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# **EcoLet 25a & 65a**

## **Instruction Manual**



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Congratulations on the purchase of your new EcoLet compost toilet system!

The Ecolet 25a and 65a models are fully automatic, continuous composting systems (as opposed to batch systems). This means the waste can finish composting within the unit without having to be set aside in a warmer position. Compost falls towards the collection tray at the base of the unit for removal.

The 25a has a 50L volume, suitable for up to 3 people. The 65e has a 72L volume, suitable for up to 4 people.

The EcoLet is a self-continued biological toilet that composts waste and toilet paper, and evaporates liquid. The composting process takes place using nature's own microorganisms, without the need of any chemicals. Controlled air supply and heat, as well as regular mixing of the compost accelerates the composting process and converts toilet waste into eco-friendly humus. This makes a nutrient rich supplement for your garden.

## **UNIT DIMENSIONS**

**25a:** 710mm L x 550mm W x 650mm H

**65a:** 810mm L x 650mm W x 660mm H

**Foot print (including compost drawer):** 1100mm L x 650mm W (minimum)

## **THREE IMPORTANT THINGS TO REMEMBER**

1. When the toilet is used, room temperature should be at least 18°C. If your room temperature is lower than this, composting could stop as the microorganisms die or go dormant.
2. If you are away for more than two weeks, you can turn the power off and put the cover in the seat opening to reduce drying of the compost pile.
3. The heating element in the room can also be switched off, the composting toilet will not be damaged by freezing.

# What's in the box?

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## The box contains:

- The toilet
- The manual
- Bulking agents (peat moss and wood shavings/hemp)
- Nature Flush enzymes
- Nature Quick microbes
- Toilet Paper
- Spray with trigger
- Warranty Sheet
- Bowl cover
- A rake
- How-to-use sign

## The vent kit contains:

- Ventilation pipes, white pipes, 6pcs x 675mm
- Outside pipe, black 2pcs x 675mm
- Insulation, 2pcs x 675mm
- Reduction coupling, 55/110mm
- Roof flashing
- Insect netting

## Optional wall installation kit (not included):



## Extra accessories (not included):

- 30° and 45° Pipebends
- Insulation
- Additional vent piping
- Bulking agent (peat moss, hemp/wood-shavings)
- Microbes
- Enzymes

