
The Compooster

DIY “The Compooster” Design Guide



Jenk Stars

1st Edition

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Introduction

All the Jenk Star Systems have to meet four basic requirements

- Must be simple to build
- Must be inexpensive,
- Must be built with parts that can be found anywhere in the world
- design must be open source.

This DIY Guide will give you all the details you need to build the The Compooster A waterless, odorless, toilet that filters bacteria and produces vital nutrients for your garden. Based upon the New Era Design by Carl Lindstrom-Sweden.



Overview

The Composter in a nutshell

How is it different than other composting toilets?

The Composter is different than most composting toilets the you may have seen. Traditional composting toilets combine human waste with a carbon source such as saw dust to produce a rich dark soil for your garden. This process takes several weeks and requires a thermal process to fully break down the bacteria and pathogens. Generally the urine is separated using a cumbersome process which requires some maintenance and can get a bit messy.

How does it work?

The composter is based upon 40 years of research and development by Carl Lindstrom from Sweden, [Links to his company and website here](#). This system is aerobic. Meaning it uses oxygen in the metabolic process of breaking down waste. So its important to have a fan running to keep the flow of oxygen going. It uses a microbial mix to break down the waste. Microbes are microscopic organisms that live in the soil and are everywhere in nature. Certain strains of these organisms are very efficient at breaking down human waste. no urine separation is necessary. The Urine actually adds the perfect amount of liquid creating an optimal environment for the microbes to thrive. The microbes break down the waste creating leachate, a nutrient rich liquid that drains and is stored in a separate liquid storage tank. This liquid is then stored for a period of time in a separate tank. During this period the liquid undergoes a fermentation process, killing pathogens, bacteria and removing any pharmaceuticals and heavy metals. Once fermentation is complete, the resulting liquid is a nitrogen rich mixture that can be spread directly on your garden.

The System

As with all of our systems, The composter uses materials that can be found at any hardware store with inexpensive parts and is easy to build. The 270 gallon IBC tote is used for several reasons. The IBC (Intermediary Bulk Container) is a standardized container used in many industries. It fits on a pallet and an exact number fit into both shipping containers and semi trucks. This standardization makes the tote easy to find and distribute. The IBC also provides the perfect size to waste ratio for this specific design.

The liquid storage tank can range in size depending on your specific use. We are using a 35 gallon plastic barrel for our liquid storage tank because i

COMPOSTING TOILET PARTS				
Description	Price	Quantity	Total	Source
IBC Tote	\$100.00	1	\$100.00	Craigslist
<u>IBC tote to garden hose adapter</u>	\$14.95	1	\$14.95	ebay
<u>sphagnum peat moss</u>	\$12.97	2	\$25.94	Home Depot
<u>toilet seat</u>	\$5.97	1	\$5.97	Home Depot
<u>brown mulch</u>	\$2.50	2	\$5.00	home Depot
<u>river rock</u>	\$7.89	2	\$15.78	home Depot
<u>Barrel Lids with steel band</u>	\$1.48	2	\$2.96	online
<u>35 gallon barrel</u>	\$44.00	2	\$88.00	amazon
<u>6' garden hose</u>	\$7.47	2	\$14.94	home Depot
<u>hose to hose adapter</u>	\$2.56	2	\$5.12	amazon
<u>wire leaf strainer</u>	\$2.67	1	\$2.67	home Depot
<u>silver fan tape</u>	\$3.99	1	\$3.99	home Depot
<u>clear tube silicone</u>	\$3.98	2	\$7.96	home Depot
<u>3/4 inch bulk head union</u>	\$14.21	1	\$14.21	home Depot
<u>garden hose y connector</u>	\$9.97	1	\$9.97	home Depot
<u>vent cap</u>	\$8.99	1	\$8.99	home Depot
<u>access hatch</u>	\$49.99	1	\$49.99	amazon
<u>12 v duct fan</u>	\$59.99	1	\$59.99	amazon
<u>4" vent pipe</u>	\$7.58	2	\$15.16	home Depot
<u>black spary paint</u>	\$0.97	3	\$2.91	home Depot
<u>1/2 in OSB 4X8</u>	\$10.75	1	\$10.75	Home Depot
COMPOSTING TOILET TO-TAL	\$372.88		\$465.25	
SOLAR ARRAY PARTS				
Description	Price	Quantity	Total	Source
<u>45 watt solar array</u>	\$151.00	1	\$151.00	Harbor Freight
<u>1 year replacement on solar</u>	\$29.99	1	\$29.99	Harbor Freight
<u>400 watt inverter</u>	\$21.99	1	\$21.99	Harbor Freight
<u>2 year replacement on inverter</u>	\$9.99	1	\$9.99	harbor Freight

