



Self Watering Pot/ Planter (Parametric)



Whity

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Summary

A self watering pot/planter which combines all the advantages of different concepts. Fully parametric in F360

[Household](#) > [Outdoor & Garden](#)

Tags: [pot](#) [water](#) [plant](#) [selfwatering](#) [watering](#) [planter](#)
[self](#) [fusion360](#) [chili](#) [parameterizable](#) [parapeter](#) [flowerer](#)

Introduction

The design was inspired by all kind of different self watering pots I found, trying to combine them into the best solution possible. A special mention goes to [Prusament](#) for their “[PLA Recycled Self-watering Pot](#)” design. That's where the PET bottle idea came from (quite obviously).

It uses cotton cords (ø 5 mm in my case) to suck up the water from the base below, which is refilled by the PET bottle reservoir, and that makes it very easy to keep track of the water level.

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I'll get a small cut of any order you fulfil using these links (at **no** additional cost for you ☺).

If you want to support my work directly, you can [buy me a coffee](#).

If you want to order a Prusa printer and earn some Prusameters (I will also get some), you can use my referral code "**@Whity**" at checkout or click one of the following links

(the code only works for the first order of each printer model):

| [CORE One](#) | [CORE One Kit](#) | [MK4](#) | [MK4 Kit](#) | [MINI+](#) | [MINI+ Kit](#) | [XL](#) | [SL1S](#) | [SL1S+CW1S](#) |

Also check out [my other models](#).

Additional parts needed

- 1 x (0.5l) PET bottle (The STL files work fine for bottles with a diameter up to ~70 mm)
- Cotton cord (ø ~5 mm)

Customization

You will find the Fusion 360 file in the files section. It uses parameters to easily adjust it to your needs (width, depth, height, bottle diameter, ...).

Printing

Wall thickness

As most sections of the prints are relatively thin walls, it's **important** to set the wall thickness correctly. E.g. 1.6mm is not optimal for a 0.4 mm nozzle (more informations about it [here](#)). The roughly correct wall thickness for a 0.4 mm nozzle and a layer height of 0.3 mm would be 1.55 mm (depends on your exact slicer settings), which results three (not 4!) perimeters. 1.6 mm would result in four perimeters, makes the walls thicker than they should be, the parts will very likely not fit together properly and look ugly too.

Depending on the size of the pot and material you may want to increase the wall thickness from 1.55 to 1.975 mm to get one more perimeter. Recognized during testing that the walls tend to warp when they are not thick enough. Above roughly 125 x 125 x 125 it could make sense to increase the wall thickness to be on the safe side.

Layer height

The **Base** and **Pot** are best printed with a layer height of 0.3 mm, the **Adapter** with a layer height of 0.2 mm (use the provided 3mf files).

The **Gasket** is not really needed, as physics prevents it from leaking.

Material

I used PLA and PETG for my test prints, but PLA worked best so far. If you plan to put it into full sunlight or warmer surfaces, PLA is probably not a good choice (ASA could be a good alternative due to its UV resistance). With lighter colors I had no problems yet. E.g. Extrudr provides a PLA which can resist higher temperatures too. Please share your experiences with different materials in the comments section.

Let's put it together

Prepare the pot

For the default 125 x 125 mm pot two 25-30 cm pieces of cord should be fine.



Put them through the holes like this:



I made some knots at the ends of the cords to keep them in place:



Optional (but recommended): Add some wood chips which provides a good base and prevents the soil from falling into the base:



Finally fill it up with soil:



Prepare the bottle

Just fill the PET bottle with water and screw on the adapter.

Let it flow

Slide in the bottle. If you turn the bottle upside down, it shouldn't spill (too much...). Physics FTW 😊





If the water doesn't start to flow into the base by itself, just squeeze it **a little bit** to kickstart it (doesn't need much).

This should fill up the base to around 8 mm:



Place the pot on top of the base and you're ready to plant your "little happy tree":



Model files



3mf files

2 files



self-watering-pot-125-x-125-x-175-mm-version-only.3mf

☐ PET bottle up to ~70mm. Contains base and pot (hide/unhide the parts to slice)



self-watering-square-pot-adapter.3mf



Fusion 360 files

1 file



self-watering-pot.f3d

☐ Go to "MODIFY" => "Change Parameters" to customize it



STL files - General

2 files



adapter.stl



gasket.stl



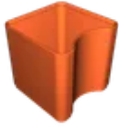
STL files - Base 100 x 100 mm

4 files



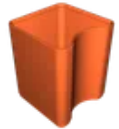
self-watering-pot-base-100-x-100-mm.stl

☐ PET bottle up to ~70mm



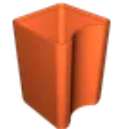
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☐ PET bottle up to ~70mm



self-watering-pot-pot-100-x-100-x-125-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-100-x-100-x-150-mm.stl

☐ PET bottle up to ~70mm



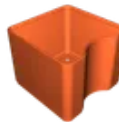
STL files - Base 125 x 125 mm

5 files



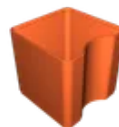
self-watering-pot-base-125-x-125-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-125-x-125-x-100-mm.stl

☐ PET bottle up to ~70mm



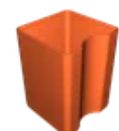
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☐ PET bottle up to ~70mm



self-watering-pot-pot-125-x-125-x-150-mm.stl

☐ PET bottle up to ~70mm



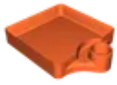
self-watering-pot-pot-125-x-125-x-175-mm.stl

☐ PET bottle up to ~70mm



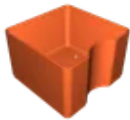
STL files - Base 150 x 150 mm

6 files



self-watering-pot-base-150-x-150-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-150-x-150-x-100-mm.stl

☐ PET bottle up to ~70mm



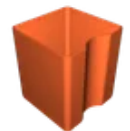
self-watering-pot-pot-150-x-150-x-125-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-150-x-150-x-150-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-150-x-150-x-175-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-150-x-150-x-200-mm.stl

☐ PET bottle up to ~70mm



STL files - Base 200 x 125 mm

6 files



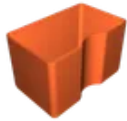
self-watering-pot-base-200-x-125-mm.stl

☐ PET bottle up to ~70mm



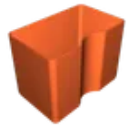
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☐ PET bottle up to ~70mm



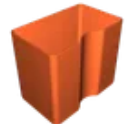
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☐ PET bottle up to ~70mm



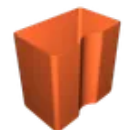
self-watering-pot-pot-200-x-125-x-150-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-200-x-125-x-175-mm.stl

☐ PET bottle up to ~70mm



self-watering-pot-pot-200-x-125-x-200-mm.stl

☐ PET bottle up to ~70mm

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