Heatset Insert Size Tester Blocks

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VIEW IN BROWSER

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Summary

Block with varied sized holes to test fit your heatset inserts prior to designing parts

3D Printers > Other Printer Parts & Upgrades

Tags: heatsetinsert

I am using heatset inserts for the first time and want to ensure I am designing my parts to take them well. I looked for some tolerance test blocks and did not see any, so here are mine!

This model has blocks for M3 and M5 inserts with a variety of size holes, varying by 0.1mm each, to determine which best fits your inserts given your filaments and printer tolerances. Heights are sized based on the tallest heatset I have for each size (to allow testing full depth).

Top and bottom are lightly chamfered (0.4mm) to aid in inserting.

I recommend printing from the step files, but STLs are provided along with my Fusion 360 files if you want to edit them.

Hole Sizes:

- M3: 3.7 to 4.4mm diameter, 12mm tall
- M5: 6.0 to 6.7mm diameter, 8mm tall

- If you need another size, feel free to remix or ask in the comments

The modeled hole sizes are embossed on the side for reference.

I recommend calibrating using this part to provide good and repeatable tolerances with your printer: https://www.printables.com/model/413553-hydra-ams-test-pieces

For reference, below are my test results from my P1S. Tight fit measurements are such that the lip just fits into the printed hole with a slight push. Loose fit measurements allow the lip to fit in and turn without additional force but do not allow the insert to pass beyond the lip. I prefer using the tight fit but the loose fit is likely to be compatible with more printers and less likely to result in excess plastic build-up if that is a concern in your design (possibly a consideration with blind inserts).

Size	**Body OD**	**Lip OD**	**Filament**	**Profile** (0.4 Nozzle)	**Tight Fit**	**Loose Fit**
Amazon Variety Kit: https://www.amazon.com/gp/product/B0CZRD2Y49						
M3	4.25	3.7	Polylite PETG	0.2 Strength	3.8	3.9
M5	7.0	6.2	Polylite PETG	0.2 Strength	6.3	6.4
M5-12	7.0	6.4	Polylite PETG	0.2 Strength	6.5	6.6
Ali Express Seller: https://www.aliexpress.us/item/3256803396040989.html						
M3	4.5	TBD	Polylite PETG	0.2 Strength	Coming	Soon
M5	7	TBD	Polylite PETG	0.2 Strength	Coming	Soon

And lastly, here is a link to the excellent blog entry from CNCKitchen on heatset inserts. They include recommendations on diameters to model with (which came close to most of my measurements but not always) and temperatures to use.

- https://www.cnckitchen.com/blog/tipps-amp-tricks-fr-gewindeeinstze-im-3d-druck-3awey

Model files

m3-heatset-tester.stl

m5-heatset-tester.stl

m3-heatset-tester.step

m5-heatset-tester.step

m3-heatset-tester.f3d

m5-heatset-tester.f3d

heatset-testers.3mf

My P1S 3mf file for Orca Slicer

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