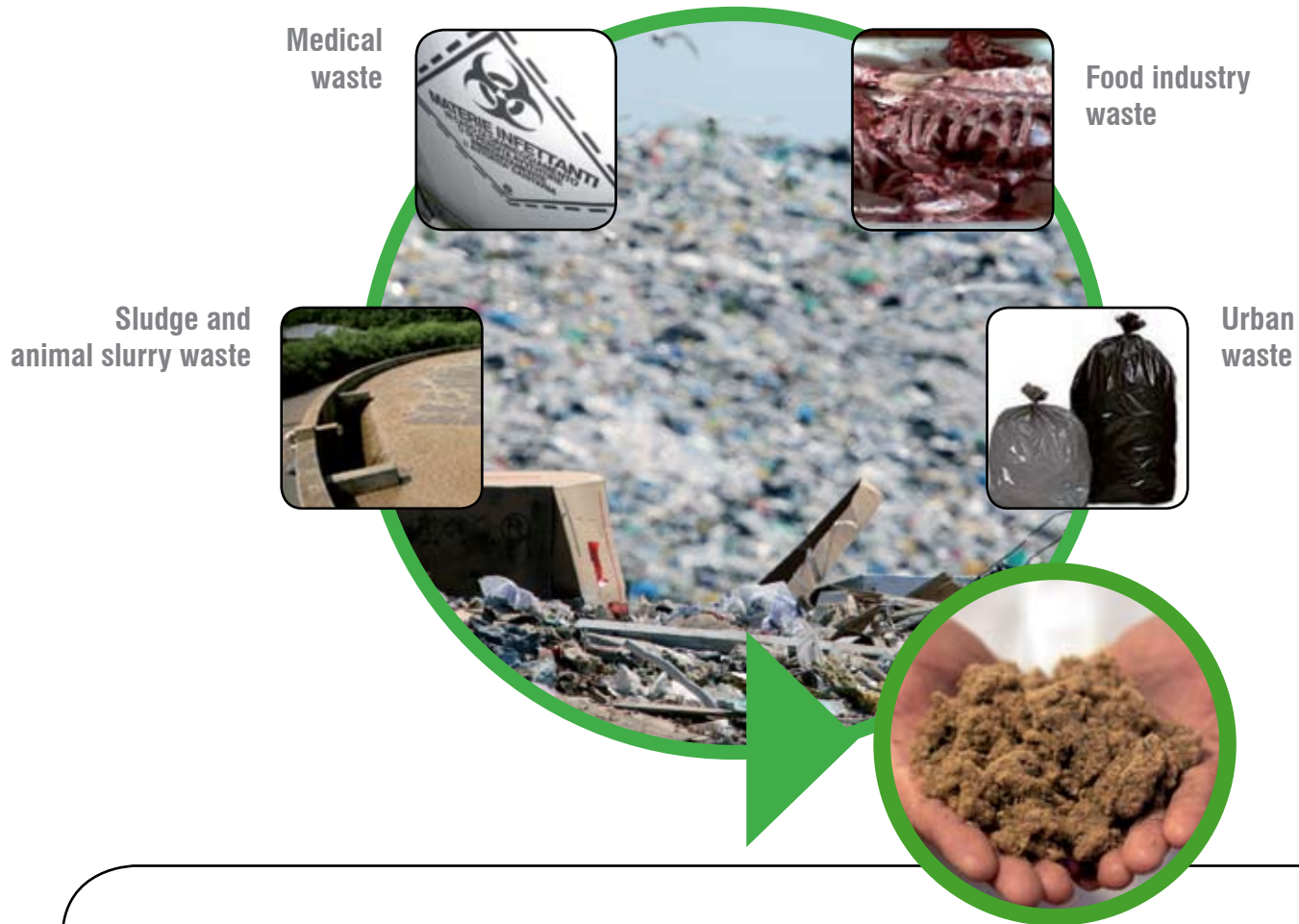




CONVERTER[®] Series

Treating waste where it is created.

