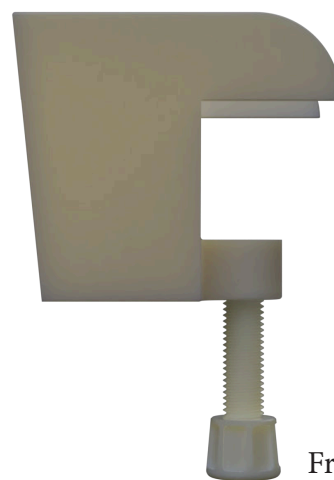
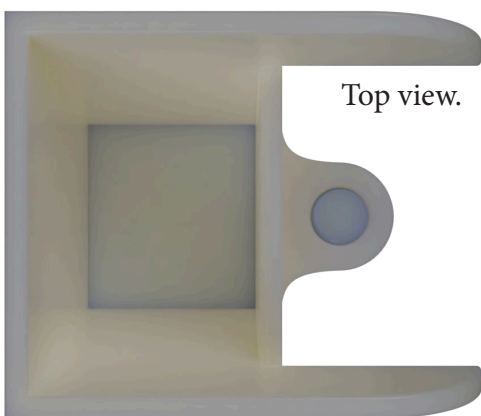
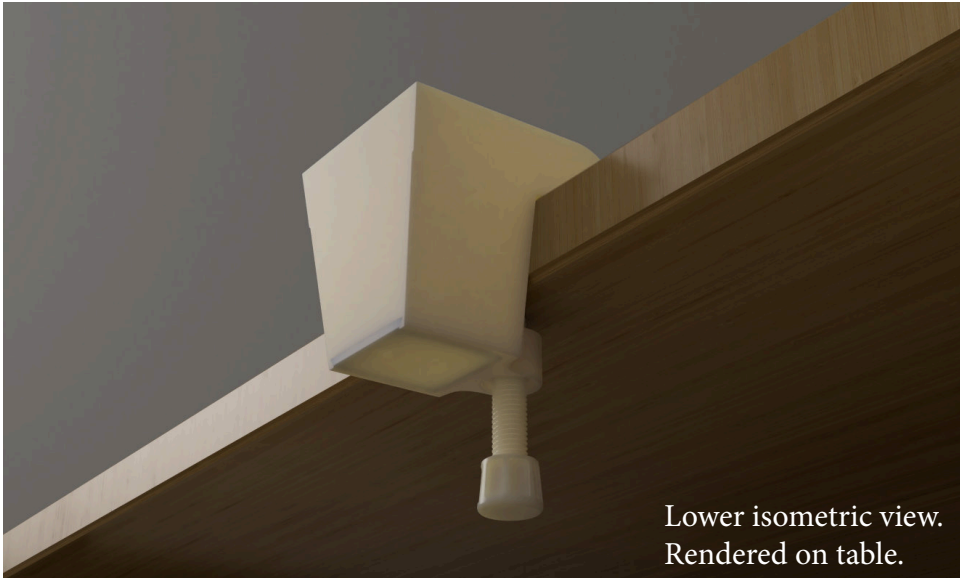
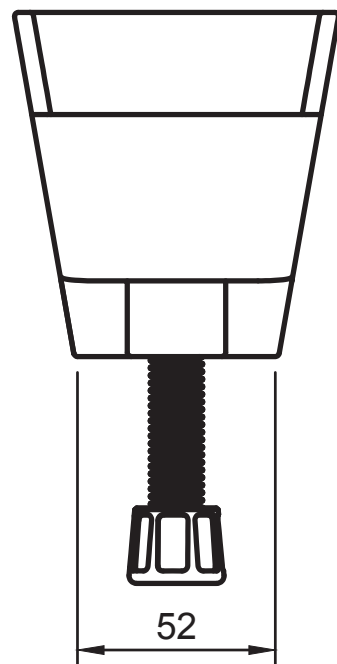
