CF80 Filtration assembly

Suivi des évolutions

Indice	Date	Description de l'évolution	Auteur
0.0	26/07/2022	Création	FBR

BOM :

Printed parts

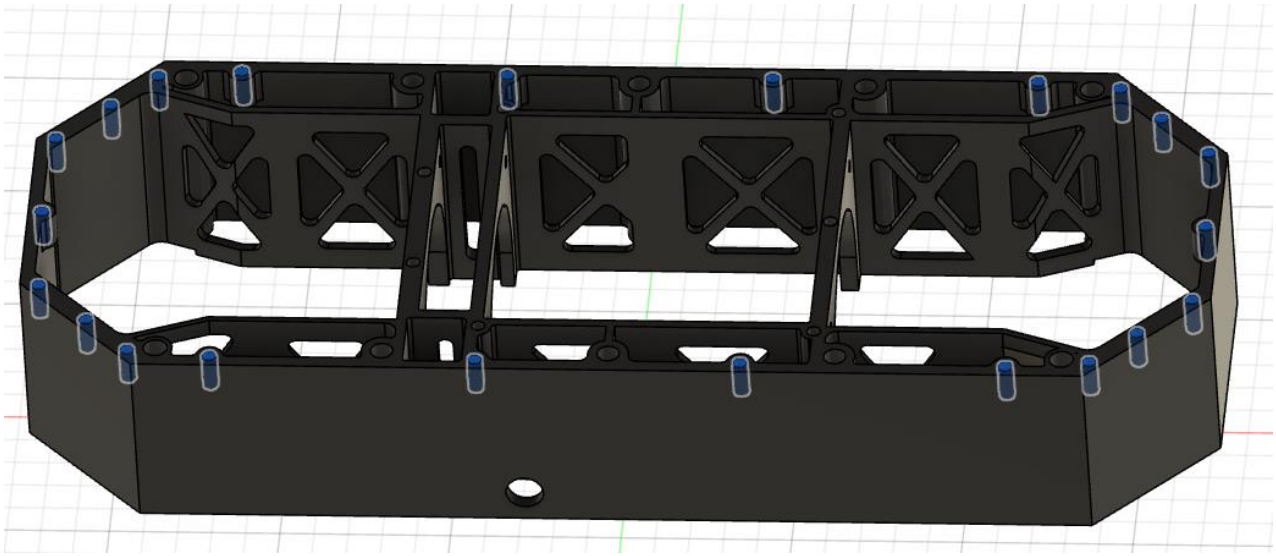
Cover	X1
Mainbody	X1
Backplate	X1
Fins	X2
Deflector	X2
CF80 Cartridge	X1
CF80 Retainers	X2
Holding plate	X2

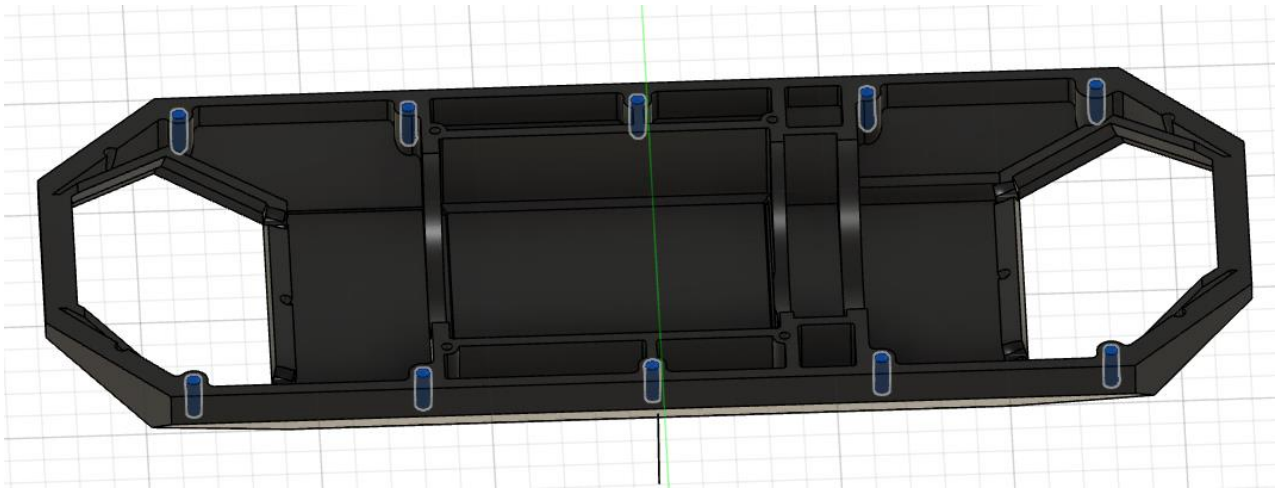
Hardware :

