



Parametric Dehydrator Filament Dryer (Up to 10 x 1kg Spools!)



SJB4127

[VIEW IN BROWSER](#)

updated 18. 1. 2024 | published 18. 1. 2024

Summary

Accessories for converting a cheap food dehydrator into a 10-spool filament dryer.

[3D Printers](#) > [Accessories](#)

Tags: [dehydrator](#) [filamentdryer](#) [fooddehydrator](#) [filamentdrying](#)
[spooldryer](#)

Update 2023.11.18: I've added a Fusion 360 paramaterized model of the side walls, so everyone can mix and match the design to match their specific food dehydrator. It has been only teste for certian combinations, so the model still may crash. Please me gentle!

Name	Unit	Expression
Outer_Diameter	mm	320 mm
Wall_Height	mm	178 mm
NumOfSegments		4
WallThickness	mm	1.6 mm

Outer_Diameter: is the outer diameter of the finished side wall. This should be the inside diameter of your dehydrator tray, minus 2 mm for clearance.

Wall_Height: this is the height of the side wall. So usually 110 mm for one spool per tray or 180 or higher for 2x spools per tray.

NumOfSegments: Is the number of side walls per tray. So 4 = 90° per segment, 8=45° per segment

Wall Thickness: How thick are the walls. If you want to stack 10 spools I would recommend changing this to 2mm or more, otherwise 1.6mm works well.

Note: Use at your own risk. I cannot currently support with troubleshooting the model, sorry.

Update 2023.08: I've started adding some generic side walls of different diameters and heights. These can be used for basically any dehydrator with round trays.

! These models have not yet been tested yet. ! The diameter is always referring to the outside diameter of the finished ring.

Update 2023.07: Additon of models for the US version. Thanks to @kgme for the support!

We all know what happens if your filament contains moisture. What most of us don't realize is that new filament, depending on who produces it and how it is shipped, can also be wet and needs to be dried out of the box.

I looked into filament dryers and was amazed that most of them are powered by USB (15 Watts??), which made me laugh. Having experience

drying fruits using real food dehydrators, I know you need a powerful dryer and time to achieve this.

So I looked into using a dehydrator to dry my filament. Videos online show how people cut holes in the trays to accommodate the spools and this is such a waste. Instead, I build these supports to accommodate the spools without destroying the dehydrator.

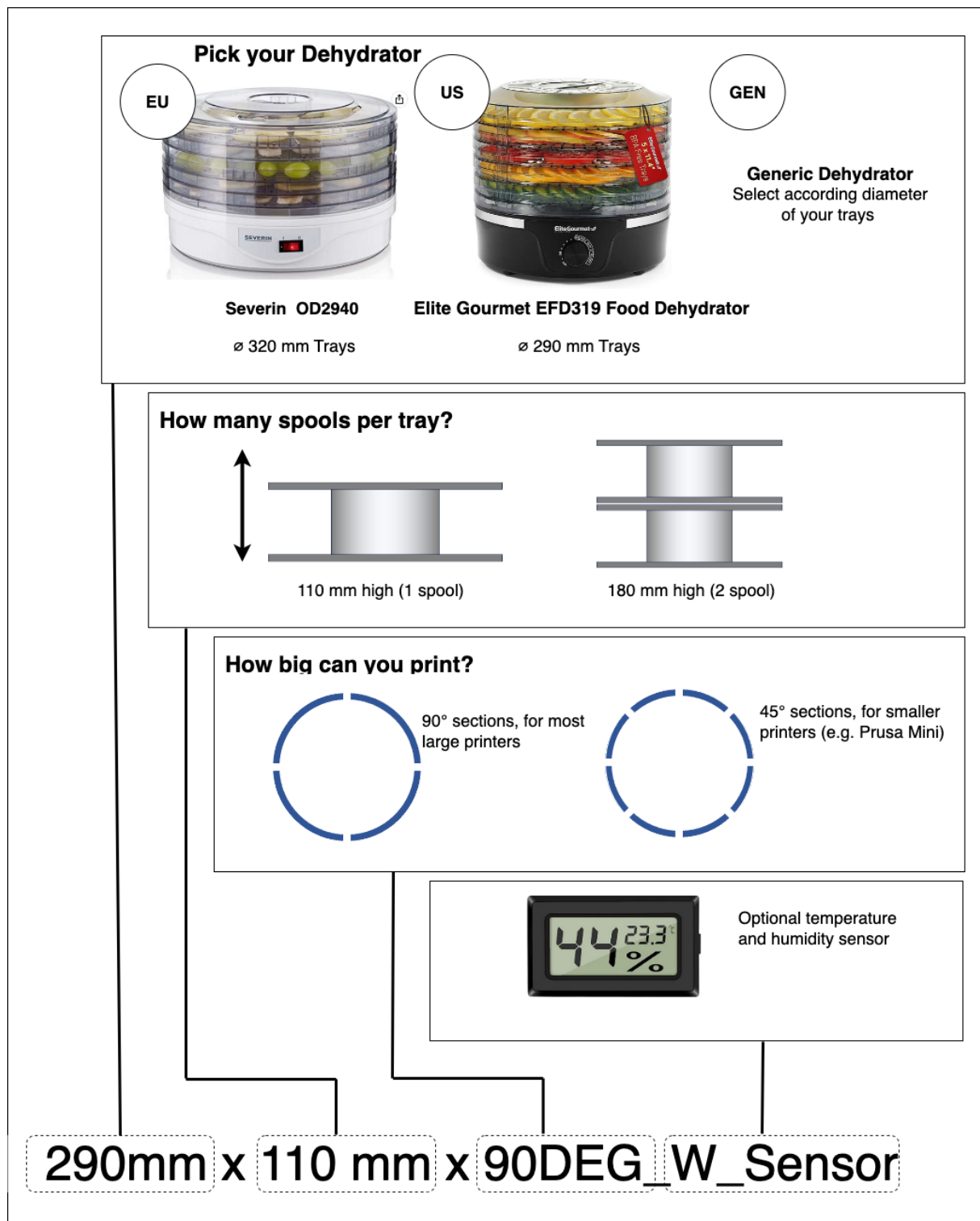
The supports can be taken apart for easy storage and don't take up much space.

