



# FOOD WASTE RECYCLING SYSTEM

Non-sewer-based Grind2Energy is more than an alternative to landfills and traditional compost programs. Our IoT-enabled solution recycles food waste by means of anaerobic digestion into clean water, fertilizer and renewable energy – in the form of electricity, heat or compressed natural gas.

## PRODUCT FEATURES

- Processes food waste into an energy-rich slurry, highly suitable for anaerobic digestion
- Internet-of-Things (IoT) technology helps optimize operations by providing visibility into food waste recycling with real-time data
- Access monthly reports via an online dashboard, track the amount of waste processed and generate sustainability reports
- Provides real-time tank level to monitor tank capacity, and notifies the customer and hauler via email when it is time for a tank pump-out
- 24/7 on-demand support team can leverage data from the cloud to troubleshoot the system and dispatch corrective maintenance if necessary
- Reduces odors, pests and cross contamination of your dry waste streams



## TECHNICAL SPECIFICATIONS

### PROCESSING TABLE:

- 10 HP Grind2Energy exclusive modified grinder
- Powerful 5 HP peristaltic pump capable of pumping to tanks up to 100 feet away
- Throughput of approximately 2,000 pounds per hour
- Sensors modulate water usage based on material load (1 gpm to 2 gpm)
- Stainless steel table and chrome-plated finish components
- IoT-enabled controller with cellular data transmission

### STORAGE TANK:

- Available in four sizes - 3,000, 3,600, 4,200, 5,000 and 6,000 gallons
- For tanks in an environment where freezing is a possibility, cold-weather protection is available (requires 120V power for heat-tracing elements)
- Vacuum truck pickup ready discharge valve

### SYSTEM SENSORS AND PROTECTIONS:

Nine (9) sensors monitor the system.

- Tank-level sensors with redundancy measure the amount of slurry (inventory) inside the tank
- Pump discharge pressure sensor measures slurry pressure inside piping to tank and protects against pressure failures
- Amperage sensors modulate optimal water flow and prevent overloads
- Temperature sensor monitors tank temperature and warn against risk of freezing
- Tank-full sensors with redundancy ensure that tank never overflows

### TABLE ELECTRICAL REQUIREMENTS

- 208-230V, 60 Hz, 3 Ph, 34.6 amps, **UL** (pending)
- 460V, 60 Hz, 3 Ph, 17.3 amps, **UL** (pending)



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## SYSTEM INCLUDES

- **Processing table:** IoT-enabled controller, 10 HP Grind2Energy exclusive modified grinder, 5 HP Pump, Water shut-off valve, Overhead sprayer, Power plug with wall-mounted outlet
- **Collection tank and cover**
- **Removable splashguards (3)**
- **Squeegee**
- **Safety glasses**
- **Tank Valves Kit:** Discharge valve, Tank couple fitting, Pipe union, Vacuum breaker, Charcoal filter kit
- **Tank Sensors Kit:** Level sensor kit, Redundant level sensor, Float sensor kit, Capacitive sensor kit, Capacitive sensor shield
- **Operating Kit:** (18) 10-Gallon collection bins and lids, (3) Rolling utility carts with labels
- **Piping and Wiring Kit:** Materials for table-to-tank connections

## SUBSCRIPTIONS / SERVICES

- **IoT Essentials Package:** Provides access to Grind2Energy system usage information with sustainability reporting, 24/7 customer support, corrective maintenance dispatch and optimized hauling dispatch
- **CAD Consulting:** First set of drawings are included with the system. Prices per change order
- **Cold-Weather Package:** Required for tanks in unheated, cold climate environments (includes materials and labor)
- **Installation Project Management:** Have our expert operations team assist or completely manage your install (contact factory for project-based quote)

### Benefits of Anaerobic Digestion

1 ton of food waste diverted from landfill and processed with anaerobic digestion<sup>1</sup>:



Reduces 0.69 tCO<sub>2</sub>e of carbon emissions which equates to the emissions of 1,659 miles driven by a passenger vehicle<sup>2</sup>



Generates 1,413 kBtu of heat which represents 182kWh of electricity<sup>3</sup>



Produces 114 lb of nutrient-rich fertilizer<sup>4</sup>

<sup>1</sup>Carbon emissions and heat generated from EPA Waste Reduction Model (WARM), assuming national average for landfill gas recovery, no curing of digestate after digestion and digestate land application. Typical food waste mix adopted: Beef 9%, Poultry 11%, Grains 13%, Fruits and Vegetables 49%, Dairy Products 18%

<sup>2</sup>Miles from EPA's Greenhouse Gases Equivalencies Calculator

<sup>3</sup>Heat to electricity conversion efficiency adopted of 44%

<sup>4</sup>Fertilizer based on 0.19gTS/gTSfv & 30%TS, Kim et al. 2016. Synergism of co-digestion of food wastes with municipal wastewater treatment biosolids. Waste Management.