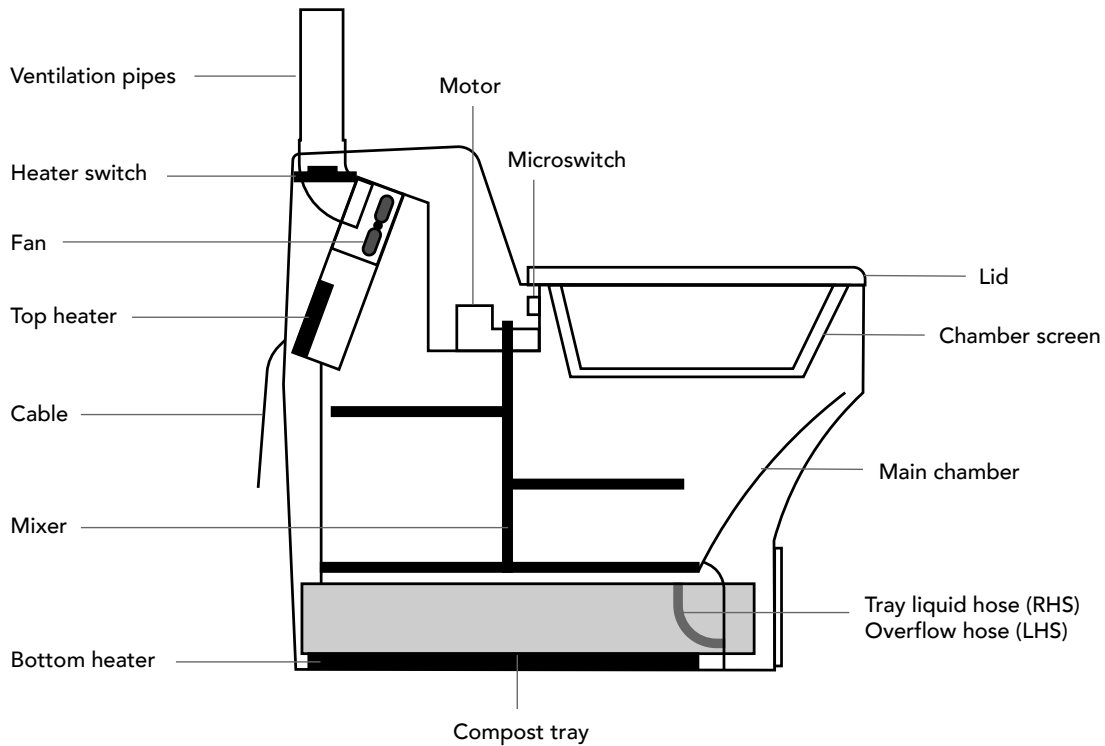


# EcoLet Components

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<b>Main Chamber</b>	The main chamber holds the composting pile. No need for any chemicals, just microorganisms aka microbes.
<b>Compost tray</b>	The base of the compost pile slowly falls into the collection tray for removal after it has been processed by the microbes.
<b>Mixers</b>	<p>When the lid is lowered after each use, the automatic mixer rotates the compost pile. Mixing helps to aerate the compost and sift it into the compost tray.</p> <p>The mixer arm will turn a full revolution:</p> <ul style="list-style-type: none"> <li>• When switched on</li> <li>• When a user places the lid down</li> <li>• When a user gets up from the seat</li> </ul>
<b>Ventilation pipes and fan</b>	The ventilation pipes and built-in fan promotes airflow - drawing away odours, reducing the build-up of moisture, and providing oxygen for the microorganisms.
<b>Heater</b>	<p>There is a heater on the top near the fan and a heater on the bottom under the compost tray.</p> <p>The adjustable heater combined with recirculation of the heated air results in a very low energy cost to warm up the pile to optimum temperature for composting.</p> <p>It will also help to evaporate any liquid that hasn't been absorbed into the compost pile.</p>
<b>Chamber screen</b>	<p>The chamber screen opens up only when there is pressure on the seat, so you do not need to see any fresh waste.</p> <p>The chamber screen will also open when the seat is lifted, if you need to access the pile easily or if you want to urinate standing up.</p>
<b>Tray liquid hose</b>	The tray liquid hose is on the right hand side (when you're facing the toilet), it shows how much liquid there is in the tray.
<b>Overflow hose</b>	<p>The liquid overflow hose on the left side shows if there is liquid pooled in the base of your unit, outside of your collection drawer.</p> <p>The hose at the back can be converted into an outlet that leads to an underground leachate drain.</p> <p>Hot tip: don't open the drawer if you see liquid in this hose.</p>

# EcoLet Diagram



## Settings

### Capacity settings

Adjust capacity by turning the dial.

The recommended start setting for 2 people:



**Green light: Only fan is operating (see Heater Settings below).**

After 1 week in operation, you might have to adjust the setting depending on usage and the liquid level in the tray liquid hose (RHS).

### Heater settings

Set the heat according to load. Check the tray liquid hose (RHS, seen from the front).

1	Green light	Only fan is operating
2	One amber light	Fan + 50% top heater
3	Two amber lights	Fan + 50% top heater + 100% bottom heater
4	Three amber lights	Fan + 100% top heater + 100% bottom heater

