Product Introduction.

Commercial Organic Waste Quick Composter

I.C.C SMART ECO

About Us

ICC Smart Eco solutions, the newest division of the reputable general contractor, International Construction Consortium (Pvt) Ltd. (ICC), introduces a range of garbage composting machines that can convert organic waste into a soil amendment within 24 hours.

The range of machinery covers processing capacities suitable for domestic, condominium,and commercial use.

With the launch of the Quick Composter, we hope to encourage the practice of replenishing nature with what we systematically extricate.

The mineral content of the converted food waste will enrich the soil when used as a soil amendment (organic fertilizer), in returnwill promote our vision by introducing a sustainable system fororganic waste disposal.

In doing so making us to be the total solution provider & market leader for recycling Organic waste in Sri Lanka.

Vision

Respect and leverage the planets' organic cycle by catalyzing the recycling process of organic waste, and free the future generations of having to live on polluted Earth.

Mission

ICC Smart Eco division provides the best available technology to every household & organization at an affordable price, and in doing so, makes every citizen responsible for disposing their waste in a manner beneficial to mother earth.

ICC Smart ECO Commercial Composter

Revolutionary Technology

converts Organic waste to a soil amendment in 24hrs

Collect & sort out the organic waste. Feed organic waste into the machine.

Within 12-24 hours of fermentation, deodorization & sterilization, the composter produces organic soil amendment

Processed organic soil amendment, can be used for cultivation and gardening

Retains high NPK values

Available in capacities
20kg - 100,000kg

Approved By Regional Agriculture Research & Development Centre, Makandura

304 Stainless Steel

Capacity: 500kg

LKR 950,000
Upwards

LOAN FACILITIES

BOC සඟීක ණය යෝජනා ක්‍රමය
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ICC SMART ECO

Process summary

The organic waste brought to the processing station runs through a sorting process to separate organic waste from others. The organic waste only is fed to the machine via conveyors to a grinding hopper were large particles shred to smaller particles for easy digestion.
The shredded material goes through a squeezing process to extract excess fluid.
The liquid obtained is then stored in a separate tank for further processing.
After that, the fermentation tank gets the solid material loaded automatically.
The material in the fermentation tank is heated to a temperature for optimum growth of bacteria, facilitating the rapid decomposition of organic material.
This process takes place by providing sufficient fresh air; this gives the adequate oxygen required for their growth.
After that, the digested organic waste is dried at high temperatures to kill off harmful pathogens and seeds and released as a dry powder with a 10 – 15% moisture content.
The end product could be used as a soil amendment after a few days of cooling and maturing or further enhanced with additional material to create a standard Organic Compost.

