Eco-Safe Digester

Installation Manual

Site Prep | Installation

Version 1.1.0 – April 16, 2015

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1 Introduction

1.1 Audience

This manual is intended for BioHitech America technicians and service partners who are responsible for the installation of Eco-Safe Digesters at customer sites.

1.2 Errors and Omissions

Any errors or omissions in this manual may be reported to BioHitech America. Please direct any errors, corrections, and omissions to BioHitech America at the e-mail address **support@biohitech.com**.

1.3 Basics

Installation of an Eco-Safe Digester is typically broken down to the following high-level steps:

1. Site Selection
2. Site Preparation
3. Delivery of the Machine to the Site
4. Eco-Safe Digester Installation
5. Digester Start-Up
6. On-Site training and Q&A (Question and Answer)

This manual covers Site Selection, Preparation, and Start-Up. For more information on Eco-Safe Digester and Day-to-Day usage, please refer to the *Eco-Safe Digester Engineering Manual.*

1.4 Digester Acquisition Process

The following high-level procedure outlines the Eco-Safe Digester Acquistion Process:

1. Site is prepared with power, water and drain.

   Note: all three utilities are the customers responsibility to supply.

2. Delivery of the machine to the site.

3. Power, water and drain connections made by an authorized technician or by customers own plumbing, and electrical contractors.

4. An authorized technician is dispatched to perform the following tasks:

   A. Perform final inspection of all plumbing, and electrical connections.

   B. Commence start up procedure that encompasses the following tasks:
      1. Preparing the decomposition chamber by adding specific quantities of cedar wood chips.
      2. Introducing microorganisms.
      3. Calibrating the computer to regulate water, temperature, agitation, and weighting system.

   C. Brief management and staff on the proper operation and care of their food decomposition machine, which includes but not limited to the following:

      1. Conduct a 4-hour user training session.
      2. Discuss and explain which food items are appropriate and inappropriate for decomposition.
      3. Illustrate to staff the importance of a proper feeding schedule.
      4. Discuss simple preventive maintenance procedures.
         IE: removal of excessive buildup of food items from agitator arms.

   D. Brief management and staff on using the touch screen computer.

   E. Conclude experience with a Q & A forum, for any and all questions.

2 Digester Site Selection

Note: All works and costs associated with the site preparation phase are the responsibility of the customer.

With guidance from the customer, we select a location for the Digester that blends seamlessly into their current workflow and processes. Units are typically placed either at the food waste's point of generation, or its final point of collection.

Easy access to all three utilities (power, water, and drainage) is the other factor that aids in determining a unit's final resting place. Finding a location that has adequate and relatively easy access to power, water, and drainage helps keep site preparation costs down.

Note: The customer is ultimately responsible for choosing the final resting place of the Digester.

3 Site Preparation

Please refer to the Cut Sheets in Appendix B for details on Digester specifications and locations of power, water, and effluent connections.

3.1 Site Preparation: Power

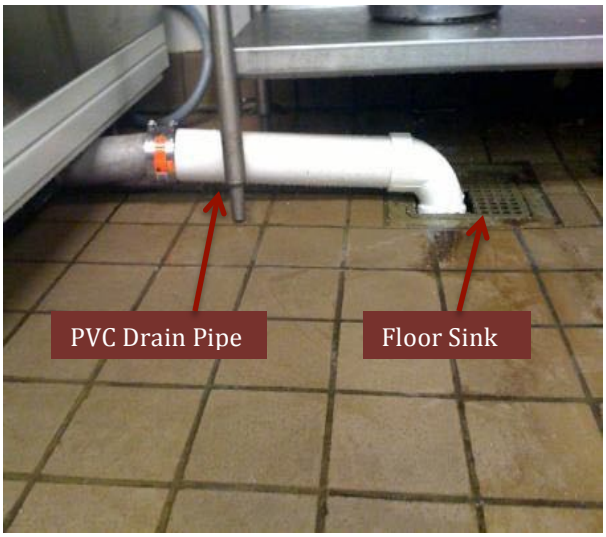
- 208V/220V, 3-Phase + 1 ground
- 30amp breaker required (minimum)
- Integrity of power source is vital; line must be carrying at least 208 volts.
- Disconnect box or a 30amp receptacle should be mounted within 6 feet of unit, a matching 10-foot electrical whip is also needed to connect the Eco-Safe unit . Electrical connections are located on the front, left hand side of the unit. (Wiring can be routed through the interior of machine resulting in a stealthy and clean installation).