! Note: Best printed with a skirt and upside down! You can get 12x of these (2 trays) to fit on a Prusa Mini bed.

The dehydrators:

I have two custom fits for one EU and one US brand. In addition to those, I offer a couple generic side walls of different diameters (only the slots in the bottom are missing).

Note: Not all combinations are currently available. If you are missing one, just msg me.



This is the one I chose because it is **compact and cheap (30-45€)**. At only 250 Watts it won't get super-hot enough to melt your filament but enough to dry it.

Amazon Germany: <https://www.amazon.de/Severin-2940-Obst-D%C3%B6rrautomat-Kunststoff-wei%C3%9F/dp/B000FMM7KE/>

I also see that there is a similar US version which uses similar trays:

Amazon US: <https://www.amazon.com/Elite-Gourmet-Dehydrator-BPA-Free-Stackable/dp/B08BSQZ2LS/>

An a link to the usual temperature & humidity sensor everyone likes to use: <https://www.amazon.de/EEKit-Temperatur-Feuchtigkeitsmesser-Thermometer-Mini-Digital-Thermometer-Feuchtigkeitsmesser/dp/B07GPT8HPY/>

This dehydrator comes with 5 trays (only 4 shown in my setup) which makes it ideal for drying up to 5 spools at once. With 4 spools the top tray still gets up to ca. 50°C with only 10% humidity, and with a constant air flow. After 4h of drying I noticed substantial differences in my print quality. After 8h the spools were perfect.

What I learned so far:

1. Spools made of cardboard are super wet. The paper absorbs a lot of moisture and after the filament is wound and vacuum sealed, slowly transfers it's moisture into the filament.
2. You may need to dry the same spool multiple times! Because it is very difficult to dry the filament located in the middle of the spool, it remains moist and your print quality may get worse as you get closer to the end of the spool.
3. Rotate the trays during drying! The bottom rack dries the quickest. After a couple hours reverse the order of the trays.. put the top one on the bottom and the bottom one on the top.
4. The price of the dehydrators is very dynamic! I used [CamelCamelCamel.com](https://www.CamelCamelCamel.com) for placing a price alert and got mine for around 30€.. but had to wait 6 weeks for it to be delivered.
5. After drying, place in a vacuum bag or dry box to prevent additional moisture from getting into the spool.
6. The temperature sensors do not measure below 10% relative humidity or above 70 °C. Additionally, they are somewhat inaccurate. But for this use case they are sufficient.

Happy printing!

Model files



Fusion 360 model

1 file



sidewall_dehydrator_paramaterized-v25.f3d

📄 v25 | 2023.11.18



Elite Gourmet EFD319 (US Version)

8 files



285mm-x-110mm-x-45deg.stl

📄 V6 | 2023.07.14



285mm-x-110mm-x-45deg-w_sensor.stl

📄 V6 | 2023.07.14



285mm-x-180mm-x-45deg.stl

📄 V6 | 2023.07.14



285mm-x-180mm-x-45deg-w_sensor.stl

📄 V6 | 2023.07.14



285mm-x-110mm-x-90deg.stl

📄 V6 | 2023.07.14



285mm-x-110mm-x-90deg-w_sensor.stl

📄 V7 | 2023.07.16



285mm-x-180mm-x-90deg.stl

📄 V6 | 2023.07.14



285mm-x-180mm-x-90deg-w_sesnsor.stl

📄 V6 | 2023.07.14



SEVERIN (EU version)

6 files



severin_320mm-x-110mm-x-60deg.stl

❏ V5 | 2023.07.09



severin_320mm-x-110mm-x-60deg-w_sensor.stl

❏ V5 | 2023.07.09



severin_320mm-x-180mm-x-60deg.stl

❏ V5 | 2023.07.09



severin_320mm-x-180mm-x-60deg-w_sensor.stl

❏ V5 | 2023.07.09



320mm-x-110mm-x-120deg.stl

❏ V1.1 | 2024.01.17



320mm-x-110mm-x-120deg_wsensor.stl

❏ V1.1 | 2024.01.18



Generic Side Walls (Experimental)

6 files



280mm-x-110mm-x-90deg.stl

❏ v1.0 | 2023.08.15



280mm-x-180mm-x-90deg.stl

❏ v1.0 | 2023.08.15



300mm-x-110mm-x-90deg.stl

📄 v1.0 | 2023.08.15



300mm-x-180mm-x-90deg.stl

📄 v1.0 | 2023.08.15



320mm-x-110mm-x-90deg.stl

📄 v1.0 | 2023.08.15



320mm-x-180mm-x-90deg.stl

📄 v1.0 | 2023.08.15

License ©



This work is licensed under a
[Creative Commons \(4.0 International License\)](#)

Attribution-NonCommercial

- ✗ | Sharing without ATTRIBUTION
- ✓ | Remix Culture allowed
- ✗ | Commercial Use
- ✗ | Free Cultural Works
- ✗ | Meets Open Definition