



# SilicaCore - Spool desiccant container

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## Summary

This is a silica gel desiccant container that lives within the central hole of a spool of filament.

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## Introduction

The SilicaCore is a silica gel container which lives within the central hole of a filament spool. The designed use is for this container to remain attached to the spool when the spool is first opened until the filament is used up. As you print from within a dehydrator or dry box, the silica gel attached to the spool should recharge eliminating the need to manage separate desiccant containers/bags.

## Compatibility

- Spools
  - Hole diameter: 51...65mm
  - Spool width: 45...80mm
- Holders
  - Any holder or dryer which does not use the center spool hole.

## Print Instructions

- 1x SilicaSpoolCore.stl
  - Infill: Honeycomb at 35% (For silica gel 3...5mm, adjust if different size)
  - Bottom/Top solid layers: 0 (disabled)
  - Perimeters:
    - 0.4mm nozzle = 5
    - 0.6mm nozzle = 3
- 1x SilicaSpoolCap.stl
  - Infill: Honeycomb at 35% (For silica gel 3...5mm, adjust if different size)
  - Bottom/Top solid layers: 0 (disabled)
- 2x SilicaSpoolNut.stl
  - No special settings needed
- Filament
  - Any filament which does not deform when heated to the max expected dryer temperature. Most filaments are dried at 50c. I printed mine out of PETG.
  - Recommend transparent as it is easiest to see the indicator status of the silica gel.

## Additional Material:

- Silica Gel - Use Orange Indicating Rechargeable Silica Gel. Do not use blue silica gel. It contains Cobalt Chloride which is toxic. Fill 1/2 to 2/3 of the core with Silica Gel, do not fill it fully (about 20g... 30g)  
You want to leave room for air to flow over the gel inside, and while it prints from within a dryer it tumbles the gel so it can be recharged evenly.  
What I used: Dry & Dry - Orange Indicating Silica Gel

## Other Relevant Accessories

- Filament Storage - Sealed container IP64 minimum  
What I use: Home Depot Ezy Storage 18L/19Qt Waterproof Tote IP67
- Filament Dryer - Heating type to allow for silica gel recharge  
What I use: SUNLU FilaDryer S4

## Model Customization

In case your spool is larger or smaller then what is supported you can edit the model to fit your needs. This item was designed in Fusion360, and the .f3d file is supplied. a STEP file is also provided if you don't use fusion360.

- To change supported hole Diameter:
  - Adjust the "CoreDia" parameter to be 5mm less then your minimum spool hole diameter.  
When adjusting the Core diameter, you will need to edit all threaded features in the timeline to the new diameter. Fusion360 doesn't allow the threaded feature tool to be parameterized. :(
  - Adjust the "NutOuterDia" parameter to at least 5mm more then your maximum spool hole diameter.
- To change the thread tolerance
  - Adjust the "ThreadExtraTol" parameter.

I am open to suggestions or ideas for improvements, leave them in the comments.

## Model files

**silacaspool.3mf**



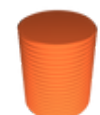
**silicaspoolnut.stl**



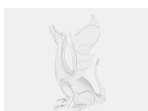
**silicaspoolcap.stl**



**silicaspoolcore.stl**



**silicacore.step**





silicacore.f3d

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