MXCCJ-Z-200

1. Product introduction

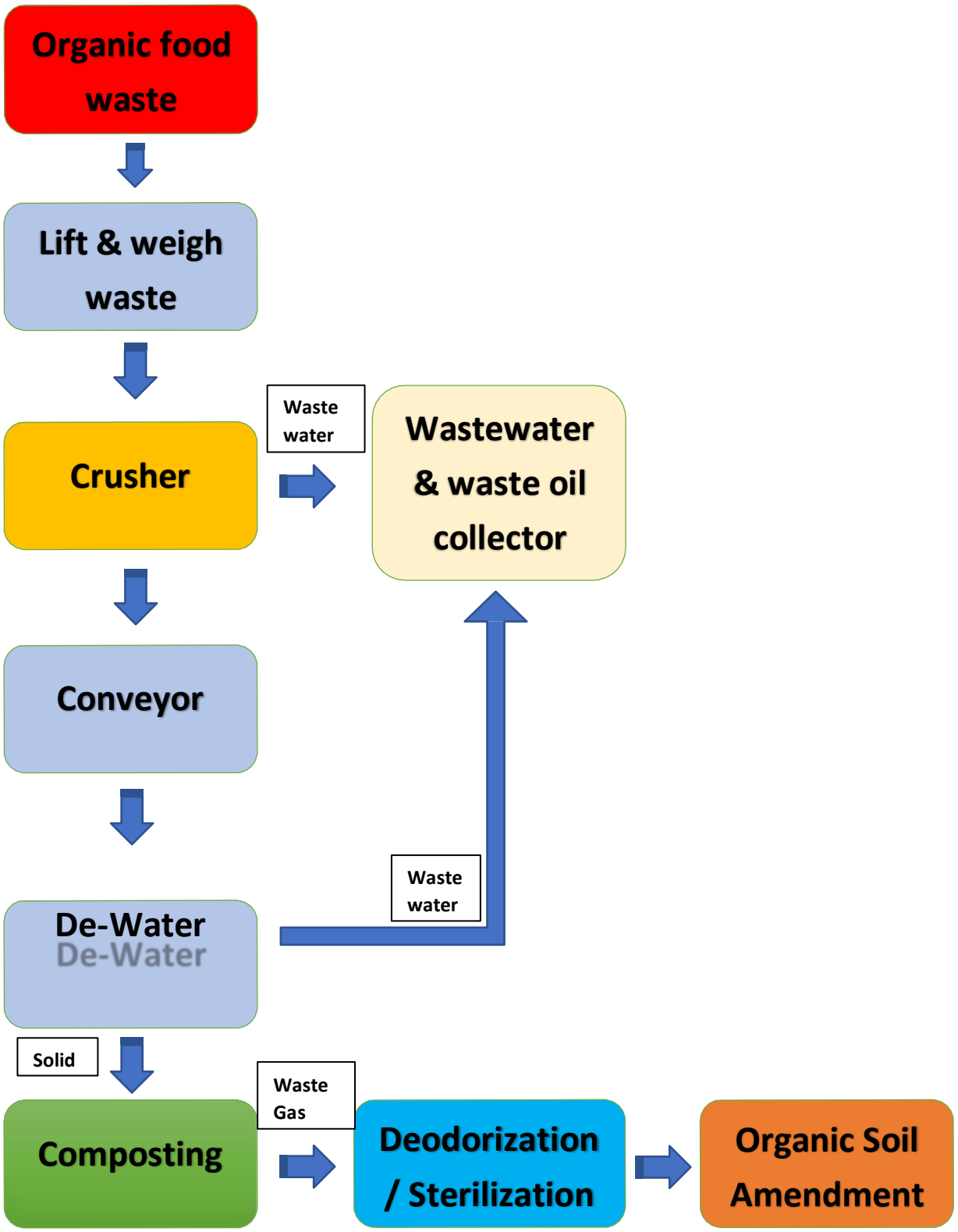
1. Using an intelligent PLC control system, the operator can intelligently start the equipment with one key and match the complex fermentation process.
2. The organic waste is converted into powdered organic soil amendment by using a technology that assists with microorganism degradation.
3. There is no waste water and waste gas in the treatment process.
4. The maximum reduction rate is 90%, and the local treatment of kitchen waste is provided, which greatly saves the collection and operation cost.
5. The product can be used as fertilizer for organic vegetables, fruits and flowers.

Standard configuration details:

The intelligent fermentation bin has an automatic discharge system. Its state-of-the-art configuration embedded into the electric control PCB makes this unit efficient. The PLC temperature detection system, intelligent oxygen supply, the emergency brake warning light in making this unit leakage-proof are some of its key benefits. And has an overall buried wire outlet sealing plus the deodorization UV light for deodorization with activated carbon deodorization are safety measures in place for a standardized process.

Optional configuration details:
Automatic hoist and pretreatment press system, intelligent grid sorting system, intelligent weighing module & remote monitoring system are add-on features available. With technologies like anti-blocking spray devices, platinum catalyst deodorization & leachate treatment devices enable a standardized process.

2. Process flow chart



3. Technical specifications

（1）	MODEL		MXCCJ-Z-200
（2）	DAILY CAPACITY （kg/d）		200
（3）	PROCESSING TIME （h）		24h
（4）	HANDING METHOD：		Microbial Fermentation and Hot Air Drying
（5）	Measure： Length*Width*Height		2400*1950*1350(W*D*H)
（6）	Coverage of equipment （m2）		5
（7）	Decrement rate （%）		MAX 90%
（8）	Weight （kg）		1900
（9）	Service life （h）		100000
（10）	Noise dB		65
（11）	Fermentation temperature （℃）		45-75
（12）	Power （Kw）：	Solid-liquid separator （Kw）	1.1
	16	Lift （Kw）	1.5
		Stirring motor （Kw）	3.5
		Crusher motor （Kw）	2.8
		Hot air blower （Kw）	0.75
		Electric heating （Kw）	5
		Other	1.2
	Equipment power	Power Supply	3 phases and 4 lines 220/480V, 50/60Hz
		Max Power	16kw
		Average Power (d)	25-32kwh
（13）	Material of main	Contact part with kitchen waste	SUS304
		Contact with liquid	SUS304
		Appearance	Q235 + Appearance spray paint