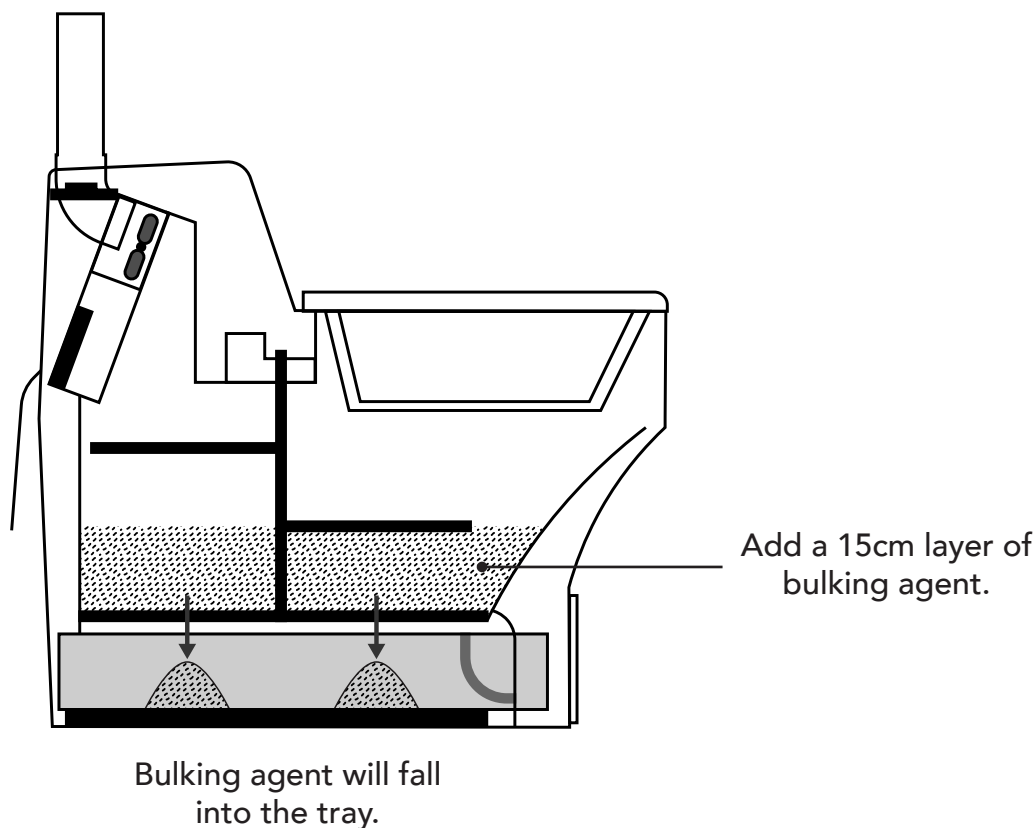
# Operation

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## Starting with empty toilet

1. Combine your bulking agents to create a very absorbent mix. We recommend 40% peat moss and 60% hemp or wood-shavings.
2. Add a 15 cm layer of bulking agent mix into the main chamber, or just high enough to reach the bottom mixer arm. Any higher than this may cause the composting pile to grow and fill the main chamber too quickly, which forces the need to empty the compost tray on the bottom too early.
3. Some of the mix will fall down into the compost tray, add this back to the main chamber.
4. Connect the mains plug into a grounded wall socket. Switch the system on. Turn the dial to the first position so that only the green light is on - for just the fan, not the heater. Always have the fan on (green light) by default.
5. Make sure the bowl cover is not in place when the fan is running. It is only to seal the system when it is off and not in use for more than several days.

### Example of bulking agent volume estimation





## **In the first week**

Once you have some solid waste in your main chamber you can start to introduce your microbes. Mix about half a 225g packet of microbes with warm water. Sprinkle this around the composting pile.

## **After every solid deposit**

Add a handful of bulking agent mix.

## **Tray liquid hose**

Regularly monitor the tray liquid hose on the right hand side of the unit. This hose should never be full as this means the tray is full of liquid. Half full is alright, but should be monitored.

Remember, it is best for the compost pile to have a moisture level of about 60%. The pile in the main chamber should appear to have a porous and moderately moist consistency. You can use a permanent marker to mark the liquid hose at your ideal level during different seasons.

Too wet or too dry will hinder the composting process. If liquid stays on top of the compost and seeps into the tray slowly, then the compost is too wet. Increase the heater and add a few litres of bulking agent.

On the other hand, the compost is too dry if there are hard lumps, or if toilet paper remains on top when it does not get soaked and mixed in properly during mixing. If so, make sure the heater is off, and sprinkle about half a litre of water over the composting pile. Check the tray liquid hose regularly and adjust the heater accordingly.