<u>12v deep cycle battery</u>	\$63.00	1	\$63.00	amazon
SOLAR ARRAY TOTAL			\$275.97	

It is easy to change and move but a 55 gallon drum or another IBC tote works as well.

Chapter 2

Parts List

Everything you need to build the composter

Chapter 3

Getting Started

DIY Design Guide to the Composter

First you need to insure that you have all the parts in the parts list. We have included links to all of the parts but most of them you can find at your local hardware store or garden center.

Start with the IBC tote, these are very easy to find used. Try Craigslist or your local paper, people are always trying get rid of these.

Tools

4" and 1" hole saw

jig saw

adjustable end wrench

Preparing the zone

Picking a spot for your toilet is important. If this is an outside system, its best to have the back facing south towards the sun to help heat the tank. Heat is important for the microbes, they do better in warmer environments

The IBC tote should sit on a stable flat surface. The liquid storage tank needs to be below the IBC tote. This can be done by digging a hole for the storage tank or by building a sturdy platform for the tote to sit on. Ive also see the liquid storage tanks place down hill with a long hose running from the IBC.

Preparing the tote

First remove the tote from the metal frame. This requires removing a few screws from the top bars. Keep all the parts because we are going to put the tote back in after we paint it. Next paint the tote black. This will help keep the tote warm and help hide the pile. Once the tank is painted, you will need to make three holes in the tote. One for the Toilet Seat, one for the vent fan and one for the inspection hatch. Most totes come with a lid that screws on, I find that a 4" hole saw fits into the existing grooves in the screw on cap and makes a nice placement for the vent.

Attach the vent fan and tube. Mount the inspection hatch and screw on the toilet seat. The IBC to garden hose adapter should screw onto the outlet at the bottom of the IBC. There are a couple different styles of threads, if it doesn't work you will have to modify this with pvc and adapters to go from the IBC outlet to a garden hose fitting. Attach the garden hose Y splitter and attach the two 6' garden hoses. These will attach to your liquid storage tanks.

The Liquid Storage Tank

The liquid storage tank can be what ever size makes the most sense for your application. For hundreds or thousands of people, you will want to use another IBC tote for your liquid storage. If its just you and your family, you can use the 35 gallon drum. They are nice because they are easy to change and one person can easily move them around. It's important to keep the liquid storage tanks sealed and out of the reach of children.

The bulkheads attach to the lids of the storage tanks, the splitter valve makes it easy to turn one off while the other is being filled. Connect the liquid storage tanks to the IBC tank.

The Microbes

Before Adding the microbe mix, remember to place the screen in the drain hole and cover it with river rocks. This will prevent the wood chips from clogging the drain. Using the inspection hatch, cover the entire drain with river rocks, then spread the wood chips. You can buy different kinds of wood chips, some are dyed different colors, its best to find a natural wood chip that will create the necessary air pockets for the microbes. Next mix a bag of wood chips with the peat moss and spread them over the wood chips.

It is best to use natural toilet paper, avoid wet wipes and famine products. Sometimes garbage does fall into the IBC tote.

The Solar Array

Power is only necessary to run your vent fan. If you have power available, you can run a 15 amp circuit to the composter and run a 120v inline vent fan. They are quite a bit cheaper than the 12v version and can be purchased from any hardware store.

You can get a fancy as you want with the wiring and distribution of your solar power. But the in most basic system you would Connect the solar array to the battery and attach the vent fan directly to the battery.

The Enclosure

The enclosed area around the composter can be made of any material you choose, from metal to wood, cob or stone. Depending on your climate, you may choose an open air design or for mountainous regions a solid structure with insulation. The most basic enclosure is a box with a door.