Vial Assembly

The entire vial assembly consists of 3 part:

- Top cover,
- vials,
- bottom holder.

The top cover and bottom holder are made to be the exact same dimension as the working platform of the 3D printer. Hence, there is only one possible way of placing the assembly on the platform, ensuring that the coordinates of the vials are constant.

The vials do not touch the heating surface directly. It is heated through the 3mm thick base of the holder. This ensures that the vials are heated evenly, preventing shattering. The thickness of the base is set at 3mm as a balance between heating efficiency and durability.

The top cover is designed to work as both the lid for the vials and the holder for all components that need to be inserted into the vial.

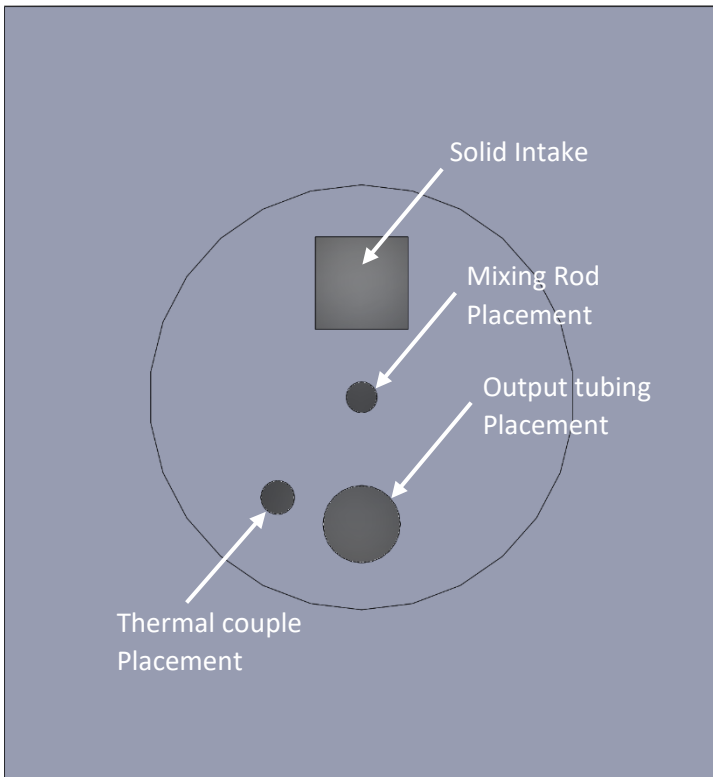


Figure 1: Functions of the openings on the top cover.

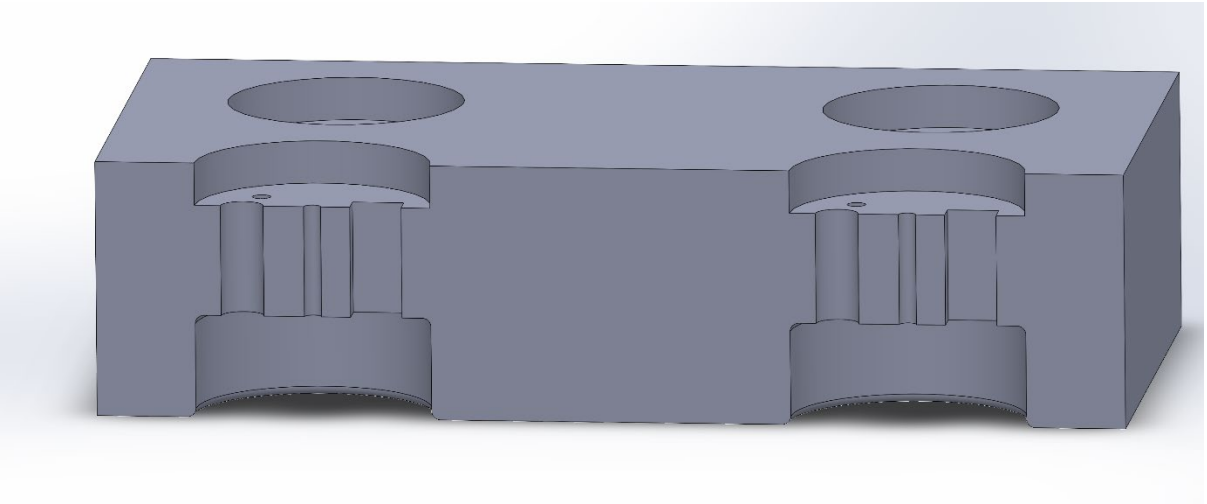
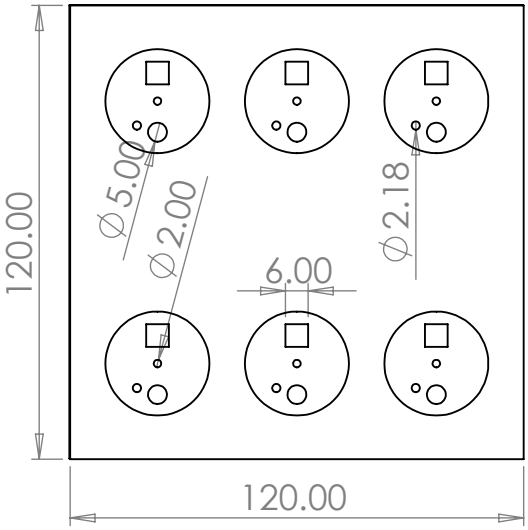


