High Performance Desiccant Core For Various Spools by Silvercell





Main Features

- High air flow and surface area for more effective moisture absorption and drying
- High capacity version for long term storage, additional weight or for desiccant pouches
- 3 mesh sizes available for various sizes of desiccant beads
- Different lengths available for a secure fit in a range of spool sizes
- Optimised for easier printing especially for older printers
- Strong design ensures long lasting durability

Desiccant Core Usage

Keeping filaments dry is crucial for 3D printing to ensure you get the best quality prints. Many filaments absorb moisture when left out and can cause issues like oozing, stringing, rougher print surfaces, and reduced part strength. So storing dried filament with dry desiccant in an airtight container or vacuum bag ensures the filaments won't have to be dried again before use.

High Flow vs. High Capacity



- **High Flow**
  Suited for filaments that are in frequent use which are often exposed to humid air, or for hygroscopic materials like TPU and nylon. The increased exposed surface area allows for more effective moisture absorption throughout the whole desiccant core. Drying effectiveness is also improved when the desiccant core is placed in a filament dryer to dry the silica gel contained within. It's also possible to dry both the filament and desiccant in a filament dryer when the desiccant core is secured in the spool.
- **High Capacity**
  Suited for long term storage of filaments which are stored in airtight containers or vacuum bags. This version is also more suited if desiccant is to be poured out to dry in an oven or microwave. The higher capacity increases the amount of desiccant inside the desiccant core, and can also be used to hold desiccant pouches or weighted objects.

Mesh Sizes



There are three mesh sizes available which are standard, fine and ultra fine. Standard can be used with large desiccant beads that are around 2-4mm in size. Smaller sizes of desiccant beads or badly damaged desiccant beads may fall out in standard mesh, so a finer mesh size should be used.

Compatibility



Currently the desiccant core is compatible with spools with an inner diameter of 50mm to 63mm. The compatible width of the spool will depend on which print profile is printed and the size of the inner spool diameter. If fitting spools with an inner diameter less than 55mm, up to 1.5mm should be deducted from the width specified in the print profiles. If it's greater than 55mm, up to 1.5mm should be added. There's also the option to print out shorter or longer end pieces if a wider range of fit is needed without needing to reprint a different sized desiccant core.

Desiccant Core Material

If there are plans to use the desiccant core in a filament dryer, recommend printing in ABS or polycarbonate. Higher temperature materials are preferred, as materials like PLA and PETG can deform in filament dryers that can reach above their heat deflection temperature. Transparent filaments are preferred if indicating desiccant beads are used.

Print Guidance

The design and print profiles have been carefully optimized for easy support-free printing. The bottom mesh won't be visible in 3D preview, as it relies on slicer modifiers to generate the mesh. Many modifiers are used within the print profiles so please be sure to print using the uploaded profiles. Please always ensure that the print bed is clean before starting the print.

Adding Desiccant

Before filling the desiccant cores with desiccant, please check to make sure the parts are fitting well in case there are any issues with printing. When filling the desiccant core, do not overfill with desiccant before screwing down the cap. Ensure the cap can freely turn and can be fully screwed down. Failure to screw the cap down properly can result in the cap becoming loose and spilling desiccant beads.

Drying Desiccant

When using silica gel, both versions of the desiccant core can be dried within a 70°C filament dryer when printed using a temperature resistant material. The high flow version will dry faster with its higher surface area compared to the high capacity version. The high capacity version will take a considerably longer time to fully dry due to the density of desiccant beads. It's advisable to transfer the desiccant beads to a dish to be dried in an oven or microwave when using the high capacity version. When drying silica gel, please be careful not to exceed 120°C as higher temperatures can damage the silica gel. Please note that with the high flow version, larger desiccant beads can get stuck in between crevices. The stuck beads can be dislodged by gently squeezing or tapping on the desiccant core.

Designer Notes

The design has been test printed in PLA, PETG, ABS and nylon-6. Printing the design using nylon-6 is possible but can be difficult due to shrinkage and warping. The design has also been test printed in PETG using a Reprap Huxley printer without issue, so newer printers shouldn't have much issue printing out the design. Main importance when printing is ensuring there's adequate bed adhesion.

Shout out to some great alternative designs on MakerWorld which had inspired me to create my own version

Spool Silica Desiccant Container by Darwinian
Desiccant Holder for Spool - High Airflow by Motiform Studio
High Air Flow Desiccant Holder for Spools by Dän