4. Product advantages

Integrated control:

1. The intelligent management platform for equipment operation of the composter monitors each piece of equipment in real-time and remotely.
2. Achieve efficient operation and maintenance, extensive data operation analysis.

Local treatment:

1. The equipment is mobile and suitable for farmers' markets, communities, schools, institutions, hotels, restaurants, and other places.
2. To achieve local treatment of food / kitchen waste from the source and save operating costs, like cold-room storage / Transportation.

Centralized processing:

1. Large scale equipment can be used in centralized waste treatment station with large capacity and high-speed processing.
2. Instead of landfill, incineration and other traditional ways of damage tot he environment.

Recycling:

1. After aerobic fermentation, the organic compounds in kitchen waste can be rapidly degraded into non-toxic and harmless microbial fertilizer.
2. The collected waste cooking oil can be used to extract biodiesel and daily chemical products to realize resource utilization.
3. It can also be used as organic manure for breeding yellow flies and black flies.

5. Introduction to core system

Fermentation bin

The organic waste aerobic fermentation bin included in this digester is better known as the continuous biological fermentation bin.
Setting up different specification areas in the reactor and controlling the working conditions in separate categories such as oxygen, temperature, humidity, these microorganisms are divided into different phases.
This process gradually decomposes the organic matter.
The overall reduction rate is not less than 90%. A double stainless-steel cabin for mixing and fermentation of organic waste is available.
The bottom interlayer fitted with a heating device provides the heat for this process.
The diameter of the mixing shaft in this composter is ϕ100 mm.
The stainless-steel bolt on the main shaft connected with the mixing blade turns in a clockwise direction.
The adjacent group of mixing blades rotates 90 °, while the scraper is also set into diamond shape to ensure that the stirred materials can be evenly heated and accelerate the fermentation time of materials.
The power source of the fermentation system is electric energy, with the low equipment cost, mature technology, and low failure rate, which is more secure for later maintenance and operation.
The working environment temperature of the fermentation chamber is - 10 ℃ ~ 40 ℃ and gives the capability modulated between 45 ℃ ~ 65 ℃, The constant temperature function of the equipment is realized by the thermocouple device.
Under the set temperature condition, the reaction temperature is controlled within the predetermined range through the start and stop of the heating system and ventilation equipment.

Brief introduction of automatic feeding system

The equipment is equipped with an automatic feeding system. The hoist is designed according to the size of the standard 120L garbage can.
There are running tracks on both sides of the hoist to make the hoist run in the predetermined track and ensure that the garbage can is dumped clean at one time. An automatic weighing device is set at the bottom of the hoist.
The data is uploaded to the main control through four weighing sensors to understand the lifting weight in real time.
The chain transmission is selected for the lifting transmission part The feeding funnel is equipped with a cover plate, and the opening and closing of the cover plate is controlled by an electric push rod, so as to ensure the sealing of the equipment and prevent the odor from running out when the kitchen waste is not put in.