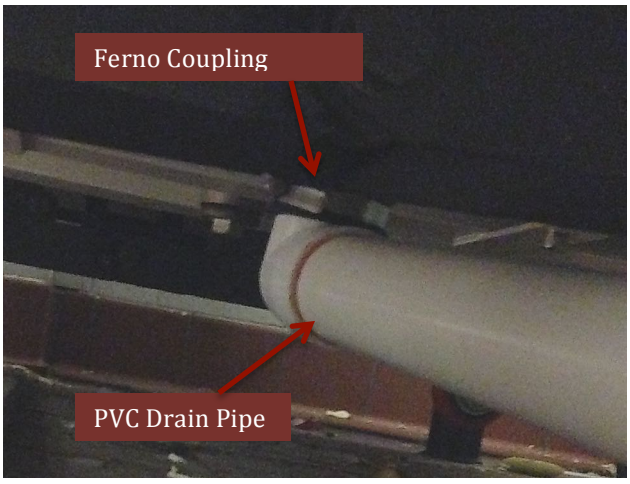
3.2 Site Preparation: Water

- Mixing valve required to combine, regulate and dispense hot and cold water received from two inlets.
- Water source should be located within 6 feet of the unit.
- Water connections are located on the left hand side, towards the front of the unit.
- Mixing valve is typically connected to the Eco-Safe unit using a 6-8ft. steel-braided hose, with a 3/4in. hose bib adapter.
- Hot water temperature needed to be maintained: 30-39° C (86-102° F)

3.3 Site Preparation: Drain

- Common floor sink is typically used to catch the discharge from the digester. Drain pipe can swivel 360 degrees and point in any direction.
- Ideal: 3" Drain Pipe. (3" drain pipe connection originates on the bottom, rear, and right hand side of the unit).
- Ideal: 4" Floor drain to accept 3" drain pipe.
- Sufficient pitch required to facilitate proper drainage.
- **NOTE: Customer / Site-Prep Team should verify which drain line size is needed (2" or 3") prior to installation.**





4 Installation

Please refer to the Cut Sheets in Appendix B for details on Digester specifications and locations of power, water, and effluent connections.

- Place the Digester in the desired location. Once in place use a bottle jack or pallet jack to raise unit off the floor to enable lowering of the stationary legs. Lower all 4 legs evenly ensuring the unit is level.

- While digester is still raised up, place anti-vibration pads under each leg, once completed lower the bottle jack or pallet jack and allow the lowered legs to now rest on the anti-vibration pads.

- Remove the bottle jack or pallet jack and fine-tune the leveling of the Digester using the adjustment on each leg if necessary.

