



## Qidi X-Max (X-Plus) Internal Spool Holder



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### Summary

A low friction solution for the internal spool on Qidi X-Max and X-Plus printers

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### SUMMARY

**UPDATED Dec 2022:** Added a 70mm Version for those using spools with 72mm center holes.

**UPDATED March 2022:** Added a Z-Seam groove. (Many thanks to Kevin Pereira)

This is a bit of a Rube Goldberg solution ([https://www.vernier.com/experiment/pep-16\\_rube-goldberg-machine/](https://www.vernier.com/experiment/pep-16_rube-goldberg-machine/)). After seeing other solutions ranging from using ball bearing to copies of the OEM part, I thought I might be able to design something in the middle.



It is essentially a large print-in-place bearing. The assembly consists of a base, spool, cap and key. **The base and spool must be printed together.** The spool will be trapped on the base by the bearing race rings. There is a small pin on the bottom of the spool to position it relative to the base.

The internal limitations of the printer enclosure requires that the spool holder be inserted into the filament spool before the spool holder is screwed into the back of the enclosure, so the cap is screwed on to the spool holder with the spool in place before the assembly is screwed into the enclosure. The key is a friction fit into the base and provides a means of turning the base mounting screw.

**Required Hardware:** one M10-1.5, 25mm Hex Head bolt. 25mm is long enough to allow for positioning the bolt into the threaded mount inside the enclosure.

## PRINTING

- Resolution: 0.2
- Infill: 20%
- Filament brand: Any
- Filament color: Any
- Filament material: PLA works fine

**The Base and Spool are printed together (nested):** The spool will be trapped on the base by the bearing race rings. There is a small pin on the bottom of the spool to position it relative to the base.

## SUPPORTS WHERE TOUCHING THE BED ONLY!!

Supports everywhere will clog up the bearings and threads.

I used 15% Zigzag with a X/Y distance of 0.4 and a Z distance of 0.2.

You might need a brim for the key.

When printing cylinders, you will get a Z-Seam. I have added a groove to provide a place for this bit of extra filament to reside. In Cura use Z-Seam Alignment to ensure the seam falls into the groove. In my case, I oriented the model such that the groove faced the back and then chose User Selected - Back. Not sure about how other slicers work.

## POST PRINTING

The threads for the cap will likely be tight at first, but will loosen up with use.

AFTER working the bearing a bit to remove rough spots, apply Silicon lube to the gap between the Spool and Base.

Insert the M10-1.5 25mm bolt and press into place then insert the key.

If the key is loose or will not fit, try scaling one or two percent.

# Model files



## 50mm-internal-spool-and-post.stl

☐ Supports Touching Build Plate Only



## 50mm-spool-cap.stl

☐ No Supports



## 50mm-internal-spool-key.stl

☐ No Supports



## 70mm-internal-spool-and-post-already-nested.stl

☐ Supports Touching Build Plate Only



## 70mm-spool-cap.stl

☐ No Supports



## 70mm-internal-spool-key.stl

☐ No Supports

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