A NEW WAY OF THINKING ABOUT WASTE



**Why throw away all this energy?
Convert it!**



**How much the waste costs today?
... and what about tomorrow?**

CONVERTER[®]

is the solution that guarantees you:

- Super savings**
- Zero environmental impact**
- Zero logistics**

...

... And lots of other advantages besides, which makes Converter the best solution for treating

WHAT IS THE CONVERTER?

THE BEST TECHNOLOGIES ARE OFTEN THE MOST SIMPLEST

Converter's process features a powerful rotor that grinds the waste down and supplies, via friction and impacts, the energy required to carry out dehydration and, if requested, sterilization.

Everything is carried out in a single **depression** cell thereby avoiding any risks for the environment and the operator.

There is no need for specific premises or qualified workers.



*No necessity to open
the waste containers*

Converter is synonymous with modularity: it can be located directly where it is needed for treatment, or on traditional motor vehicles so that it is always ready and available in any situation or emergency.

It offers lots of advantages due to the fact that it can always be located directly on site, with **considerable savings in terms of logistics, storage, transport and environmental safety.**

... AND IT ALWAYS GUARANTEE MAXIMUM EFFICIENCY

Unlike other systems, Converter eliminates water from materials, scrap and waste by means of EVAPORATION and hence absolutely without using pressure and polluting the atmosphere.

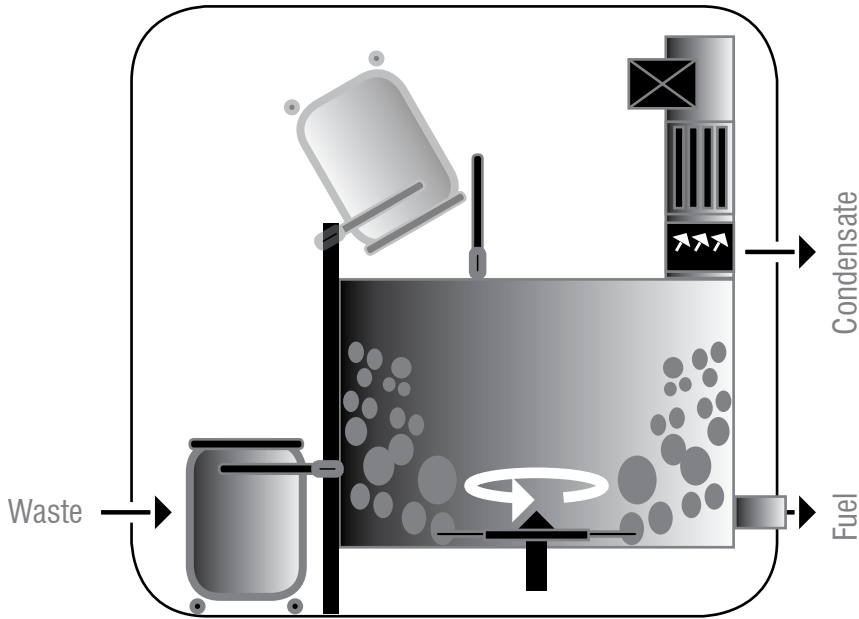
The material obtained, following total elimination of water, can be used to produce energy with the MINIMUM quantity of emissions into the atmosphere.

In point of fact, water incineration, due to the latter's low molecular weight, involves large volumes of emissions and hence considerable dispersion of pollutants into the atmosphere.

The **Converter** process, on the other hand, involves minimum energy dispersions because the energy required to eliminate water is produced within the material to be treated, and with maximum efficiency.