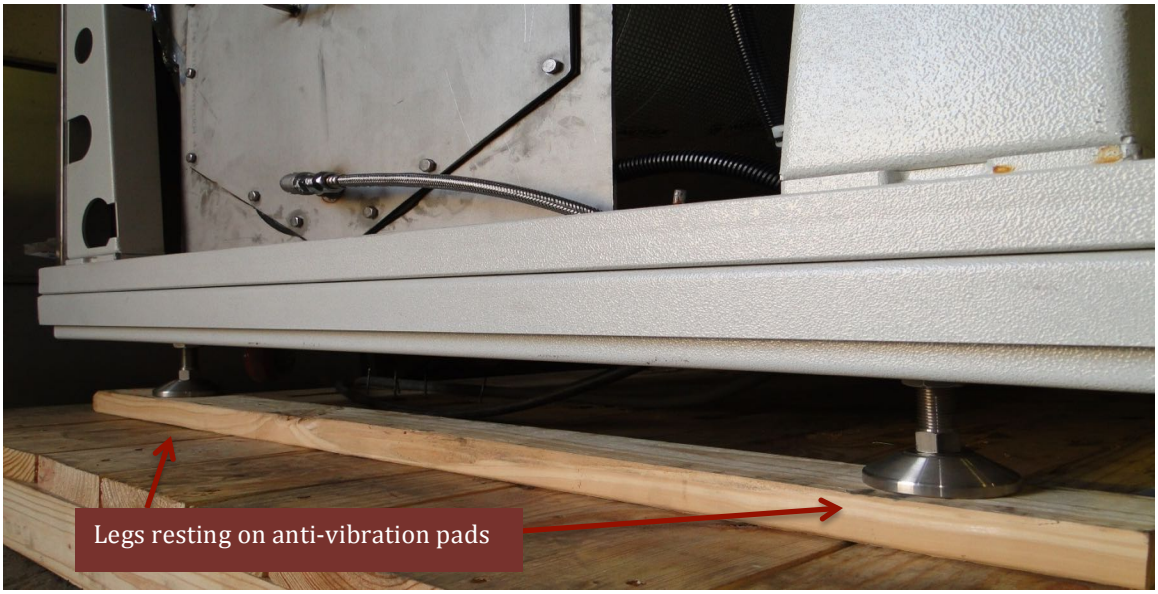
- Connect the warm water source to the ¾" male water fitting on the Digester.

- Connect the 3 phase electrical whip (3 power + 1 ground wire configuration) from the 30 amp disconnect or receptacle to the breaker in the Digester panel box. Also connect the ground wire from the disconnect to the ground lug in the Digester panel box.

- Connect the stainless steel drain elbow & PVC tubing as needed.

4.1 Installation: Fixed Legs

Legs on both sides of machine must be adjusted all the way down. Anti-vibration pads should be placed between the legs and the ground.

