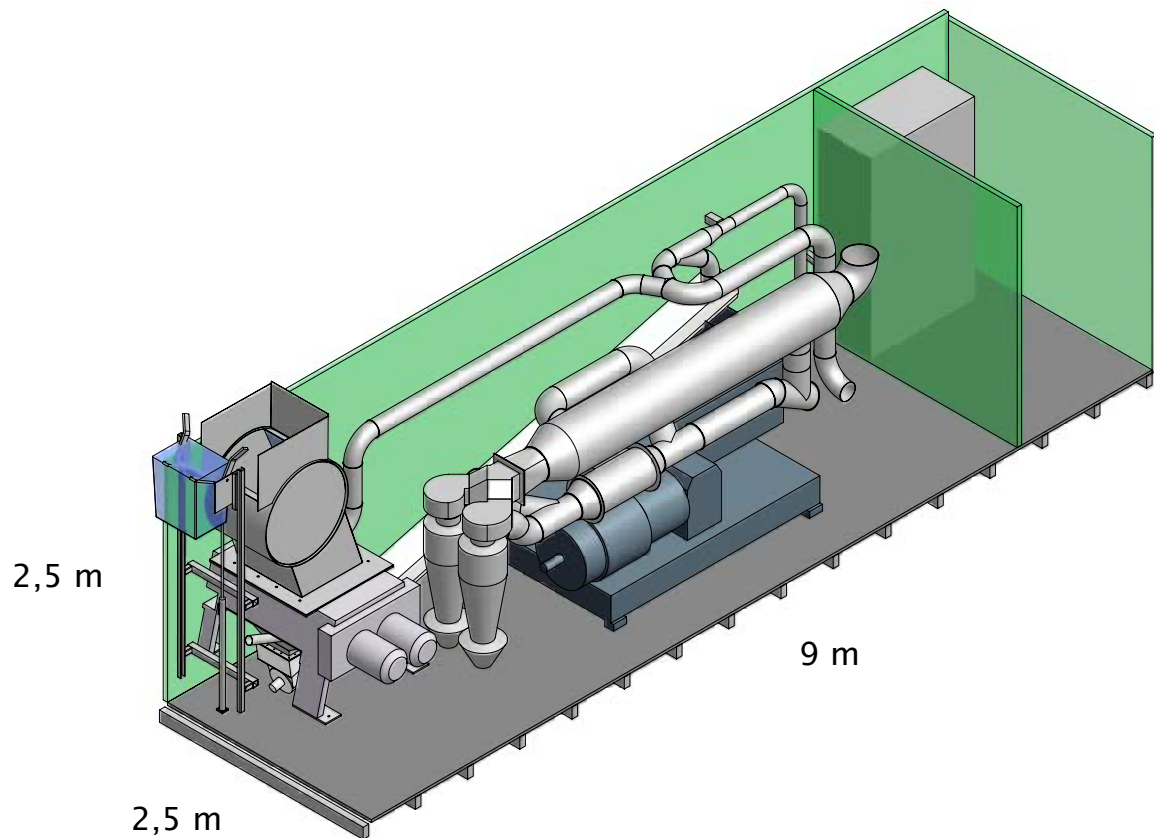


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## The composition



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