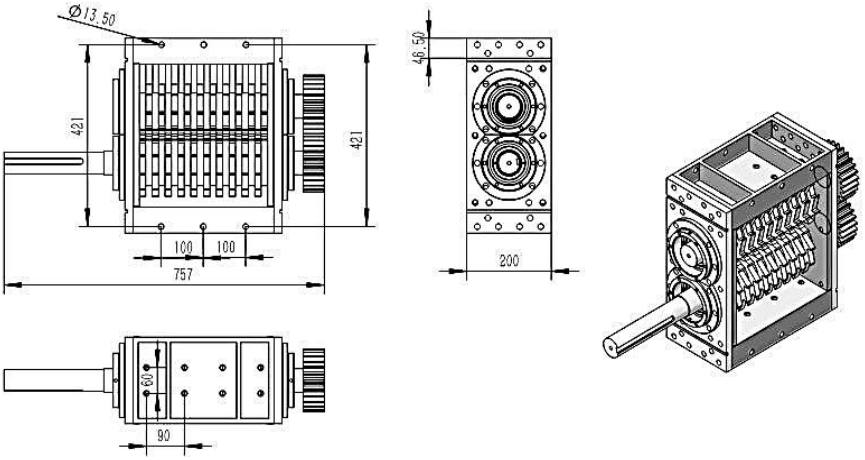
Crushing system

In order to ensure the efficient operation of the subsequent aerobic system, the crushing pretreatment of organic waste is a very important part of the process. The crusher of our composter adopts double shaft crusher to crush the material into small size by shearing, extruding and tearing. It can automatically reverse when encountering hard material, and the diameter of discharging particles can reach max 5 ~ 10mm.

The rotation speed of the cutter shaft is generally 20-30 rpm, and a scraper is set outside the crushing blade to prevent the plastic materials from winding. The cutter box is composed of moving cutter, fixed cutter, spacer sleeve and other parts, in which the moving cutter is mainly used for cutting materials, the spacer sleeve is used to control the material gap, and the fixed cutter is used to prevent the materials from winding around the cutter shaft. The cutting point is formed by moving the cutter and the edge of the adjacent cutter face.

The cutter of crusher is made by special processing technology, which has the characteristics of good wear resistance and high strength. The toothed cutter has unique design in thickness, tooth shape and arrangement order, and strong shear force, which can improve the tearing efficiency. The driving part is driven by turbine reducer motor, which has the characteristics of low speed, large rotation distance and low noise. The electrical part is controlled by PLC program and touch screen.

The cutter box is composed of moving cutter, fixed cutter and spacer sleeve. The moving cutter is mainly used to cut materials, the spacer sleeve is used to control the gap between materials, and the fixed cutter is used to prevent materials from winding around the cutter shaft. The distance between the moving cutter and the edge of the adjacent cutter face is minimized, the number of cutter heads is large, and the discharging length is short, so as to ensure that 90% of the discharging particle size is less than 5mm. In the process of crushing, the main scissors form, the cutting edge of the adjacent cutter face of the moving cutter form shear, and the auxiliary shear form, the moving cutter tip and the spacer cylinder form shear. The rotation speed of the two shafts is different, which can tear the material. The diameter is around 160mm, and the thickness of blade is around10.8mm. (All the rotate speed, cutter size, diameters can be adjusted as requirement)



Solid liquid separation system

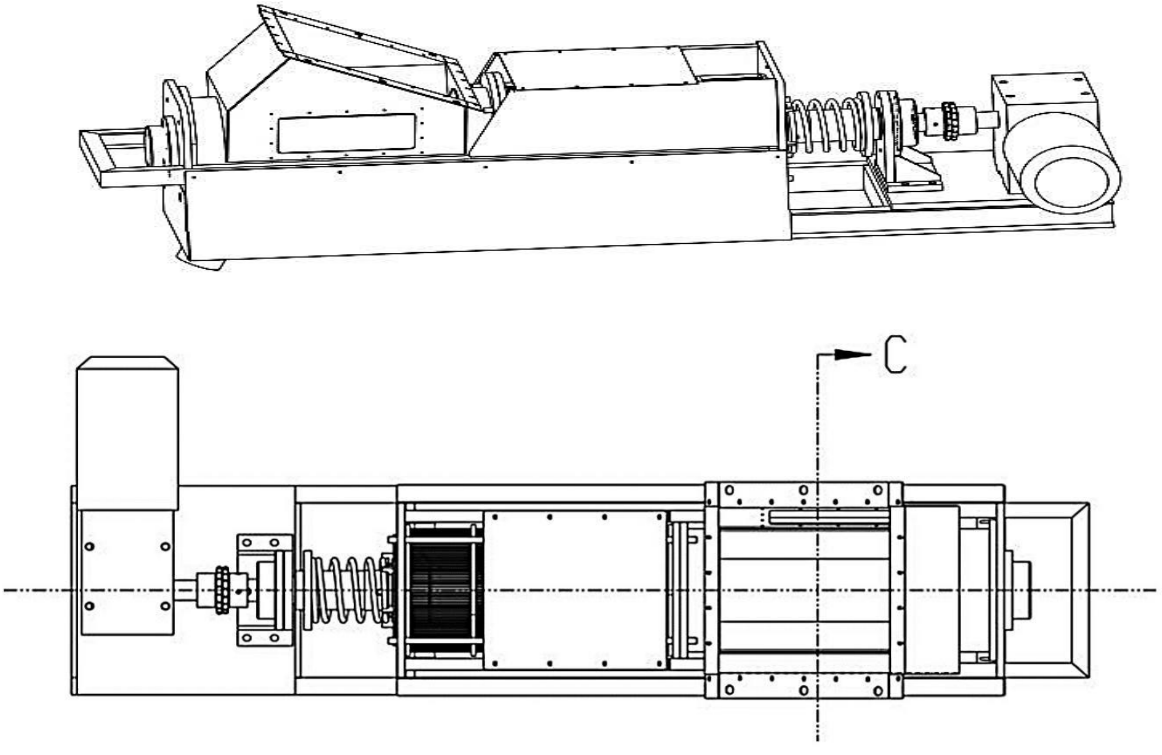
The moisture content of food waste is high. In order to ensure the effective operation of the subsequent high temperature aerobic system, it is necessary to adjust the moisture content of the waste to a suitable range.

