



LFC[®]

Bio-Digester



Key Features

- Decomposes waste food at your facility
- Food is decomposed within 24 hours
- Continuous digestion process without emptying
- Discharge from machine is safe to enter sewage system
- Can be installed in kitchen or work area
- Simple and safe operation
- Color touch screen interface
- Weight of waste is continuously monitored and reported
- Displays statistics on usage and waste food digested
- Incorporates comprehensive diagnostics and service schedule
- Connects to the cloud so statistics on usage, diagnostics, and service schedules can be monitored remotely
- Air-tight tank provides quiet and odor-free operation
- All stainless steel construction
- Three year warranty
- Worldwide sales, service, and support

Benefits

- Greatly reduces costs to dispose of waste food
- Reduces size, quantity, and smells of trash bins
- Eliminates flies and rodents that may be attracted to garbage bins containing waste food
- Saves time and injuries of employees carrying trash outdoors
- Weigh and dispose of waste food in one machine
- Waste food does not go to landfill where it creates methane
- Easily report CO₂ equivalent diverted from landfill
- Key element in making a facility have zero waste
- Payback is typically 6 to 24 months
- Significantly reduces carbon footprint of business

Applications

The LFC can be used to improve operations and save money at a variety of facilities that have waste food including:

- Hotels and resorts
- Corporate and university cafeterias
- Restaurants and highway service centers
- Theme parks, convention centers, and stadia
- Hospitals and nursing homes
- Military canteens
- Shopping malls and retail outlets
- Bakeries and caterers
- Supermarkets and food distribution centers
- Cruise ships and oil tankers
- Island properties and remote camps
- Prisons and correctional facilities

Description

The LFC is a fully enclosed automatic composting machine that disposes of food matter within 24 hours. Once it is installed, you can add waste food at any time and only decomposed food is discharged into the waste water.

Water is injected into the machine to maintain equilibrium for the microorganisms to rapidly decompose the food and to flush decomposed material out of the machine. A rotating arm inside the machine slowly churns the waste food to constantly mix the old food, new food, oxygen, and micro-organisms to enhance decomposition.

The LFC can be thought of as a bio-digester in which the microorganisms are digesting the organic material.

How It Works

The LFC uses a series of processes in which microorganisms break down biodegradable material in the presence of oxygen. The environment of the LFC, with our proprietary mixture of microbes and enzymes, accelerates the digestion of most food products within 24 hours. The output is grey water that is environmentally safe. You can discharge this down the drain or use it to enrich your landscape.

The LFC is a practical alternative to the traditional disposal of waste food. Anything you can eat, including fruits, vegetables, meat, fish, cheese, bread, rice, and noodles can go into the LFC. The machine can compost both raw and cooked foods. The process is totally green because it uses no chemicals.

As one of Earth's oldest processes, composting is the most effective means of stabilizing and converting biodegradable waste. The waste food is not being chopped but it is decomposed to such a degree that it becomes a liquid and can exit the machine only through a fine mesh screen. The rich by-product is therefore safe and replenishes nature.

What Can Go in the LFC



Fruit



Vegetables



Banana and skin



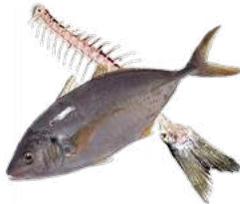
Fruit without stones



Nuts



Meat



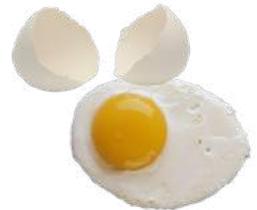
Fish and bone



Crustacean



Stew (when cool)



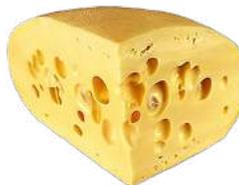
Egg and eggshell



Bread



Noodles



Cheese



Pineapple heads (cut)



Corn

- Let foods cool to 40°C (104°F) or warm to room temperature before depositing into the LFC.
- Fibrous items (corn husks, lemongrass, pineapple heads, kale) need to be chopped into 3 cm (1") pieces, to a maximum of 3% of LFC nominal capacity daily.
- Cut large items (especially vegetables) into pieces no bigger than 3 cm (1") to avoid problems. Large items include pineapple heads, broccoli stems, kale, corn cobs, and so on.

Simple Operation

The LFC is constantly digesting the waste and you can add waste food at any time. Simply open the door, throw it in, and close the door. In this way, you can view the LFC as a bottomless bucket.

The motor on the LFC won't run while the door is open for safety. Your operation can be streamlined because large bins and plastic bags are no longer needed to hold waste food. Instead, smaller bins are used that help avoid injuries to employees.