## SITE REQUIREMENTS

### 1. GEOGRAPHY SUITABLE INFRASTRUCTURE:

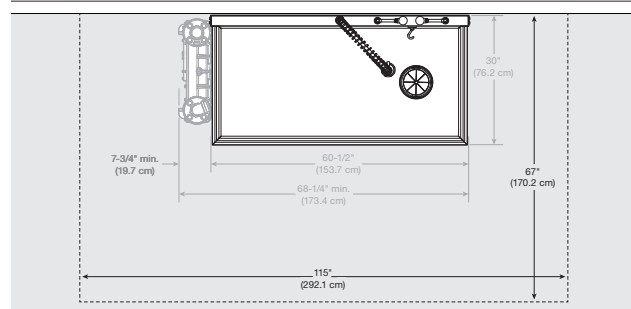
- Needed for the transport and recycling of food waste slurry (e.g., liquid hauler and recycling facility)
  - For assistance with coverage information, please contact your InSinkEerator Field Sales Representative or Grind2Energy Sales and Service at 1-844-874-7529

### 2. SIGNAL FOR IOT ACTIVATION:

- Strong, reliable cell signal for IoT connection
  - External antenna available (contact factory for details)

### 3. PROCESSING TABLE:

- 3-Phase power and electric box 12" from table
- ½" Cold water supply
- Structurally sound mounting surface
- Clearance around processing table against wall so that the unit can be accessed during use and for periodic maintenance (see image below)

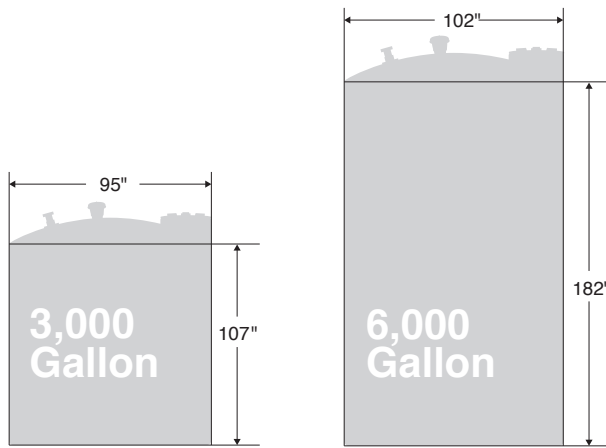


- Concrete floor with sufficient strength to properly anchor and with no cracks within 5" of the anchor bolts
- Must be in an environment without the risk of freezing or frost
- Washable wall covering recommended

### 4. STORAGE TANK:

- Power for cold-weather proofing option (120V)
- Discharge requires a 3' x 3' concrete pad
- Placement near the processing table – it is not recommended to exceed 100' or 5 elbows on the pipe run (can vary; contact factory for details)
- Placement so that the discharge is accessible to vacuum truck pickups and periodic maintenance. If desired, the discharge may be extended by means of a pipe extension (contact factory for details)

## STORAGE TANK SIZES



The amount of waste processed and the tank size will drive the expected annual number of tank pump-outs (see below). We recommend the customer choose the largest possible tank that will fit in the area desired to house the tank. By choosing the largest possible tank, the frequency of tank pump-outs can be minimized to achieve maximum operational efficiency.

**IMPORTANT NOTE** – Actual number of tank pump-outs may vary with expedience of operator (session operation and cleaning can impact the amount of water used).

### FREQUENCY OF PUMP-OUTS PER YEAR

WASTE PROCESSED PER WEEK				
CAPACITY (GAL)	0 – 2 TONS	2 – 4 TONS	4 – 6 TONS	6+ TONS
3,000	≤ 18	19 – 39	Not recommended	Not recommended
3,600	≤ 14	15 – 30	31 – 50	Not recommended
4,200	≤ 12	13 – 25	26 – 40	≥ 41
5,000	≤ 10	11 – 21	22 – 33	≥ 34
6,000	≤ 8	9 – 16	17 – 26	≥ 27

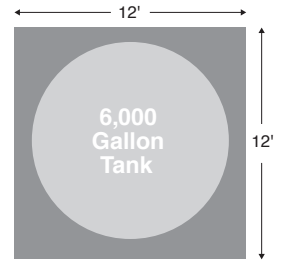
## STORAGE TANK INSTALLATION OPTIONS

The storage tank can be installed in any suitable location that provides accessibility to vacuum truck pump-outs and periodic maintenance. Tanks must be placed on a flat, level surface.

**IMPORTANT NOTE** – Certain locations, such as California, have special seismic restraint requirements. Tanks in these areas must be placed on a concrete surface and anchored with four (4) seismic braces. Additional concrete work or seismic requirements may be necessary based on the permitting structural calculations. Check your local seismic code requirements before installing.

### SURFACE

A leveled asphalt or concrete surface area of 10' x 10' (for 3,000 or 3,600 gallon tank) or 12' x 12' (for 4,200, 5,000 or 6,000 gallon tank) is necessary for the storage tank base.



### INDOOR SYSTEM WITH EXTERIOR WALL DISCHARGE

The storage tank can be installed inside, with the discharge piping routed through an exterior wall for easy truck access.