## **Overflow hose**

Be careful not to open the front cover if your overflow hose (LHS) is showing that there is liquid pooled in the base of your unit, outside of your compost drawer. The tray liquid hose (RHS) needs to be unplugged to remove the tray fully, so make sure to turn the heater up and reduce the liquid level as low as possible.

## Compost tray

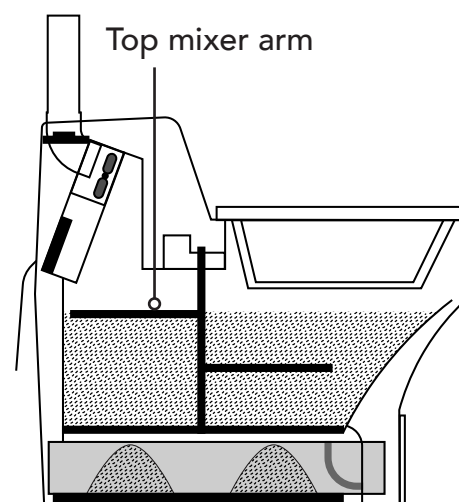
Depending on usage and climate conditions, the composting process can take at about 1.5 to 3 months or more to complete. It will take about this much time for the top of the composting pile to reach the compost tray.

It is normal for the compost tray to quickly become full in a few days. Let the compost tray remain full for at least 1.5 to 3 months until it has finished composting. You may use the heaters to accelerate the composting process. During this time, regularly monitor the liquid level in the Tray Liquid Hose on the right hand side. It is alright for the Tray Liquid Hose to be half full; if more than this, switch on the highest setting until the liquid has been reduced. Liquids are slower to evaporate during Winter or cold days, so we recommend leaving the lowest setting on during this time.

As a general rule, you can empty the tray once the pile in the main chamber reaches the top mixing arm (see image).

Always wear safety gear when handling compost - gloves, dust mask.

It is recommended to turn the dial up to the highest setting for a couple of hours in order to evaporate all fluids before emptying the tray.



## Completed compost

If you're at the stage of seeing completed compost, you can use this in your garden. We recommend burying it like a fertiliser in a non-edible garden. Burying it will reduce the likelihood of contact with animals or people. Even though fully composted waste will be pathogen free, it's better to be safe than sorry. Contact your local council for any restrictions or requirements about using composting toilet waste around your property. Every local council may have slightly different requirements about waste disposal.

## Recommended Heater Settings

Remember, the optimum temperature range for most compost toilets is 18°C to 45°C.

<b>Green light</b>	Only fan is operating	By default, the fan should always be on.
<b>One amber light</b>	Fan + 50% top heater	During cold winter days.
<b>Two amber lights</b>	Fan + 50% top heater + 100% bottom heater	When the liquid tray is more than half full.
<b>Three amber lights</b>	Fan + 100% top heater + 100% bottom heater	When the compost pile is too wet. When there is indication of overflow. Before opening the collection drawer to remove the compost tray.

# Caution

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- Do NOT use any anti-bacterial cleaning agents or products inside the composting system.
- Do NOT use sugarcane mulch or other stringy fibrous material.
- Do NOT use bowl cover when system in use.
- Avoid bulking agents with very fine particles that can become “cakey” when absorbing moisture, which will block the drainage of excess moisture.
- Only use peat moss, wood-shavings and hemp in your EcoLet.

# Maintenance

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- Monitor the main chamber regularly. The pile should be porous and have a moderately moist texture.
- Make sure the mixing arm automatically turns after every use.
- Check the tray liquid hose regularly and adjust the thermostat accordingly. If the liquid level is above halfway, turn the thermostat up.

## When to reintroduce the microbes

You will know when the pile is not composting as the matter will not be breaking down (which reduces volume). This is most evident by monitoring the toilet paper, as it tends to break down first.

As you use the system, the microbes that you introduce will spread through your composting chamber which is aided by the mixing mechanism. If they are able to thrive in the composting chamber environment you may never need to reintroduce them. An optimal composting environment for these microbes is moist and warm.