All configuration, indications, reports, and statistics are available through the touch screen. The operator doesn't need to use the touch screen and for most applications the default settings work well. All configurable parameters are protected by password.

LFC is running
ok to add waste

Time now 2014-01-15 13:12:27
Waste in LFC now 97 lb kg
Waste ingested today 216

Stop Status History Setup

LFC is running
do not add waste

Time now 2014-01-15 15:23:19
Waste in LFC now 143 lb kg
Waste ingested today 295

Stop Status History Setup

Weighing the Amount of Waste

Load cells on each corner of the LFC accurately weigh the amount of waste food in the LFC, the amount that is ingested (added), and the amount that is digested (expelled). This data is automatically stored and reported graphically and numerically. The data can be viewed by the hour, day, week, month, and year.

As the operator adds waste into the LFC, the touch screen indicates how much more can be added. When the door is closed the LFC indicates with a bright LED when more waste can be added with a simple green indication. As waste is added, the indication becomes yellow when no more waste should be added and red if the operator overloads the LFC.

History	Waste		Door opened
	lb	kg	
Today	145	2	
This week	970	27	
This month	2,313	180	
This year	34,741	1,406	

Carbon Graph Log Exit

US or metric units are displayed

Connection to the LFC Cloud

The LFC can connect through its Ethernet port to a cloud server maintained by Power Knot. The LFC securely sends data about the operation of the LFC to the server and that data is retained for five years. The data includes the amount of waste food digested hourly, daily, weekly, monthly, and yearly; the number of times the door is opened in these periods; and the amount of CO₂ diverted from the landfill during these periods. If you have multiple machines, you can aggregate the data into a single report.

Remotely, you can view the health of the system including all diagnostics and when the LFC requires scheduled maintenance. You have access to view and manipulate the data from any computer, tablet, or smartphone anywhere in the world. This access is available as long as you own the LFC at no charge to you.

The LFC Cloud can send you an e-mail with daily, weekly, or monthly statistics, alert you when it is time for periodic maintenance, and send an e-mail if there seems to be a problem with the LFC. For as long as the LFC is under warranty, Power Knot can also monitor your LFC at no charge.



Daily, weekly, or monthly statistics available

LFC-100 is pictured



Saving the Planet

When waste food is discarded in a landfill, it degrades as an anaerobic process (in the absence of oxygen). This decomposition produces methane (CH_4) which is 72 times worse for the atmosphere in the short term than carbon dioxide (CO_2).

The effect of this on global warming is huge, because the largest part of garbage sent to landfills in the U.S. is waste food. Further, the decomposition smells and can cause health problems. Discarding 100 kg (220 lb) of waste food per day causes the equivalent of 153 tonne of CO_2 per year to be sent to the atmosphere.

The decomposition inside the LFC is an aerobic process (in the presence of oxygen). This produces CO_2 and water in a natural manner that is accelerated in the machine. This natural process is carbon neutral because the carbon was taken from the atmosphere to produce the food in the first place. The LFC uses minimal electricity; for example, production of the electricity used by an LFC-100 causes about 2.1 tonne of CO_2 per year.



Capacity

The amount of food that can be decomposed depends on the type of food, the frequency with which it is added to the machine, and the duration of the working day. The nominal capacity of a machine is based on a mixture of raw and cooked food as may be found in a typical restaurant added over a 12 hour to 15 hour working day. The upper range of typical capacities in the table below assume that you add waste food that is easily digestible over a 24 hour working day. Cooked rice, pasta, or bread are some of the foods that are rapidly decomposed and if added in equal portions throughout the day then the capacities can be more than those listed in the table on the back page.

Any LFC will work with about 30% of its nominal capacity on average. However, we do not recommend specifying an LFC where it will receive less than 40% of its nominal capacity per day and those are listed in the table below.