The main body of the equipment is made of stainless steel, and the auger wall is evenly distributed with ϕ 5mm (U size) dewatering holes. The solid-liquid separation adopts vertical distribution. During the transportation of food waste, due to the screw gravity extrusion process, the oil and water flow into the oil-water separator through the dewatering holes to complete the dehydration of food waste.

At the same time, after dehydration, the food waste is transported to the fermentation bin for fermentation. The structure of the equipment is different from that of the waste treatment industry. The technology is mature and the equipment is reliable and durable. The moisture content of dehydrated materials is generally less than or equal to 50%, which greatly reduces the equipment volume and operation cost, and greatly reduces the difficulty of treatment. The overall equipment has high dehydration rate, low wear degree and long service life.

At the end of operation, the system is equipped with a unique backwash device to effectively avoid system blockage and facilitate maintenance.

In the dehydration process, the intermittent water washing dilution method was used, and the surface of organic waste was continuously washed with clean water. The salt contained in organic waste was precipitated in the form of dissolution, and finally discharged into the subsequent treatment system with the liquid.



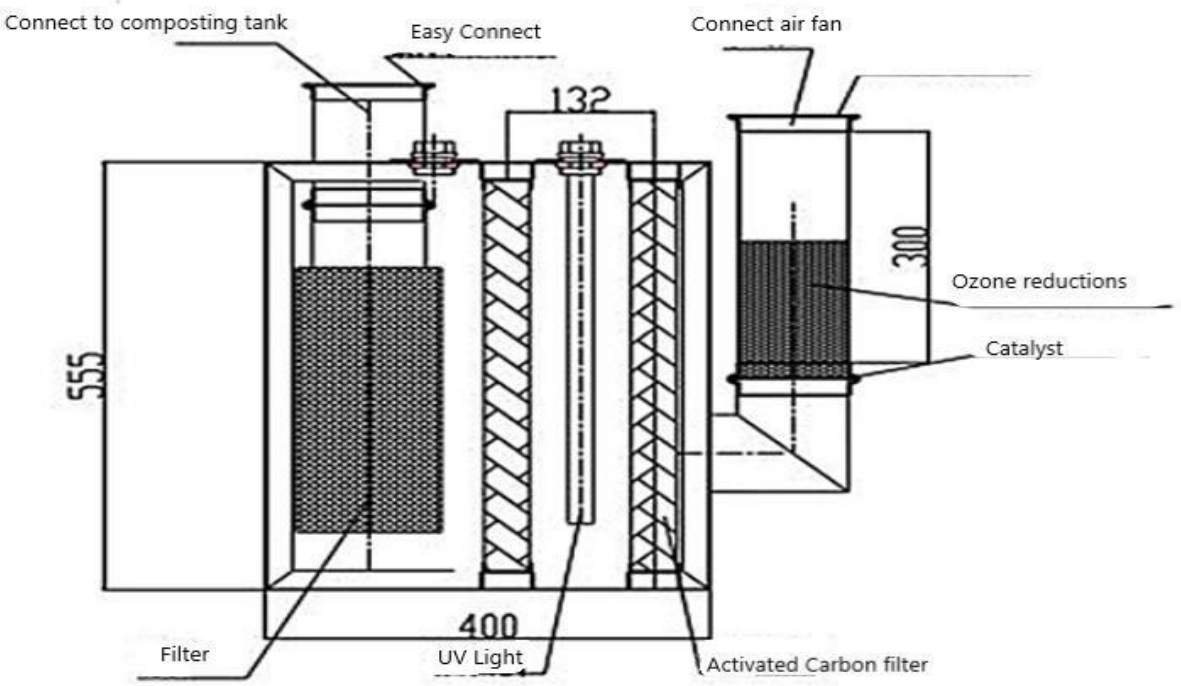
Deodorization system

The independent deodorization device uses the vacuum ultraviolet in the uv-d band to destroy the chemical bond of the organic waste gas molecules, so as to form free atoms or groups; at the same time, it splits the oxygen in the mixed air to form free oxygen atoms and combine them to form ozone.

The strong oxidizing ozone reacts with the atoms generated by the pyrolysis of organic waste gas molecules It is composed of H_2O and CO_2. The activated carbon has a porous structure, which can greatly intercept the micro particles and water vapor in the gas.

The whole process of deodorization is less than 0.1 seconds. It can effectively remove the main pollutants such as volatile organic compounds (VOC), inorganic substances, hydrogen sulfide, ammonia, mercaptan and other major pollutants, as well as all kinds of odor.

The maximum deodorization efficiency can reach more than 99%.



Electrical system

Our supplier combined with the characteristics of kitchen waste equipment, convenient for users to use, maintain and manage, designed a set of electrical automation system, the whole process is stable, the main components of the electrical system are provided by Omron, an international famous electrical manufacturer.

Frequency converter, contactor, thermal relay and other famous products are selected to ensure the high efficiency, energy saving and reliable operation of the products.

The equipment is fully automatic and easy to operate.

Schneider products are selected as industrial control components. The automatic control system is equipped with touch LCD, which can intuitively display the operation data of the equipment, and the operation is convenient and reliable.