FUNCTIONAL DIAGRAM

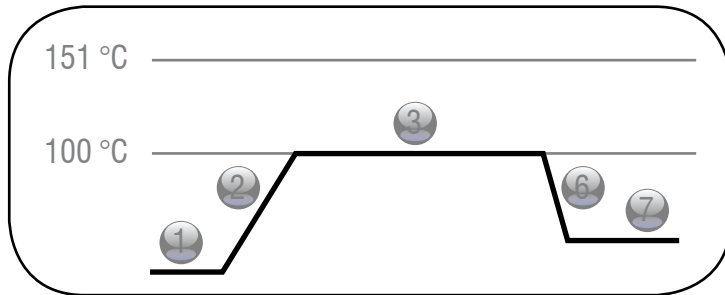


STAND-ALONE TRANSPORTABLE VERSION

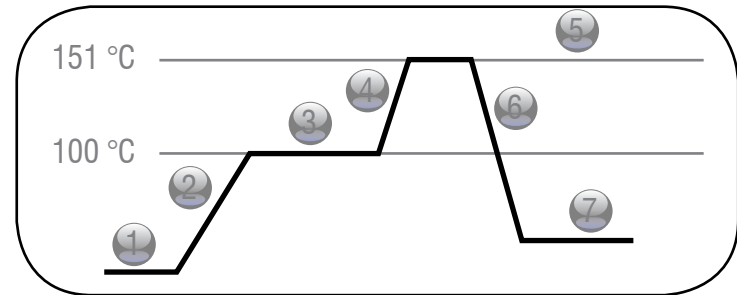
Transportable module for health and civil emergencies.



PROCESS PHASES



Pasteurization



Sterilization

1-Loading 2-Heating 3-Evaporation/Pasteurization 4-Heating 5-Sterilization 6-Cooling 7-Unloading

Hospital Series **CONVERTER**

WHAT IS THE BEST SOLUTION FOR MANAGING INFECTIOUS HOSPITAL WASTE?

Not incineration, because the risk of atmospheric emissions means that incinerators are subject to increasing public criticism and no longer represent a feasible solution. Moreover, the most recent legislation requires extremely complex and expensive installations.

Sterilization is undoubtedly a better solution.



H series Converter



A PERFECT SOLUTION

Converter H series is an apparatus purposely designed for the treatment and sterilization of pathogenic-hazardous sanitary waste.

The process allows one to get full sterilization **no matter what the waste microbial load is**.

This innovative system reaches elevated temperatures which originate from **the waste inside**. The patented process is based on the transformation of mechanical energy into thermal energy.

Converter H series applies the noted moist-heat sterilization method. However **it's not an autoclave**.

The final product is **sterilized, dry and odour-free, with a reduction of 70% in volume, 30% in weight**.

Converter H series doesn't need pressure to reach a temperature of 151 °C.

Converter H series doesn't need specialized operators for its operation.

Converter H doesn't generate any kind of pollution such as waste-water or vapours released into the environment.

... FROM ALL POINTS OF VIEW.

No modifications in the usual rules of sanitary waste collection are required by adopting the **Converter H series** equipment.

Machinery that is easy to position without having to construction foundations or structural works.

The sterilization cycle is performed in a **fully-automatic** way.

The final product no longer contains sharp or cutting objects.

The reliability of the **Converter H series** equipment always allows the work to be completed, even in case of mechanical or electrical failure: an on-board emergency system allows completion of the sterilization, making the final product manageable.

The final product is **dry and inert** and can easily be stored for a long time before its next destination (energy recovery, incineration, assimilation to municipal solid waste).



Hospital Series CONVERTER

COMPARISON WITH OTHER TREATMENT TECHNOLOGIES

	Dry	Inert	Sterilized	Reduced weight	Reduced volume	Stable	No construction work for installation	No polluting emissions
process								
Incinerators	•	•	•	•	•	•		
Autoclaves			•		•			
Micro-waves			•		•			
Converter	•	•	•	•	•	•	•	•

THE PRODUCT OBTAINED IS:



- **Sterile**
- **Dry**
- **With no sharp objects**
- **70%* lower in volume**
- **30%* lower in weight**
- **Stable in time**
- **High heating power**