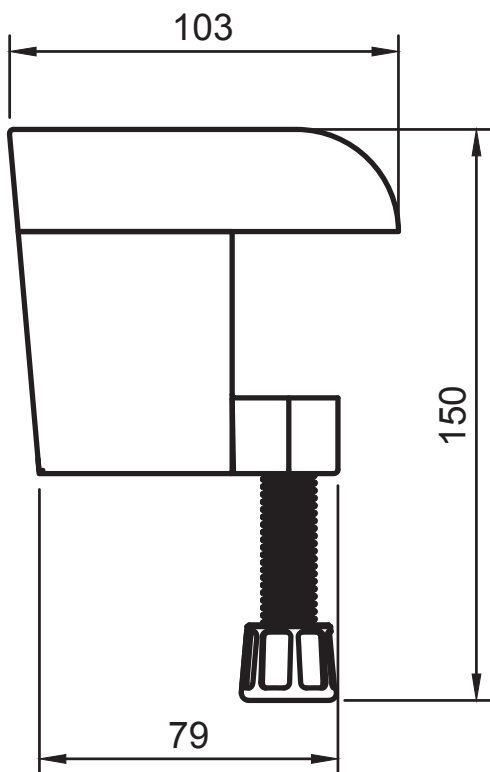
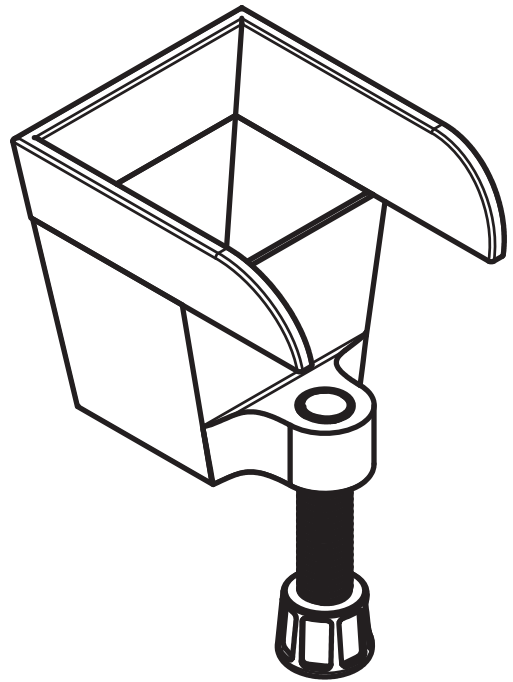
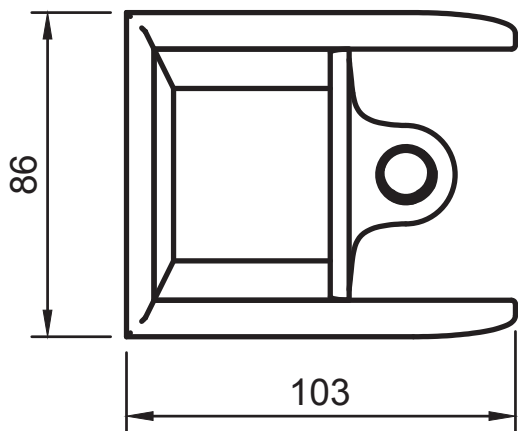