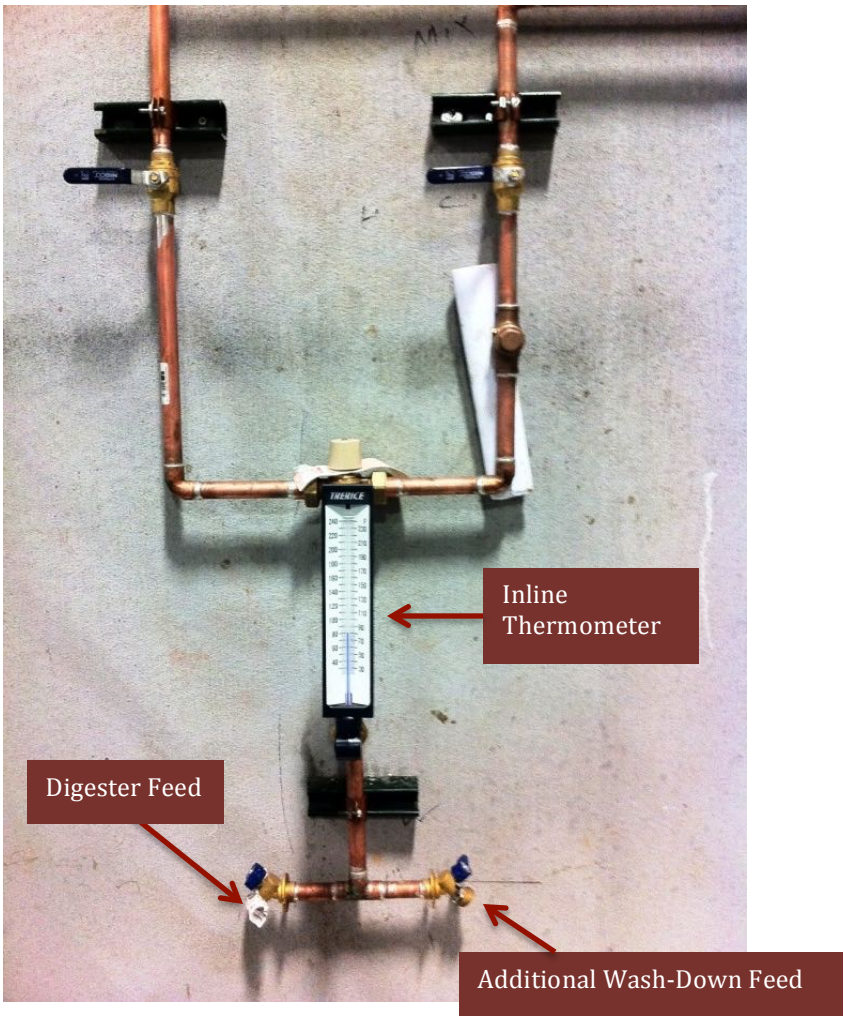


4.2 Installation: Drain Elbow

- Connect the supplied Fernco Coupling to the flange on the bottom right side of the digester.
- If possible minimize any change in flow direction from the Digester to the drain hole.
- A pitch of at least ¼" declination for every 2' length must be maintained.
- If unable to snake out to the Digester from the drain a clean out cover fitting should be added.
- **NOTE: Sum units may have a stainless steel elbow (rather than a Fernco Coupling).**

4.3 Installation: Additional Hose Hookup

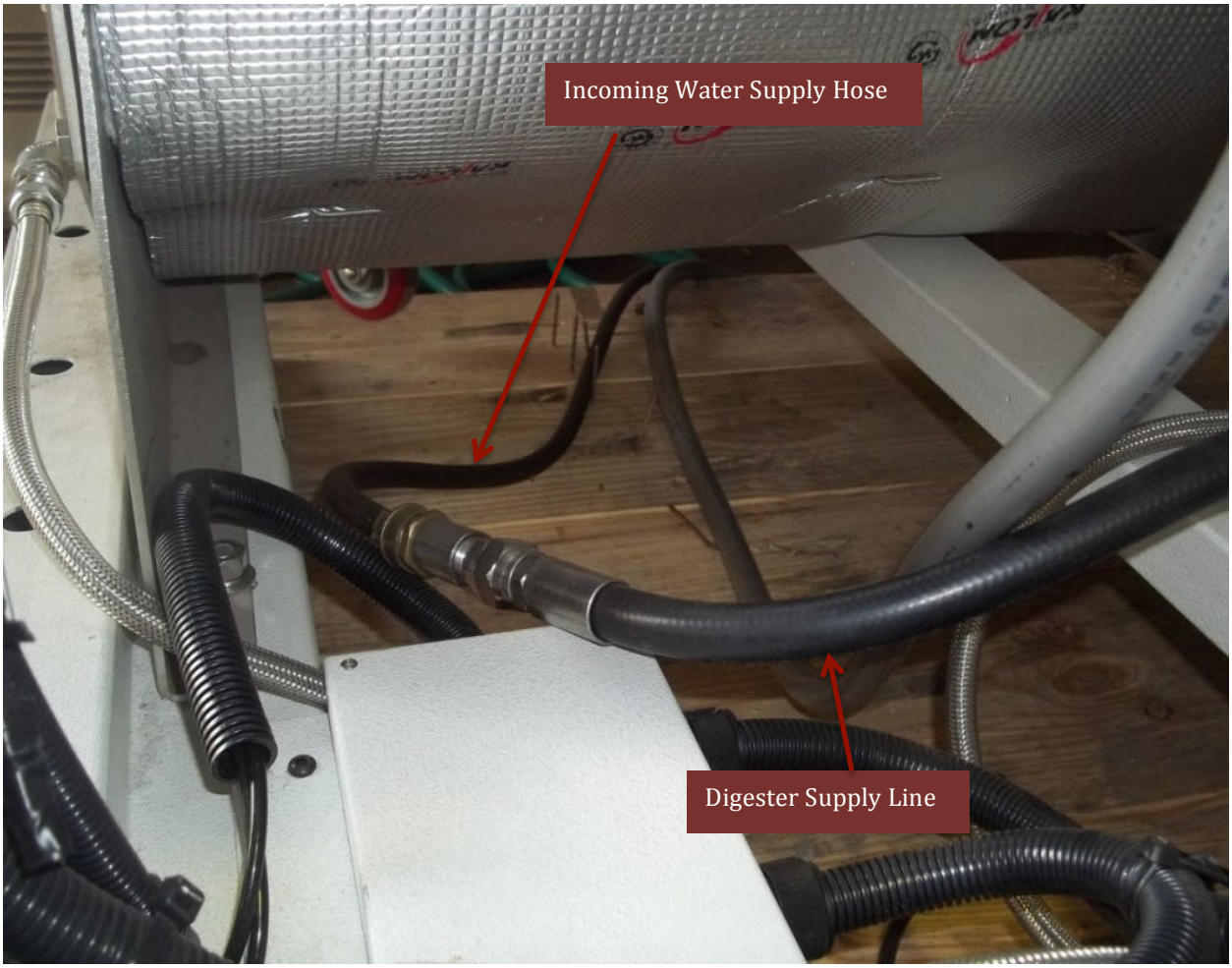
It is recommended to split the incoming water source to provide one line to feed the Digester and the other to give wash down capability for the inside of the digestion chamber.