Installation

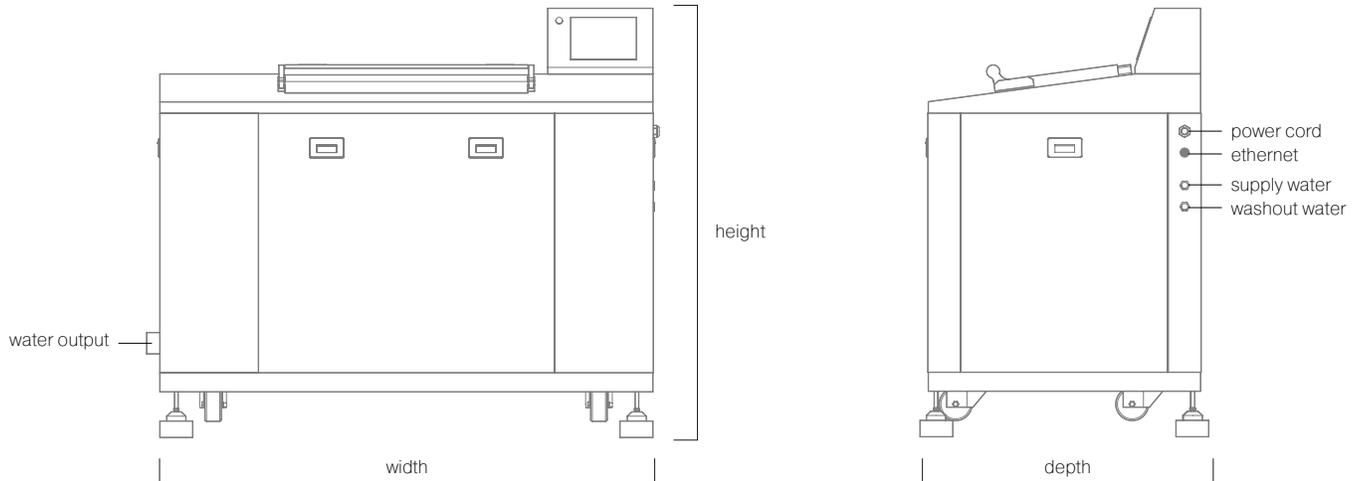
The LFC is usually installed inside the area where the food is prepared or it can be placed outside under a suitable protective cover. The machine has castors so it can be rolled into position. The feet on the load cells are then lowered onto the supplied rubber pads that help to reduce vibrations and noise.

The LFC requires hot and cold water input and a 1 1/4" to 3" drain out (depending on model). It also requires an electrical supply.



Various sized models available

Technical Specifications



Models		LFC-20	LFC-50	LFC-70	LFC-100	LFC-200	LFC-300	LFC-500
Nominal capacity per day	kg (lb)	20 (45)	50 (110)	70 (150)	100 (220)	200 (440)	300 (660)	500 (1100)
Typical capacity per day	kg (lb)	8–35 (20–80)	20–90 (45–200)	28–125 (60–280)	40–180 (90–400)	80–360 (175–800)	240–540 (530–1200)	200–900 (440–2000)
Size (width x depth x height)	cm (in)	56 x 49 x 73 (22 x 19 x 29)	90 x 69 x 103 (36 x 28 x 41)	95 x 72 x 108 (37 x 28 x 43)	115 x 76 x 112 (45 x 30 x 44)	150 x 83 x 129 (59 x 33 x 51)	156 x 109 x 150 (62 x 43 x 59)	194 x 121 x 165 (77 x 48 x 65)
Weight when empty		85 kg (180 lb)	175 kg (380 lb)	220 kg (490 lb)	250 kg (550 lb)	350 kg (770 lb)	570 kg (1260 lb)	830 kg (1830 lb)
AC supply		120 V, 60 Hz (or 230 V, 50 Hz), 15 A, single phase				208 V, 60 Hz (or 400 V, 50 Hz), 15 A, 3-phase		
Maximum power		200 W	650 W	650 W	1.1 kW	1.1 kW	2.0 kW	2.8 kW
Energy per day, typical		2.3 kWh	3.9 kWh	3.9 kWh	6.2 kWh	6.2 kWh	11 kWh	15 kWh
Water per day, typical		55 litre (14 gallon)	150 litre (40 gallon)	190 litre (50 gallon)	250 litre (70 gallon)	530 litre (140 gallon)	800 litre (210 gallon)	1200 litre (320 gallon)

- **Construction:** all stainless steel (chassis, side panels, drum, shaft, arms, paddle, and load cells)
- **Water:** ½", 250 to 700 kPa (36 to 100 psi, 2.5 to 7 kg/cm²)
- **AC Power:** 85 ~ 457 Vac, 47 ~ 63 Hz (based upon model)
- **Weighing Accuracy:** ±1%
- **UI:** 4" or 7" touch screen with 65k colors and 22 mm 3-color LED
- **Ethernet:** RJ45, 100 baseT, DHCP or fixed IP address
- **Operating environment:** indoors or covered patio
- **Operating temperature:** 4°C to +35°C (39°F to 95°F)
- **Ingress protection:** IP54 – splash proof and dust proof
- **Operating lifetime:** expected to be 15 to 25 years
- **Warranty:** three years on all parts and components

- **Safety:** certified to UL430 (waste disposal machines); CAN/CSA-C22.2 No. 60335-1:11 and EN 60335-1:2010+AMD1:2013 (general safety); CAN/CSA-C22.2 No. 60335-2-16:16 and EN 60335-2-16:2002+A1:2008+A2:2011 (waste food disposers)
- **RoHS:** compliant for EU and China



Sold, serviced, and supported by:



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