Renders of the Desk Bin:



Front and side view.

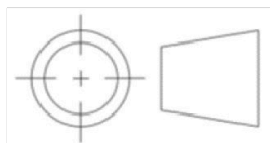


IMPERIAL

TITLE:
DESK TIDY - BIN

DRAWN BY:
NICHOLAS ELTON

DATE:
31/01/2026



UNITS:
MM

SCALE:
1:2

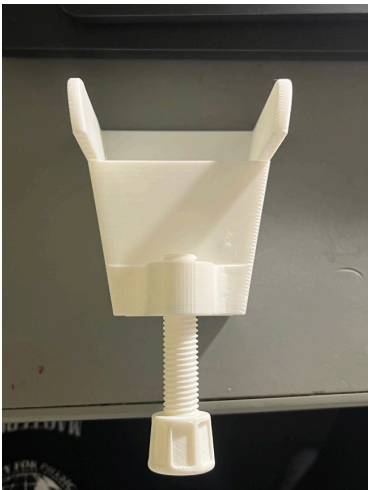
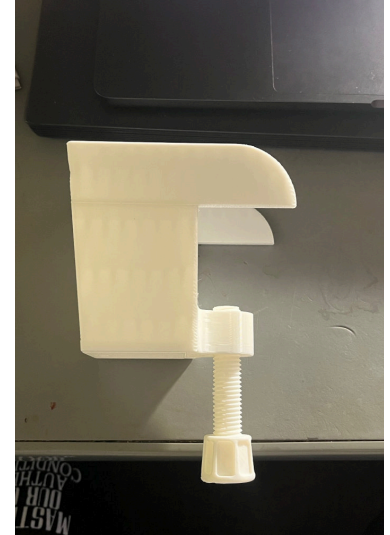
APPROVED BY:
KARL

SHEET SIZE:
A4

MATERIAL:
PLA

DATE APPROVED:
31/01/2026

Photos and Features:



Key Features:

Dovetail attachment between top and bottom section:

The dovetail joint incorporates internal undercuts and a reverse draft angle that would be extremely difficult to produce using subtractive manufacturing and would require a complex, multi-part mould shape if injection moulded. The interlocking geometry is produced with high dimensional accuracy, eliminating the need for post-processing and supports.

Internal Thread and Bolt:

The internal thread is integrated directly into the printed geometry. Additive Manufacturing allows this to be produced without the need for post-processing such as tapping, and allows for easy customisation of the thread dimensions.

Sliding Dovetail Lid:

The dovetail lid relies on an enclosed internal channel to allow for the sliding motion. The enclosed sliding interface is impractical to manufacture using subtractive techniques and impossible to demould in injection moulding. Additive manufacturing enables the production of these internal mechanisms without additional assembly or tooling.

Draft Angles:

Draft angles manage the overhang angles during printing, but also allow the waste to fall freely towards the base. The tapered internal geometry prevents debris from catching on vertical walls. Additive manufacturing enables the continuous angle without additional tooling or secondary operations, unlike traditional manufacturing where such internal tapers would be constrained by tooling access and demoulding requirements.

Thinner Wall Optimisation:

Additive manufacturing enables variable wall thickness within a single component, whereas traditional manufacturing methods typically require uniform wall sections to satisfy tooling and machining constraints. This allows for the parts to fit together.

Flat underside:

The underside of the component was intentionally designed to be flat to eliminate the need for support structures.

Wall Infill:

Internal infill structures were used to achieve lower material usage and maintaining strength-to-weight. These enclosed lattice structures are inaccessible to cutting tools and cannot be formed using mould-based processes.