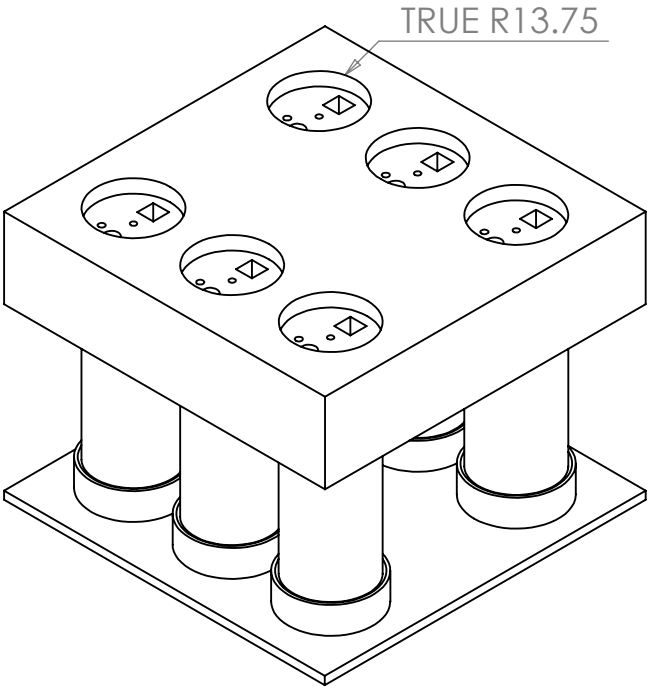
Figure 2: Section View of the Top Cover

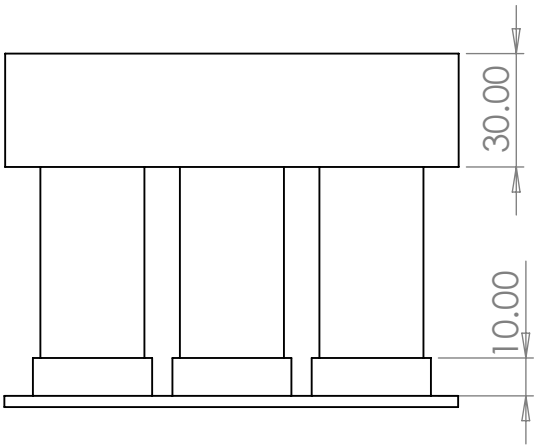
Table 1: Bill of Materials For Vial Assembly

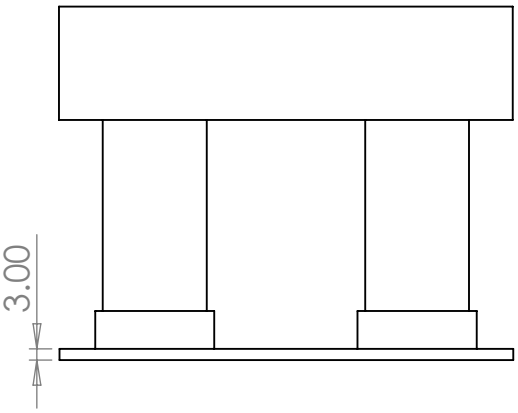
Part	Amount	Material	Status
Top Cover	1	Polymer	Ds
Bottom Holder	1	Aluminium	Ds
Vials	6	Glass	Os
Tubing	6m	N/A	Os
Mixing Rod	6	N/A	Os/TBDs
Thermal Couple	6	N/A	Os

Ds – Designed; Os – Outsourced; TBDs – To be designed; N/A – Not Applicable.









UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:	FINISH:	DEBURR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING / REVISION

	NAME	SIGNATURE	DATE
DRAWN	Sun Dewen		04/07/2021
CHK'D			
APPV'D			
MFG			
Q.A			

TITLE:

AssemblyVial

MATERIAL:

DWG NO.

No1

A4

WEIGHT:

SCALE:1:5

SHEET 1 OF 1

Feeding Assembly

The feeding system is designed to feed the solid materials into the vials.

It has 3 parts:

- Inner cap
- Outer cap
- Channel

The inner cap controls which channel is opened. As the inner cap rotates, the opening on the inner cap passes each of the three gates on the outer cap. The gate that the opening is passing through is opened and the solid material is fed to the vial through the channel connected to the gate.

The rotation rate of the inner cap determines the time that each gate is opened. This controls the amount of solid material that is fed to the vials.

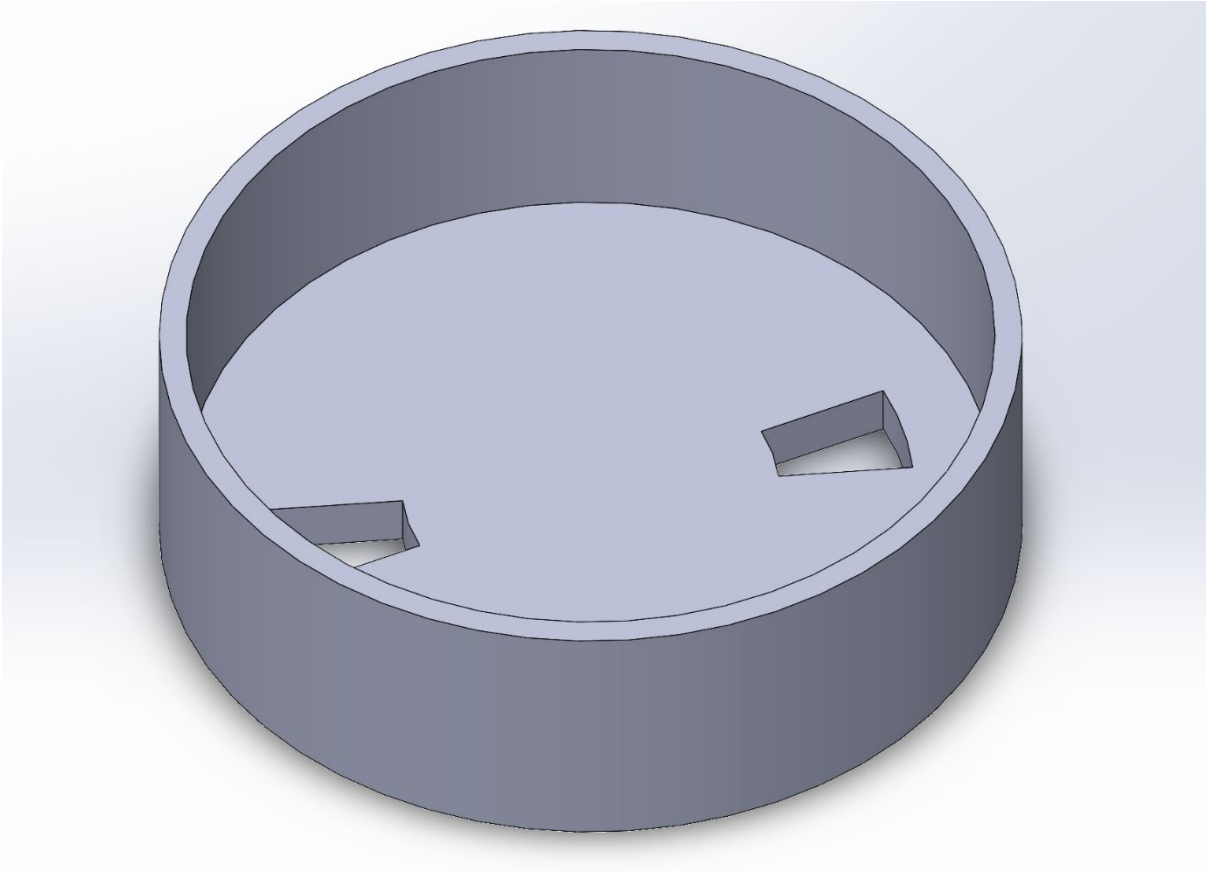


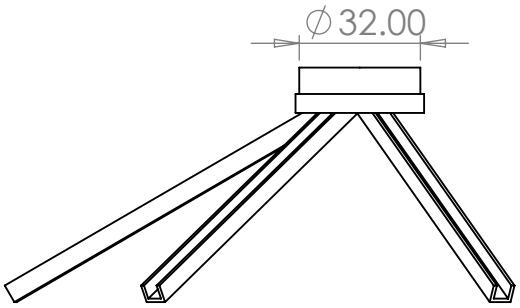
Figure 3: Structure of the Inner Cap

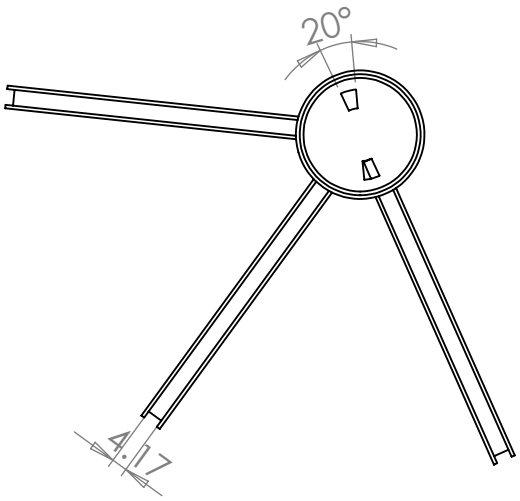
Figure 4: Structure of the outer cap and channel assembly

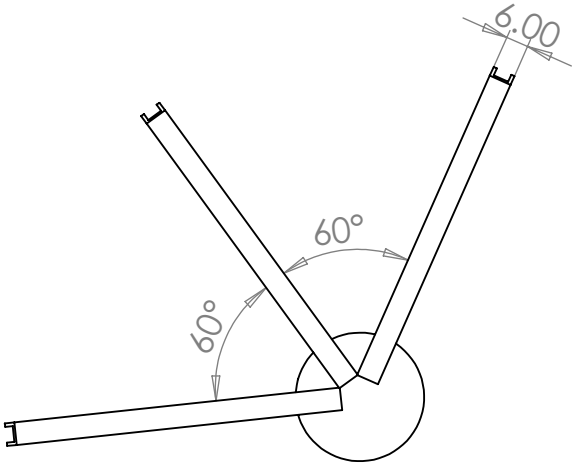
Table 2: Bill of Materials for Feeding Assembly

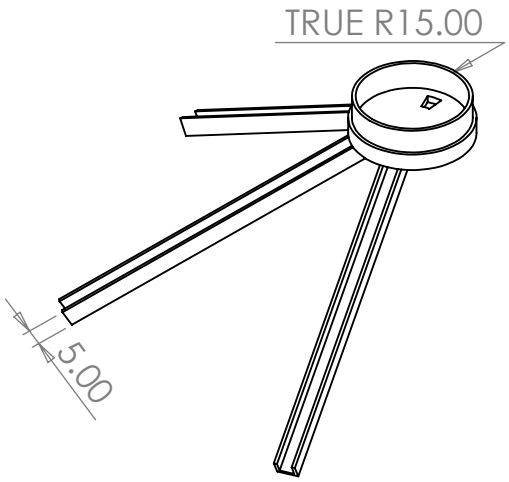
Part	Amount	Material	Status
Inner Cap	1	Polymer	Ds
Outer Cap	1	Polymer	Ds
Channels	3	Polymer	Ds

Ds – Designed; Os – Outsourced; TBDs – To be designed; N/A – Not Applicable.









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	NAME	SIGNATURE	DATE
DRAWN	Sun Dewen		04/07/2021
CHK'D			
APPV'D			
MFG			
Q.A			

TITLE:

Feeding Assembly

MATERIAL:

DWG NO.

No 1

A4

WEIGHT:

SCALE:1.2

SHEET 1 OF 1