The automation system includes screw conveying; warehouse heating; bin fan; deodorizing fan; deodorizing heating; discharging; air inlet fan; and has remote control system and remote alarm system, which is convenient for operators to carry out real-time monitoring. Omron's display screen can display the running status of the equipment in real time and adjust the parameters. Huaguan smart cloud can remotely monitor the status of devices in real time on PC and mobile terminals, and download data to realize remote platform control.

Microorganism growth

Our composter supplier's professional technical team have jointly developed a high temperature aerobic fermentation strain suitable for our equipment, which can deal with a variety of food waste fermentation problems.

The machine uses 1% of left-over Organic soil amendment for the generation of bacteria, without electric heating, greatly reducing energy consumption.

The original strains used in the extraction and expansion culture are high oil, high salt organic waste and organic waste environment, which can deal with PH3 ~ 8 range of organic waste, more suitable for China's organic waste characteristics, strong survival and iteration ability.

The high temperature and high-speed fermentation of livestock and poultry meat products, expired food, kitchen waste and other organic wastes are carried out in the fermentation tank treatment equipment, so that all kinds of organic matter can be completely degraded and transformed.

It not only solves the timely, thorough and harmless treatment of various organic matters, but also reduces the cross between human and livestock at the same time, it can produce high living bacteria, high energy and high protein solid renewable resources - active microbial flora through resource recycling system engineering.

No.	Name	Maintenance time	Maintenance method
1	Mixing reducer	Once a month	Check oil level and replenish gear oil in time
2	Hydraulic pump oil tank	Once a month	Check oil level and replenish gear oil in time
3	Mixer chain	Once a month	Replenish grease
4	Mixing bearing	Once a month	Replenish grease
5	Leakage protector	Once a month	Test the function of button and check whether the function of leak proof point is normal

1. The motor and reducer shall be maintained regularly according to the above table.
2. The detection of process parameters should be carried out once a year, and the detection contents include: water content, carbon nitrogen ratio, stack temperature, oxygen concentration and oxygen consumption rate.
3. Regularly check the unobstructed condition of the equipment pipeline, timely clean up the foreign matters in the pipeline and the mud in the sewage pool, so as to ensure the good operation of the equipment.
4. Regularly observe the status of materials in the warehouse, and timely discharge the finished materials to achieve the fermentation effect, so as to ensure the benign fermentation cycle.
5. At the end of the operation, clean all areas of the site to keep the site clean and tidy.