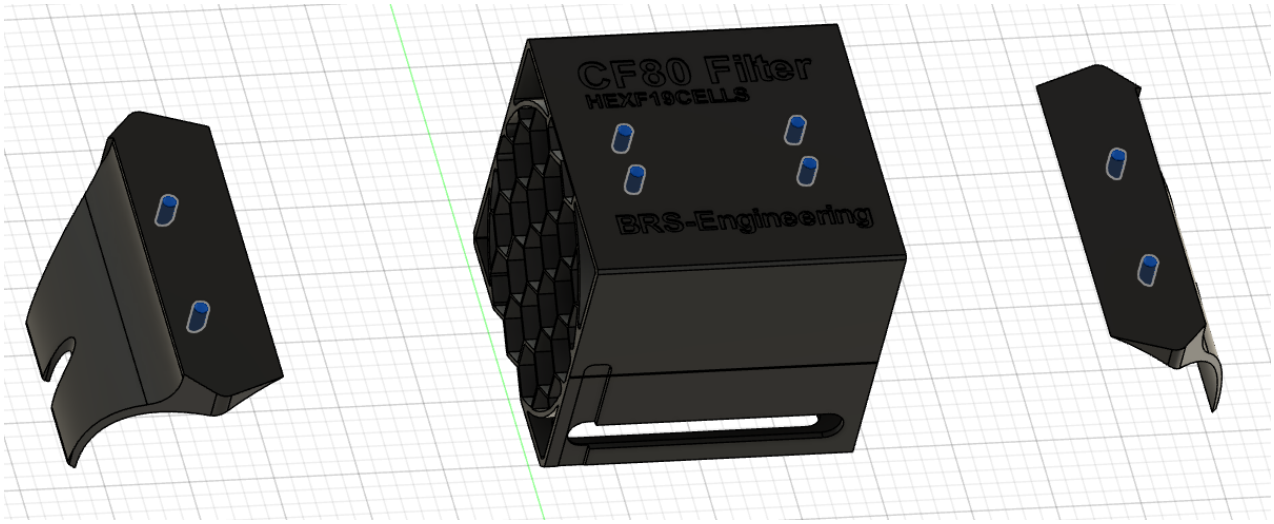
80x38mm 24V Fan (High pressure)	X2
M3 inserts	X53
M3x10	X33
M3x25	X10
HEPA filter 41x82x15mm (Chuwi v3 ilife)	X2
12mm dowel pin	X4
Fabric mail (nylon)	
Activated charcoal pellet	(acid free: aquarium type/Growing type)
Mosfet	X1
Cotton/fiberglass	