4.4 Installation Water Feed

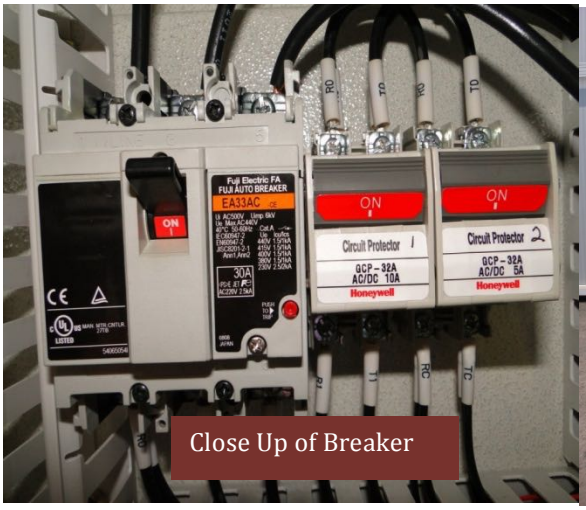
- Connect the incoming water supply to the Digester. A ¾" male pipe fitting is needed for this connection, as shown below:

- The supply line on the Digester is located in the front center underneath the Digester.

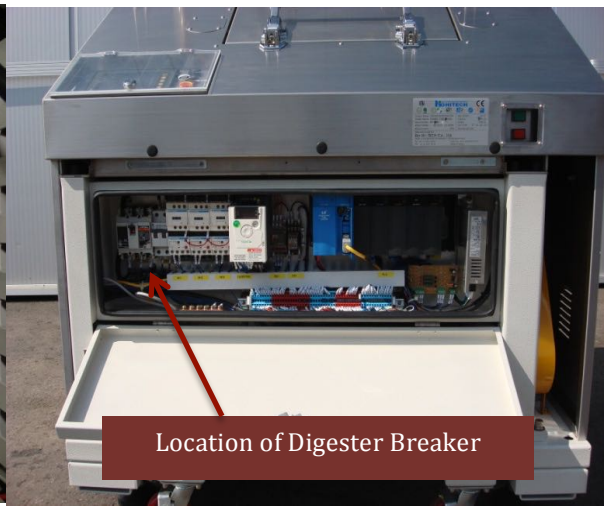


4.5 Installation Electrical Connection

- The 4 wire electrical whip connects to the Digester at the on board breaker.
- The 3 power lines tie in here and the ground wire terminates on the grounding bar.
- This breaker is found inside the electrical cabinet enclosure, it is located on the front left hand side of the digester



Close Up of Breaker


Location of Digester Breaker

5 Questions and Technical Support

If you have any questions about this manual or if you need technical support, please contact BioHitech America Technical support at:

Phone: **888.876.9300**

Web: **www.biohitech.com** (click Contact Us)

6 Appendix A – Site Prep Checklist

6.1 Power

☐ 208V/220V, 3-Phase + 1 ground

☐ 30amp breaker required (minimum)

☐ Integrity of power source is vital; line must be carrying at least 208 volts.