**Average*



-H- SERIES MODELS

Description	Data	H10	H25	H75	H200	H500	H1500
machine	Waste treatment capacity Kg/h	10	25	75	200	500	1500
	Electric energy consumption Kwh/Kg	0,4	0,4	0,4	0,4	0,4	0,4
	Water consumption (without cooling unit) m3/h	0,2	0,5	1,5	4	10	32
	Capacity required (without cooling unit) l/s	0,15	0,35	1	2,7	6,6	20
	Sodium hypochlorite consumption cc/h (optional)	10	25	75	200	500	1500
	Motor power kW	15	30	75	180	400	1100
	Automatic loader	no	no	yes	yes	yes	yes
	Machine body width mm	1200	1700	4500	5500	7000	10000
	Machine body depth mm	800	1000	1700	2000	2500	3000
	Machine body height mm	1200	1300	3000	4400	5700	8000
	Total weight empty Kg	400	800	3000	8000	30000	48000
	Three-phase voltage	400/440	400/440	400/440	400/440	400/440	690/760
	Frequency Hz	50/60	50/60	50/60	50/60	50/60	50/60



*Inside the cell:
fixed and rotating blades*



H 10 series Converter



H 25 series Converter



H 75 series Converter



H 200 series Converter



H 500 series Converter



H 1500 series Converter

MO/DF Series CONVERTER

MO series CONVERTER

To dehydrate and sterilize:

- Urban waste
- Urban residues from air and maritime transport
- Urban residues from military camps
- Ulaughtering scraps
- Organic urban waste
- Stock breeding faeces
- Biological sludge



DF series CONVERTER

To dehydrate and pasteurize:

- Stock breeding faeces
- Biological sludge



ADVANTAGES OF THE MO/DF CONVERTER SYSTEM:

- Possible to treat scraps directly where they are produced.
- Reduced weight and volume.
- Waste treated is dry and stable.
- The treatment system is completely isolated from the external environment and does not release odours.
- Possibility of treating heterogeneous scraps including bones, soft parts, liquids, eggs, hairs, feathers, fur etc.





SOLUTIONS TO EVERY PROBLEM

The **MO and DF series Converters** are designed to treat **abattoir and food processing waste generated by stockbreeding**.

The equipment allow a fast transformation of the by-products directly on-site.

When treating scraps containing fats the equipment is provided with a batching system and reflux of absorbent material. As a result, the material obtained flows easily and can be handled without any problems.

The final product is dry and odour-free, wholly transformed and finely ground.

The product can be used as a combustible for agricultural use, in a totally environmental respect and BSE norms about protection. As a result of the dehydration, **50 % reduction in volume and 70 % reduction in weight** (on average) are achieved.

No specialized operators are required to operate the **Converter MO and DF series**.

Converter MO and DF series doesn't generate any kind of pollution such as waste-water or vapours released into the environment.

The **MO and DF Series Converter** is suitable for merchant and cruise ships, tourist villages and military camps.

INNOVATIVE FEATURES:

- All in one
- Loader included
- No civil engineering required
- Product ready for gasification
- Treatment on site
- Rapid process and completely automatic
- Completely closed
- No water consumption
- No odours, no vapours
- Reliability
- Environmentally friendly

TREATED PRODUCT:



Slaughterhouse scraps



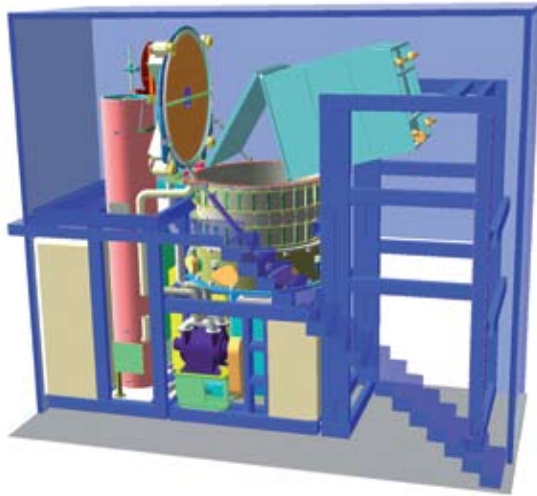
Sludge



Urban waste



MO/DF Series CONVERTER



*MO/DF series Converter
- Inside section*



*MO/DF series Converter
- Outside view*

POSSIBILITY OF TREATING AN ENTIRE ANIMAL WITHOUT HAVING TO SECTION IT PREVIOUSLY

THE TREATMENT IS CARRIED OUT IN A CLOSED, CONTROLLED ENVIRONMENT

FUNCTION PRINCIPLE

The **converters** generate heat **directly within the waste**, by means of friction and impacts.

In the case of the MO series, **sterilization** is guaranteed using the “moist heat” method according to which the material is maintained at high temperature with application of water in liquid form, conditions that kill micro-organisms.

In the case of the DF series, sludges and animal slurries are stabilized through **pasteurization**.

Vacuum is used to evaporate humidity from the waste, with a consequent **saving on energy for heating**.

MAIN FEATURES

The equipment is provided in parts that are suitable for standard transport, rapidly connected at the installation site. A **closed-type structure**, realised in steel sections, supports each component. Enamel finishing. Anti-vibration feet are used for equipment support on a concrete floor.

The process occurs in a single chamber where the waste is supplied and from where the product is extracted.



The entire process is controlled via PLC and is monitored via a tactile-type panel.

The operational parameters e.g. cycle number, data, time of events, temperature etc. are registered using a printer.

The **Converter** is equipped with all necessary components, including: electric power panel comprising general switch, motor actuating with variable speed, teleswitches, fuses, relays, transformers for auxiliary circuits, cooling fans, acoustic/visual communication column, control panel including PLC, tactile-type operator panel, lock key, buttons, connections, hydraulic control unit, solenoid valves, pressure accumulators, wires, bactericide batching control unit, valves, tubes and junctions.

The unit is **CE marked** and complies with all relative **CE directives** currently in force, including CE 72/23 (low voltage equipment), CE 89/336 (electromagnetic compatibility), CE 98/37 (machinery).

USE ON TOURIST VILLAGES

Treating waste directly on site makes it possible to reduce volumes, stabilize the material and **avoid the creations of odours** that are particularly unpleasant in such locations.

WASTE LOADER

The equipment is provided with a servo-actioned feeder designed to lift and tip over, at each start of the treatment cycle, a special container with a volume corresponding to that of the treatment chamber. Two wheeled containers are provided in stainless steel.

TREATMENT CHAMBER

The chamber comprises: upper body in AISI 316L stainless steel, replaceable lower body and bottom, realised in anti-wear **HARDOX** steel; replaceable stationary blades on the wall, electric motor, rotor and two blades coupled to the drive shaft, servo-assisted cover in AISI 316L stainless steel.

The vapours exiting from the chamber travel to a filters group that comprises: pipes condenser, in **AISI 316L stainless steel**; reflux pump, aspiration pump and accessories, input dust filter, active carbons filter, output dust filter, absolute filter.

At the end of each work cycle, the condensate is expelled and the user must provide for its disposal e.g. into the drains or sending it to a purification station etc. The production of condensate corresponds to the humidity of the waste that is completely extracted.

MO/DF Series CONVERTER

OPTIONALS

Cooling station

The system comprises: cooling unit, polyethylene tank, circulation pump, assembly structure, valves, pipes and accessories.

Feeder and screw

For the addition of absorbent materials, like shavings or already treated product, in the treatment chamber. Recommended for treatment of slaughtering scraps, organic urban waste, stock-breeding faeces, biological sludges. The system comprises: batching hopper, screw, plug-type connections.