Part preparation

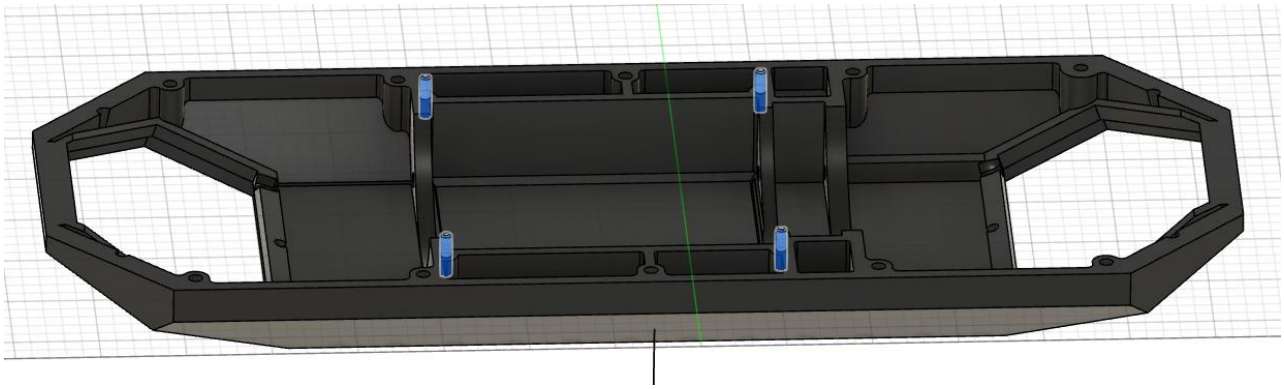
Install all m3 insert







Here the 4 Dowel pins



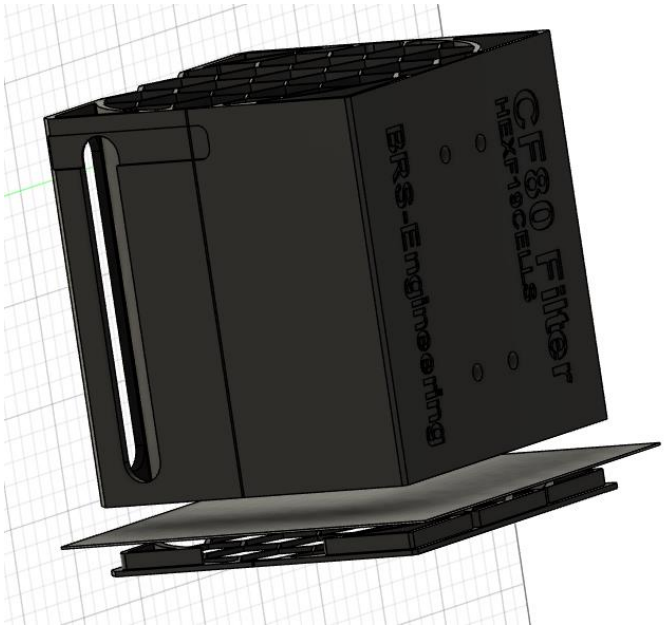
CF80 cartridge assembly / Refill

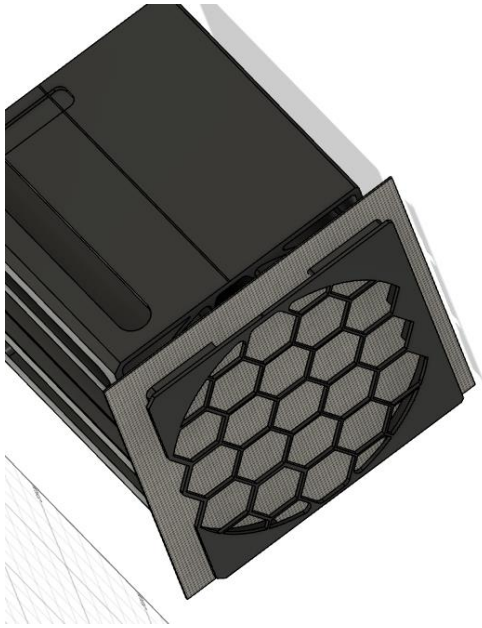
Assemble the retainer plus the mesh fabric on one end