☐ Disconnect box or a 30amp receptacle should be mounted within 6 feet of unit, a matching 10-foot electrical whip is also needed to connect the Eco-Safe Digester . Electrical connections are located on the front, left hand side of the unit. (Wiring can be routed through the interior of machine resulting in a stealthy and clean installation).

6.2 Water

☐ Mixing valve required to combine, regulate and dispense hot and cold water received from two inlets.

☐ Water source should be located within 6 feet of the unit.

☐ Water connections are located on the left hand side, towards the front of the unit.

☐ Mixing valve is typically connected to the Eco-Safe unit using a 6-8ft. steel-braided hose, with a 3/4in. hose bib adapter.

☐ Hot water temperature needed to be maintained: 30-39° C (86-102° F)

6.3 Drain

☐ Ideal: 3” Drain Pipe. (3” drain pipe connection originates on the bottom, rear, and right hand side of the unit).

☐ Ideal: 4” Floor drain to accept 3” drain pipe.

☐ Sufficient pitch required to facilitate proper drainage.

6.4 Clearance

☐ Ideally, the unit should have adequate clearance on all sides to aid in proper servicing (2 to 3 free minimum).

6.5 Optional Requirements

☐ Garden hose attachment incorporated into the water line with separate shut-off valve, for use in cleaning and servicing the Eco-Safe Digester.

6.6 Networking Requirements (Required Only for BioHitech Cloud)

These requirements are only required for an Eco-Safe Digester that is connected to the Internet for the BioHitech Cloud™ service offering. Many of these parameters may be identified by your IT (Information Technology) support department.

□ Determine source of network connectivity

- □ Customer-supplied Ethernet connection
  OR
- □ BioHitech-supplied 3G cellular wireless connection

For Cellular Wireless Connections:

□ Acquire cellular modem/router from BioHitech America

□ Ensure that there is adequate 3G wireless coverage (GSM or CDMA)

For Customer-supplied Ethernet connections:

□ Define required Ethernet Cable Length: _____ feet

Network Type: □ DHCP or □ Static

If Static Network:

- IP Address for BioBrain: ____ . ____ . ____ . _____

- IP Address for Gateway (Route): _____ . _____ . _____ . _____
- Subnet Mask: _____ . _____ . _____ . _____
- DNS 1: _____ . _____ . _____ . _____
- DNS 2: _____ . _____ . _____ . _____

Firewall Rules: (review with customer's IT/Networking department)

- □ Confirm Outbound DNS availability (UDP, port 53)
  - 8.8.8.8 and 8.8.4.4 (only if using external DNS)
- □ Confirm Outbound Cloud availability (TCP, port 443)
  - 54.221.243.115
  - 54.209.122.209
  - 54.209.181.132
  - 54.208.204.191
  - 54.85.105.167
  - 54.85.142.150

By singing this document, you confirm that all of the above requirements have been met.