You will therefore want to consider reintroducing microbes if your system has:

- Completely dried out. In dry conditions microbes will start to hibernate and eventually die
- Gone septic. If your system is full of liquid the microbes will drown
- Becomes too cold. Microbes will slow down start to hibernate in cold temperatures

If you have been using the system for a long time or if you have left the system unattended and turned off, it can be helpful to add new microbes to the pile.

Simply add about a cup of microbes to the pile, or add in some finished compost as it will still contain a population of microbes.

## When to turn the system off

If you're going to leave your system unattended for longer than two weeks, you can switch it off and place the bowl cover into the seat. This seals the chamber and will prevent any smells from entering your bathroom. Then you can comfortably turn the system off at the wall socket without worrying about emptying the contents. The microbes will move around and compost while you're gone, assuming ideal conditions.

# Troubleshooting

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## Odours detected

- Urine/damp odour
  - Turn thermostat up one click and monitor
  - Ensure vent pipe is well insulated (to prevent condensation issues)
- Strange burnt odour and/or paper not being mixed into the pile
  - Turn thermostat down one click and monitor
  - Check moisture level of the pile. If it appears dry, sprinkle 500ml of water.

## Liquid leaking onto floor

- Identify where liquid is coming from - why is it not evaporating or being absorbed.
- Check the tray liquid hose (RHS). If it is more than half full of liquid, turn the heater setting up to 2 or 3 amber lights (make sure the bottom heater is working) until the liquid has been reduced. Do not overdry the pile.
- Ensure the vent pipe is well insulated, to prevent condensation in the vent pipe.

## Mixing arms are not turning

- The mixing arms moves very slowly and the micro switch will stop them from moving when you lift the toilet seat lid. To check if the mixing arms are moving:
  1. Lift the toilet seat up to activate the seat sensor (this is a microswitch in the chamber screen mechanism, refer to EcoLet diagram).
  2. Now move the toilet seat lid away from the unit to release the seat sensor.
- You should see the mixing arms start its rotation. If you don't, you'll want to start troubleshooting:
  - Turn on and off. Motor should turn a full revolution.
  - Make sure the shear pin hasn't broken.
- Pile not composting
  - If the toilet paper is not breaking down, the pile is too dry. Add liquid to the pile, 500ml at a time. Keep an eye on the tray liquid hose (RHS).

## How can I tell if my compost is ready?

The size of the pile should have reduced in size by approximately 20%. Finished compost should appear crumbly and moist (similar to fresh potting mix), not sodden or dry. It should not have any offensive odour, just an earthy one. Also, the pile should not be producing high heat any longer.

## Explanation of the Composting Process

Our composting toilet uses a natural aerobic process called Thermophilic composting. Basically, aerobic microbes, actinomycetes bacteria and fungi generate heat and break down waste into odourless compost that's safe to handle.

To explain it in detail, it begins with the piling and layering of waste and carbon-rich materials like wood shavings. Initially, mesophilic microorganisms break down easily decomposable materials, releasing energy in the form of heat. As the temperature surpasses 45°C (113°F), thermophilic microorganisms, including heat-tolerant bacteria and fungi, become dominant. These microorganisms rapidly decompose complex organic compounds, generating even more heat.

The sustained high temperatures in the thermophilic phase accelerates the breakdown of organic matter, kills pathogens, and promotes nutrient release. The compost pile naturally cools down after the thermophilic phase, allowing mesophilic microorganisms to continue decomposition at a slower pace.

For optimal performance, microbes require composting conditions that include:

- a minimum temperature of 12°C
- moisture content of about 70%
- 30:1 carbon-nitrogen ratio
- oxygen/airflow

Microbes require a balanced diet of carbon and nitrogen to thrive and carry out their metabolic processes effectively. Simply put, carbon provides a source of energy, and nitrogen in the urine and faeces is for growth and metabolic activity.

# Contact

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The place of purchase is responsible for handling warranty claims and addressing product concerns during the warranty period.

## AUSTRALIA



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