The Fabrics mesh must be thin enough to be instlled in pressfit + cyanocrilate

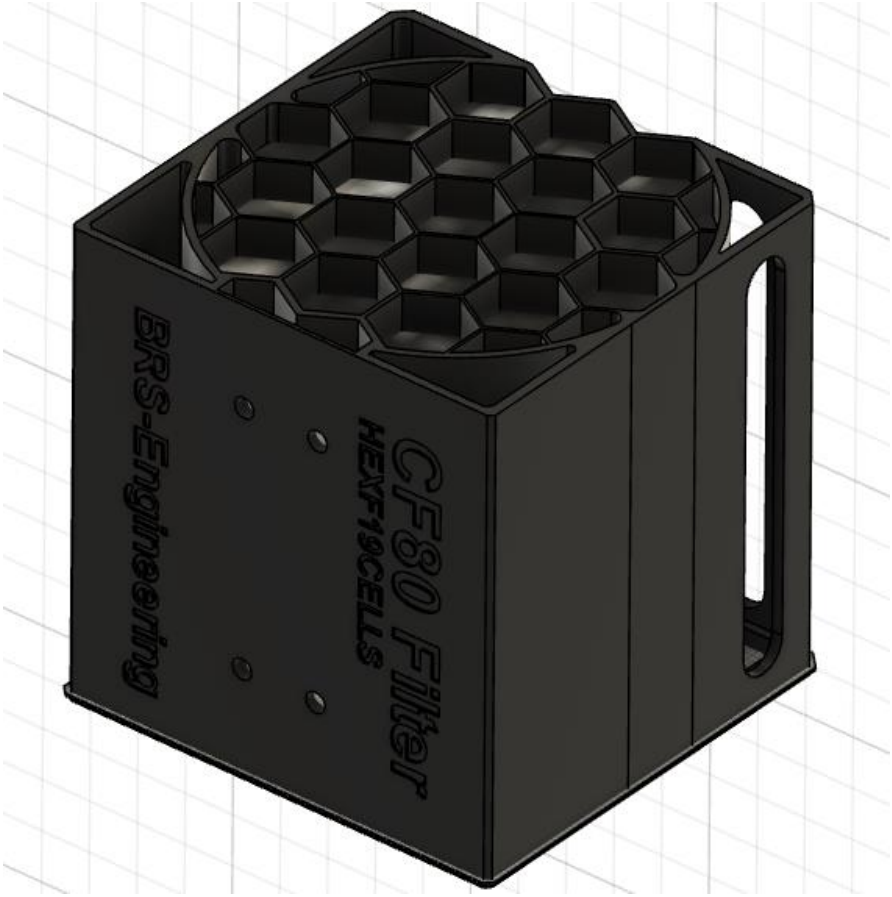
The mesh must be tight enough to retain the pellet, but open enougt to be less restrictive as possible on the aiflow, Nylon fabric type is mandatory if you aim for high temp chamber and reliability

Position the fabric and apply cyanoacrylate glue ton bond the two parts. It has to pressfit with the fabric inbetween.