Maintenance of reduction motor

In order to prolong the service life of the reducer motor, it is necessary to make regular inspection and maintenance system.

1. Generally, the oil quality and oil level should be checked after using for 3000 hours or half a year, and replenished or replaced in time. Any time serious oil leakage is found, measures shall be taken, and the oil shall be replenished to the appropriate position.
2. The lubricating oil should be replaced with a new one. If advanced synthetic oil is used, the replacement cycle can be extended.
3. The bearing life of the main part of the reducer is designed according to the long-term life, but the bearing needs to be inspected once in three years.
4. The model of lubricating oil is 46 oil in ckc230 medium load industrial gear oil of Great Wall brand, and the oil filling amount is at the oil hole observation position.

6. Installation conditions

Requirements for installation conditions of distributed kitchen waste treatment equipment:

- Simple color steel shed or room shielding protection should be built;
- It should be placed in the place with sewage pipe network;
- Voltage: 380 volts is required (with MCB)

7. Supplied companies

- Capitol Twin Peaks
- Mas Holdings
- Brandix
- Lanka Transformers
- Ocean Front Galle
- Mount Clifford Residencies
- ICC Head Office
- IT Hub Malabe

8. Warranty

3 Year (Except for consumables and man-made damage).

Including fermentation system, deodorization system, mute system.

Pretreatment system include Funnel inlet, crushing system, extrusion dewatering equipment, conveying equipment.

9. Aftersales & Maintenance

ICC Smart Eco Solutions is available to Maintain & Service your composter after its warranty period.

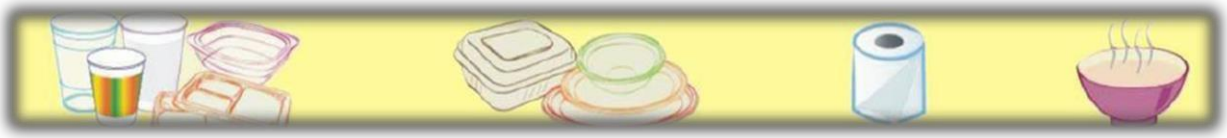
The client is required to sign a Service & Maintenance agreement at the end of the assigned warranty period.

Treatable material

Organic waste

Fruits | Vegetables | Biscuits | Fish Bones | Noodles & Gram

All kinds of Meat | Chicken bone | Various Fish | Crab | Eggshell

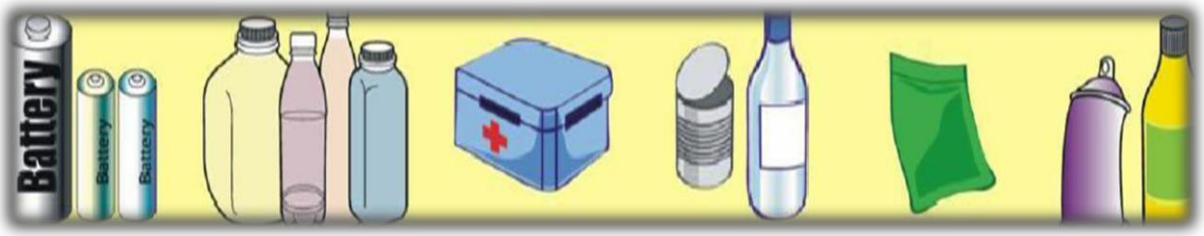


Polylactic Acid Container | Bagasse Container | Tissues | Hot soup

Material that Requires a Crusher

Big bones | Stem & Core of fruits | Shell fish

Non-Treatable Material



Discarded Batterie | **Chemical Bath Agents** | **Drugs** | **Metal & Glass** | **Plastic & rubber** | **Detergent**

Raw Material

Crusher **Output**

Organic Soil Amendment

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