DF SERIES MODELS

Model	Technical description	Material	Theoretical specific weight (kg/m ³)	Average humidity (%)	Type of treatment	Hourly throughput (kg/h)	Electric energy (Kw/Kg)
DF100	Dimensions (mm) 1400 x 800 x 1350 Electric power 25 kw Weight 500 kg	Animal faeces	900	70	Pasteurization	40	0,66
		Sedimentation sludges	800	80	Pasteurization	35	0,75
DF200	Dimensions (mm) 1700 x 1000 x 1350 Electric power 60 kw Weight 800 kg	Animal faeces	900	70	Pasteurization	90	0,66
		Sedimentation sludges	800	80	Pasteurization	80	0,75
DF700	Dimensions (mm) 5000 x 1700 x 3200 Electric power 240 kw Weight 4000 kg	Animal faeces	900	70	Pasteurization	340	0,66
		Sedimentation sludges	800	80	Pasteurization	300	0,75
DF1500	Dimensions (mm) 6500 x 2000 x 4600 Electric power 600 kw Weight 10000 kg	Animal faeces	900	70	Pasteurization	850	0,66
		Sedimentation sludges	800	80	Pasteurization	750	0,75
DF4000	Dimensions (mm) 8000 x 2500 x 6000 Electric power 1800 kw - Weight 32000 kg	Animal faeces	900	70	Pasteurization	2500	0,66
		Sedimentation sludges	800	80	Pasteurization	2200	0,76



MO SERIES MODELS

Model	Technical description	Material	Theoretical specific weight (kg/m3)	Average humidity (%)	Type of treatment	Hourly throughput (kg/h)	Electric energy (Kw/Kg)
MO100	Dimensions (mm) 1400 x 800 x 1350 Electric power 25 kw Weight 500 kg	Slaughtering scraps	500	50	Sterilization	40	0,54
		Organic fraction	500	70	Sterilization	30	0,74
		Urban waste	300	40	Sterilization	40	0,47
		Animal faeces	900	70	Pasteurization	40	0,66
		Sedimentation sludges	800	80	Pasteurization	35	0,75
MO200	Dimensions (mm) 1700 x 1000 x 1350 Electric power 60 kw Weight 800 kg	Slaughtering scraps	500	50	Sterilization	100	0,55
		Organic fraction	500	70	Sterilization	80	0,74
		Urban waste	300	40	Sterilization	100	0,48
		Animal faeces	900	70	Pasteurization	90	0,66
		Sedimentation sludges	800	80	Pasteurization	80	0,75
MO700	Dimensions (mm) 5000 x 1700 x 3200 Electric power 240 kw Weight 4000 kg	Slaughtering scraps	500	50	Sterilization	360	0,56
		Organic fraction	500	70	Sterilization	280	0,75
		Urban waste	300	40	Sterilization	360	0,49
		Animal faeces	900	70	Pasteurization	340	0,66
		Sedimentation sludges	800	80	Pasteurization	300	0,75
MO1500	Dimensions (mm) 6500 x 2000 x 4600 Electric power 600 kw Weight 10000 kg	Slaughtering scraps	500	50	Sterilization	900	0,56
		Organic fraction	500	70	Sterilization	700	0,76
		Urban waste	300	40	Sterilization	800	0,50
		Animal faeces	900	70	Pasteurization	850	0,66
		Sedimentation sludges	800	80	Pasteurization	750	0,75
MO4000	Dimensions (mm) 8000 x 2500 x 6000 Electric power 1800 kw Weight 32000 kg	Slaughtering scraps	500	50	Sterilization	2500	0,57
		Organic fraction	500	70	Sterilization	2000	0,76
		Urban waste	300	40	Sterilization	2300	0,51
		Animal faeces	900	70	Pasteurization	2500	0,66
		Sedimentation sludges	800	80	Pasteurization	2200	0,76

Note:

In the MO/DF 700, 1500 and 4000 models, height can be reduced by replacing the bin loader with a belt loader.