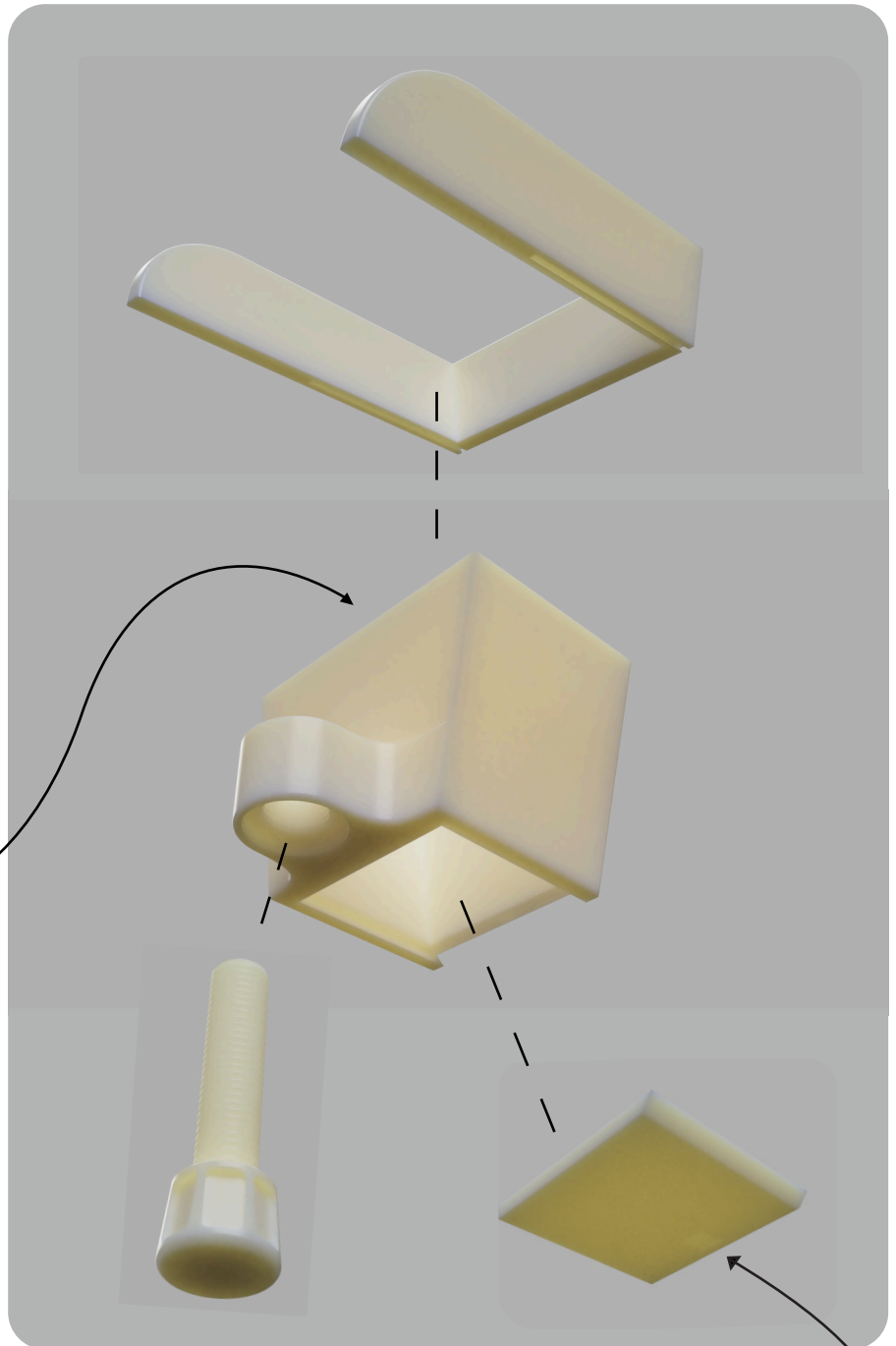
Features of the Desk Bin 2:

Top Section:

- Edges and corners filleted to remove sharp edges.
- The walls have a draft angle of 10° to allow for rubbish to fall easily down.
- The underside has an internal sliding dovetail joint, allowing for it to attach to the bottom section (this has a tolerance of 0.25 mm to allow for vertical strength in the joint).
- The top dovetail allows for the main sections to be printed separately, reducing the supports for the overhang.

Bolt and Bottom Section:

- Sides and front part filleted to remove sharp edges.
- The walls have a draft angle of 10° to allow for rubbish to fall down.
- The underside has an internal sliding dovetail joint, which holds the floor of the bin, allowing easy emptying. (The tolerance on this is 0.5mm).
- The angle of all dovetails are 55° to eliminates the need for supports.
- The inside wall is filleted to reduce sharp edges and ensure rubbish falls in the correct direction.
- The internal thread has an offset of 0.5mm to ensure the bolt fits seamlessly.
- The bolt handle is filleted and has cut-aways to allow for easier gripping and use.
- The underside had a dovetail joint with a snap-fit, which also has a tolerance of 0.25mm to allow it to snap into place.



Floor Section:

- The front edge is filleted to remove the sharp edges.
- A small cut-out is added providing a gripping point.
- The dovetail is at 55° to remove the need for supports.
- The part also has a snap fit, so that it stays in place when in use (This has a tolerance of 0.25mm).

Bambu Slice (As pictured left):

- Overall filament use: 27.12m
- Filament from supports: 0.4m
- This filament largely comes from the small overhangs where the dovetail joints slide in and out.
- The parts all had flat bottoms to reduce the need for overhangs and ensure the underside's would be printed properly.