Approved By (Name):

Approved By (Signature):

Date:

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7 Appendix B – Cut Sheets

Eco-Safe 4

Capacity & Dimensions		
24-hour Capacity	up to 800 lb (360 kg)	
Width	45.75"	1162 mm
Height	50"	1270 mm
Depth	35.5"	902 mm
Weight	1100 lbs	500 kg

Utility Usage	
Water Consumption	about 100 gallons (375 l.) / day
Power Consumption	about 210 kilowatts / month
Effluent Discharge	about 100-200 gal (375-750 l.) / day

Key Components	
1	Power (208 Volt, 3-Phase)
2	Hot Water Line
3	Effluent Discharge (to Sewer)

International Organization for Standardization

Conforms to ANSI/UL STD 599
Certified to CAN/CSA STD C22.2 No. 88
Intertek
4004212

Eco-Safe 8

Capacity & Dimensions		
24-hour Capacity	up to 1600 lb (725 kg)	
Width	59.75"	1518 mm
Height	55.25"	1404 mm
Depth	44.25"	1124 mm
Weight	1540 lbs	700 kg

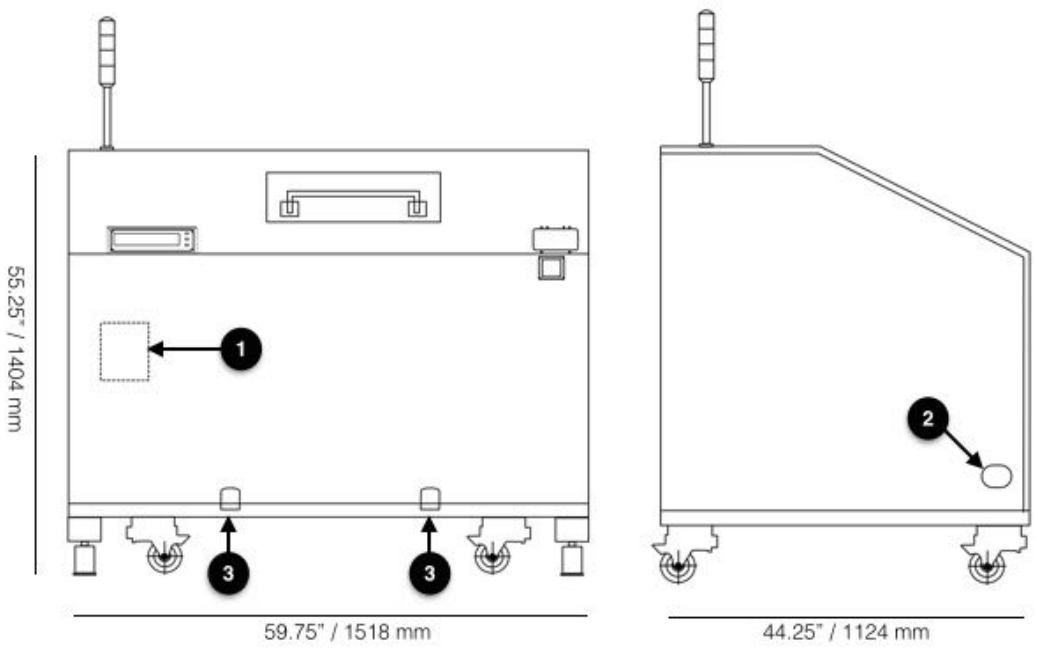
Utility Usage	
Water Consumption	about 200 gallons (750 l.) / day
Power Consumption	about 450 kilowatts / month
Effluent Discharge	about 200-300 gal. (750-1150 l.) / day

Key Components	
1	Power (208 Volt, 3-Phase)
2	Hot Water Line
3	Effluent Discharge (to Sewer)

ISO International Organization for Standardization

CE

Intertek 4004212 — Conforms to ANSI/UL STD 499 Certified to CAN/CSA STD C22.2 No.88



Eco-Safe 12

Capacity & Dimensions		
24-hour Capacity	up to 2400 lb (1090 kg)	
Width	69.25"	1759 mm
Height	55.25"	1404 mm
Depth	44.25"	1124 mm
Weight	1680 lbs	760 kg

Utility Usage	
Water Consumption	about 300 gallons (1150 l.) / day
Power Consumption	about 600 kilowatts / month
Effluent Discharge	about 400-500 gal. (1500-1900 l.) / day

Key Components	
1	Power (208 Volt, 3-Phase)
2	Hot Water Line
3	Effluent Discharge (to Sewer)

ISO International Organization for Standardization

CE

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