NV Series CONVERTER

FOR ELIMINATION OF SHIP-GENERATED SOLID URBAN WASTE

CARGO SHIPS, FISHING BOATS, LEISURE CRAFTS,
YACHTS, CRUISE SHIPS, MILITARY SHIPPING,
OFFSHORE RIGS.



THE PROBLEM

Ship-generated waste must not be discharged into the sea, not only for environmental reasons.

To control the risk of propagating diseases, international regulations impose stocking of the waste and delivery to the specific port waste reception facilities.

Dumping of any type of waste in the Mediterranean has been officially banned by the Unep, the United Nations Environment Programme.

Those responsible are required to record and document all waste conferred.





TECHNICAL DRAWBACKS

Stocking of solid waste on board seagoing vessels and offshore installations gives rise to obvious **problems of preservation and deposit**.

Often high volumes, fermentation, leakage of liquids, the danger of infection, odors, insects, etc.

In the case of large vessels or long journeys, machinery such as bins, compactors, etc. must be installed to facilitate waste deposit, with costs that very often do **not provide a satisfactory solution to the problems involved**.

THE SOLUTION

With **Converter** appliances, waste can be **treated immediately where it is produced**.

The resulting product is **dry, stable, pasteurized, of very reduced volume and weight**, easy to stock and handle.

No problems from the time of treatment to the next port of call and delivery to port waste reception facilities.

The lower quantity to be conferred promotes considerable savings.

... the Converters pay for themselves

THE CONVERTERS ACCEPT ALL TYPES OF SHIP-GENERATED URBAN WASTE

KITCHEN RESIDUES	PLASTICS
CABIN	ORGANIC
CATERING	LIQUIDS ABSORBED
CLEANING	COOKING OIL
PAPER	GLASS
PACKAGING	CANS

ADVANTAGES

- Economy
- Immediate transformation of residues
- Reduction in space occupied
- Simplicity
- Fast installation
- Easy functioning
- Mono-bloc equipment
- Prefabrication
- Workshop testing
- Automation
- Sturdiness
- Experience of more difficult types of waste
- Remote assistance services
- Does not use pressure

NV Series CONVERTER

NV SERIES, FIVE MODELS FOR A WIDE POWER RANGE

Model	Technical description	Material	Theoretical specific weight (kg/m ³)	Average humidity (%)	Type of treatment	Hourly throughput (kg/h)	Electric energy (Kw/Kg)
NV100	Dimensions (mm) 1400X800X1350 Electric power 25 kw Weight 500 kg	Shipping organic fraction	400	70	Pasteurization / Sterilization	35	0,67
		Shipping urban waste	200	40	Pasteurization / Sterilization	40	0,41
NV200	Dimensions (mm) 1700X1000X1350 Electric power 60 kw Weight 800 kg	Shipping organic fraction	400	70	Pasteurization / Sterilization	80	0,67
		Shipping urban waste	200	40	Pasteurization / Sterilization	90	0,42
NV700	Dimensions (mm) 5000X1700X3200 Electric power 240 kw Weight 4000 kg	Shipping organic fraction	400	70	Pasteurization / Sterilization	300	0,67
		Shipping urban waste	200	40	Pasteurization / Sterilization	320	0,42
NV1500	Dimensions (mm) 6500X2000X4600 Electric power 600 kw Weight 10000 kg	Shipping organic fraction	400	70	Pasteurization / Sterilization	750	0,68
		Shipping urban waste	200	40	Pasteurization / Sterilization	750	0,43
NV4000	Dimensions (mm) 8000X2500X6000 Electric power 1800 kw Weight 32000 kg	Shipping organic fraction	400	70	Pasteurization / Sterilization	2100	0,68
		Shipping urban waste	200	40	Pasteurization / Sterilization	2100	0,43

Note:

In the NV 700, 1500 and 4000 models, height can be reduced by replacing the bin loader with a belt loader.

Cover photo: Bepi Ghiotti

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