

Spool Desiccant Holder Print & Fill Guide

Keep the silica inside the spool hub, so your vacuum bags still stack flat.

Three Parts

2 in Diameter

One Plate, 4 h 17 m

Built by MakerX Designs · Virginia Beach, VA · makerxdesigns.com · © 2026

You vacuum seal your filament and stack the bags neatly — and then the desiccant canister sticks up just enough to make the stack awkward. This one hides in the spool hub instead.

In the download

File	What it is
makerx-desiccant-body-cap-funnel.3mf	Start here. All three parts, three ready-made plates.
makerx-desiccant-body.stl	The mesh container.
makerx-desiccant-cap.stl	The vented cap.
makerx-desiccant-funnel.stl	Fill funnel. Print it once.

1 · The one thing you need to buy

The printed parts are the housing. The working part is **silica gel**.

Buy 3-5 mm spheres — bead size is the whole spec

The diamond mesh is a grid of **2 × 3 mm openings** — open enough for moisture, tight enough to hold a 3-5 mm sphere. **Not the fine crystals** from packet desiccant: anything under 3 mm works through the mesh and ends up loose in the bag.

★ Indicating beads are worth the extra dollar

Indicating silica is dyed to change color as it saturates. Through this container's open mesh you can read that at a glance, without opening a single bag.

2 • Slice it

- 1 Open `makerx-desiccant-body-cap-funnel1.3mf` in Creality Print, or any slicer that imports 3MF project files.
- 2 When it asks whether to load the project's print settings, **say yes**.
- 3 **Pick a plate.** The project ships three, so you can run the whole set in one go or print the parts as you need them.

Plate	What is on it	Time	Filament
1 · all three parts	Body, cap and funnel together	4 h 17 m	68.32 g
2 · container + cap	The parts you keep	3 h 15 m	26.25 g
3 · funnel	The part you only need once	2 h 00 m	42.12 g

Plate 1 is faster than plates 2 and 3 put together

4 h 17 m against 5 h 15 m — splitting the job pays the heat-up and first-layer overhead twice. If you are printing all three anyway, use plate 1. The split exists for the case where you already have a funnel and only want another container.

★ The funnel is two thirds of the filament and you need exactly one

42.12 g of the 68.32 g total is the funnel. Print it once, keep it in the drawer with the bead bag, and every container after that costs you 26 g and about three hours.

3 • The profile baked into the 3MF

Quality	
Layer height	0.20 mm
Walls	2 loops
Top / bottom	5 / 3 layers
Infill	10 % gyroid
Supports	None
Brim	5 mm auto

Material & plate	
Filament	PLA as sliced
Nozzle temp	220 °C
Bed temp	60 °C
Sliced on	Creality Hi, 0.4 mm nozzle

The parts	
Body	50.8 dia × 57.2 mm
Cap	50.5 dia × 15.9 mm
Funnel	105.8 dia × 63.5 mm

Supports really are off in the profile, and nothing here needs them — the mesh is a vertical wall and the vented end is a flat top. If your slicer offers to add them, decline.

4 • Fill it

- 1 **Pop the brim off all three parts.** It peels away with a thumbnail.
- 2 **Sit the funnel on the open end of the body.** It just rests there — the funnel's neck and the container's top are plain cylinders sized to match, so it locates itself and stays put while you pour. There is nothing to twist.
- 3 **Pour the beads in.** Leave a little headroom rather than filling to the brim, so the cap seats without grinding beads into the joint.
- 4 **Lift the funnel off and press the cap on.** Same plain fit as the funnel: straight down, no twisting.

Nothing on this model screws together

The scalloped rims look like a jar lid and they are not — they are grip, so you can get the cap back off with dry fingers. The cap and the funnel both push straight onto the body. If yours ends up looser or tighter than you would like, that is printer tolerance rather than the design: a very slight scale change on the *cap only* (99.5 % or 100.5 %) is the quick fix, and it costs you fifteen minutes to test.

5 • Put it to work

Drop the filled container into the hub of a spool, seal the spool in its bag, and stack the bags as normal. Assembled with the cap on it stands **2 in across and 2.4 in tall**, which is the whole design brief — it sits down inside the hub rather than standing proud of it, so the next bag lies flat.

It works just as well loose in the bottom of a dry box, a tool drawer or a camera bag. The mesh is open on the wall *and* the top, so air moves through it from any orientation.

Recharging: take the beads OUT first. This part is printed in PLA.

Saturated silica is regenerated by baking it dry, and the usual figure is around **120 °C** for two to three hours. **PLA starts to soften around 60 °C**, so an oven that regenerates the beads will slump the container long before the beads are dry. Tip the beads onto a metal tray, bake those, and let them cool before they go back in. The same caution applies to parking it inside a heated filament dryer — if you want to do that, print the container in **PET-G or ASA** instead, which will take the temperature the printed PLA version will not.

6 • Making it yours

- **An unusual hub.** A uniform scale in your slicer moves the outside diameter without changing anything about how the parts fit each other, since all three scale together.
- **More capacity.** Scale the body on Z only and leave the cap alone — the fit is on the top section, so a taller body still takes the same cap.
- **Print two.** One per spool bag is the honest answer, and at 26 g a container that is a cheap way to stop guessing which bag went damp.

Where precision meets the printer

Thanks for printing this one. It started with a stack of vacuum bags that would not sit flat, which is about as ordinary a problem as this hobby produces.

For years my design world existed entirely behind a screen. As a mechanical engineer I spent countless hours building complex CAD models, but there was always a missing link — the ability to hold an idea in my hands. That changed in January 2026, when I went headfirst into 3D printing. The moment that first layer stuck to the bed, the gap between concept and reality vanished.

Coming from a background where precision is everything, tolerances aren't suggestions to me — they are a religion. I didn't want to print trinkets; I wanted to apply industrial engineering discipline to desktop manufacturing. Every wall count, every layer height and every infill percentage in this guide is a deliberate decision backed by testing.

Three principles behind every print

01

Functional Engineering

High-utility, real-world solutions rather than purely decorative models. If it doesn't solve a practical problem, it doesn't leave the workstation.

02

Rigorous Tolerances

Designed in professional CAD with mechanical intent — press-fits that click and assemblies that work straight off the build plate. No sanding, no filing, no guesswork.

03

Bridging the Gap

Industrial structural integrity at maker speed. Proving a desktop printer can produce parts worthy of real engineering applications is what drives every release.

The workshop

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IF THIS ONE EARNED ITS SPOT

A **Like** or a **Favorite** on the model page takes a second and genuinely helps. A **Boost** helps more than either — it is what puts a design in front of makers who would never otherwise come across it. And if you **Follow** me, new models land in your feed as they are released.

Got a spool with a hub this does not suit? Drop the dimensions in a comment. That is where the next size starts.

Happy drying. — MakerX Designs · makerxdesigns.com · © 2026