All Grind2Energy storage tanks include two tank vacuum breakers to allow air admittance during pump-outs, as well as a vent stack filter. For tanks housed indoors, powered ventilation (sold separately) is recommended to help mitigate/dissipate odor build-up in the tank.

### OUTDOOR TANK WITH INDOOR TABLE INSTALLATION

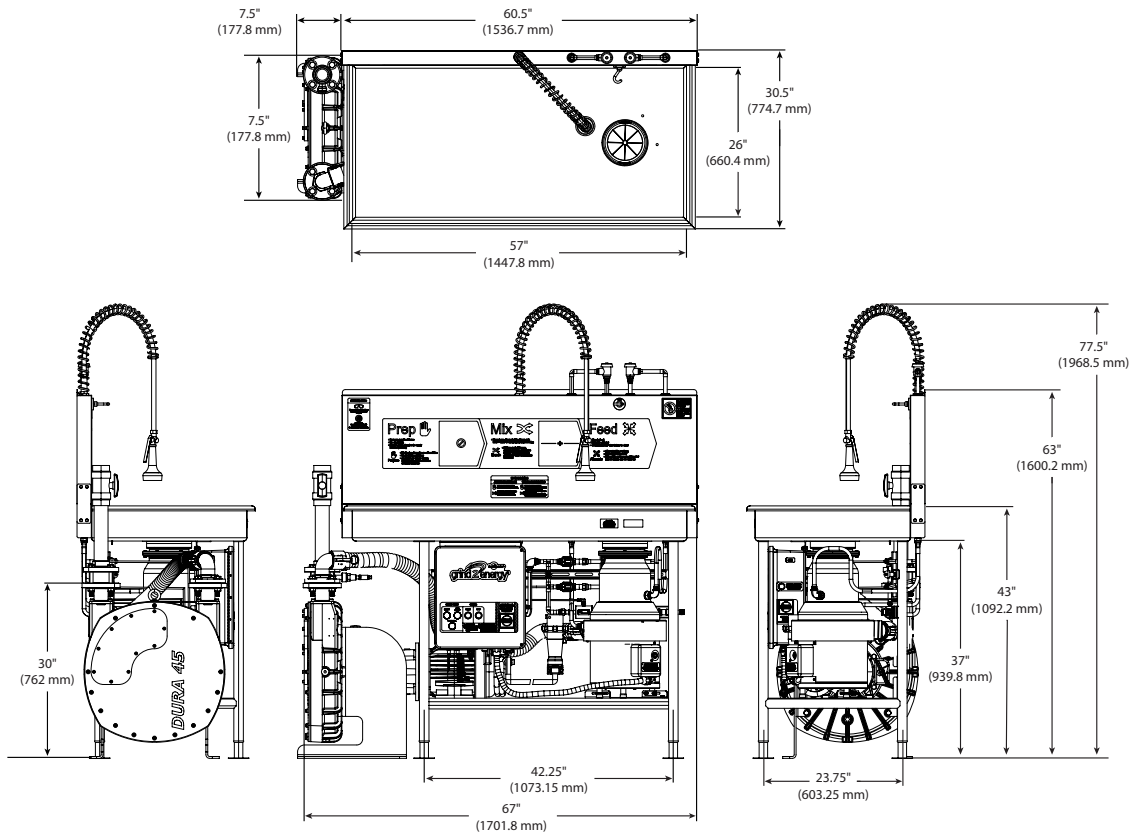
For tanks in an environment where freezing is a possibility, cold-weather protection is recommended (sold separately).



### SAFETY BARRIERS

Posts and guard rails are recommended to protect the processing table and storage tank, indoors or outdoors. Posts must be anchored to a concrete surface; otherwise, if required, core 3' deep holes in asphalt and pour concrete footings level with pavement.

# PROCESSING TABLE DIMENSIONS



## SAMPLE SPECIFICATION

- Grind2Energy™ Food Waste Recycling System with processing table, 10 HP grinder, IoT controller, 5 HP peristaltic pump. \_\_\_\_\_ Volts, 60 Hz, 3 Phase operation, \_\_\_\_\_ Amps. \_\_\_\_\_ gallon collection tank. Wall mounted power outlet. (18) 10 gallon (37.9 liter) collection bins and lids, (3) rolling utility carts with labels, (3) splashguards, squeegee and safety glasses. Includes piping and wiring material for table-to-tank connections.

## PROJECT INFORMATION

Item Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Quantity: \_\_\_\_\_

Electrical Requirements: \_\_\_\_\_ volts \_\_\_\_\_ phase

Manufacturer: InSinkErator

Storage Tank Size: \_\_\_\_\_ gallons

Project: \_\_\_\_\_

Consultant: \_\_\_\_\_

Address: \_\_\_\_\_

Contact: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Contact: \_\_\_\_\_

Phone: \_\_\_\_\_

Installer: \_\_\_\_\_

Contact: \_\_\_\_\_

Phone: \_\_\_\_\_