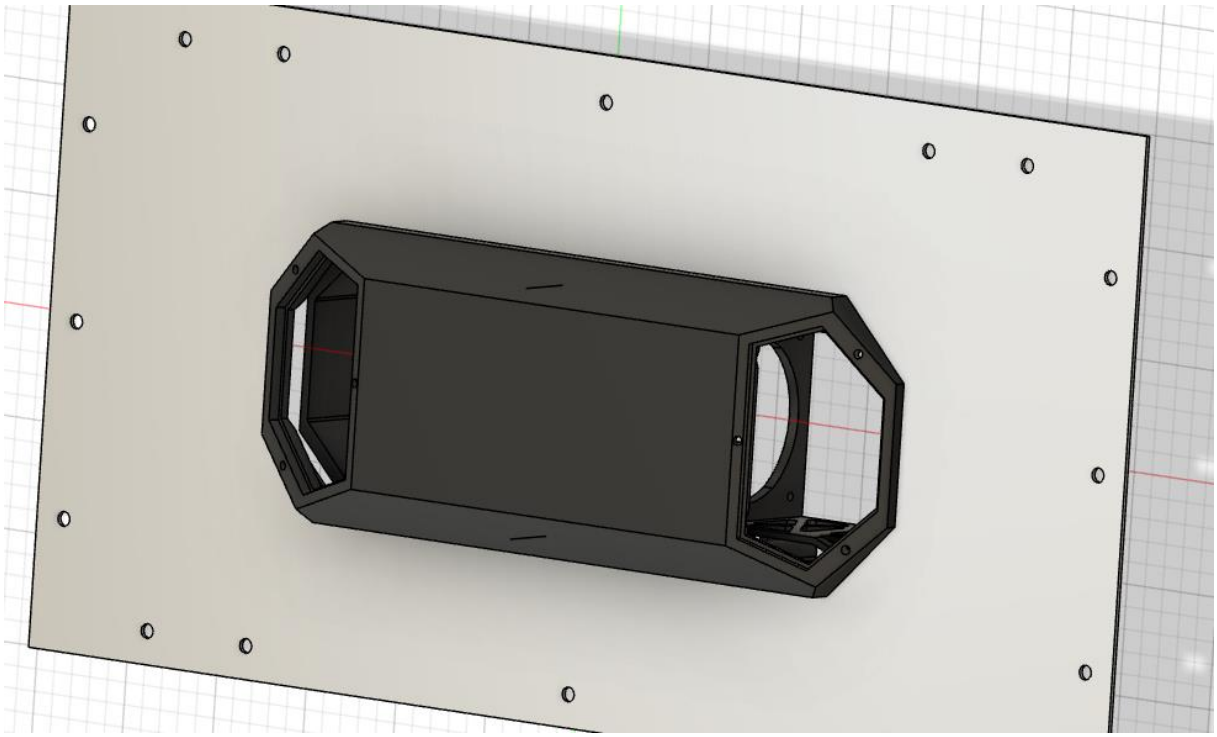
Result

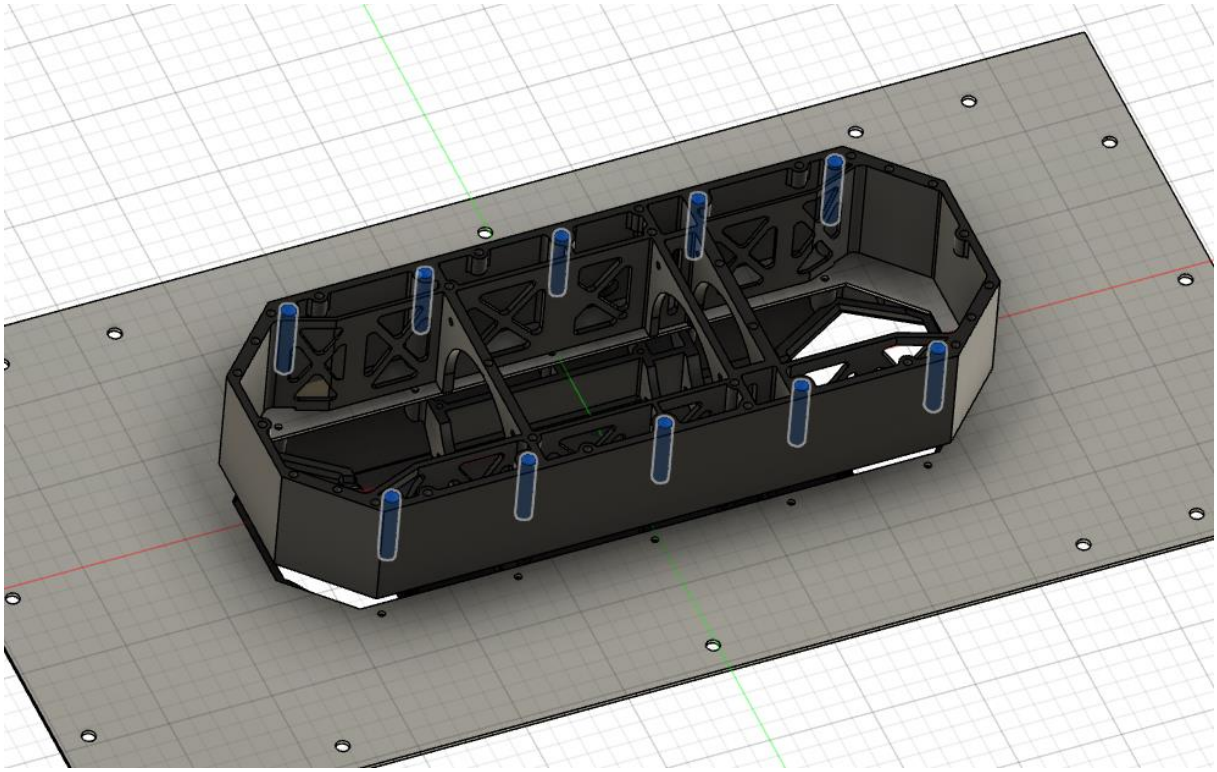


Fill the activated charcoal in the channels

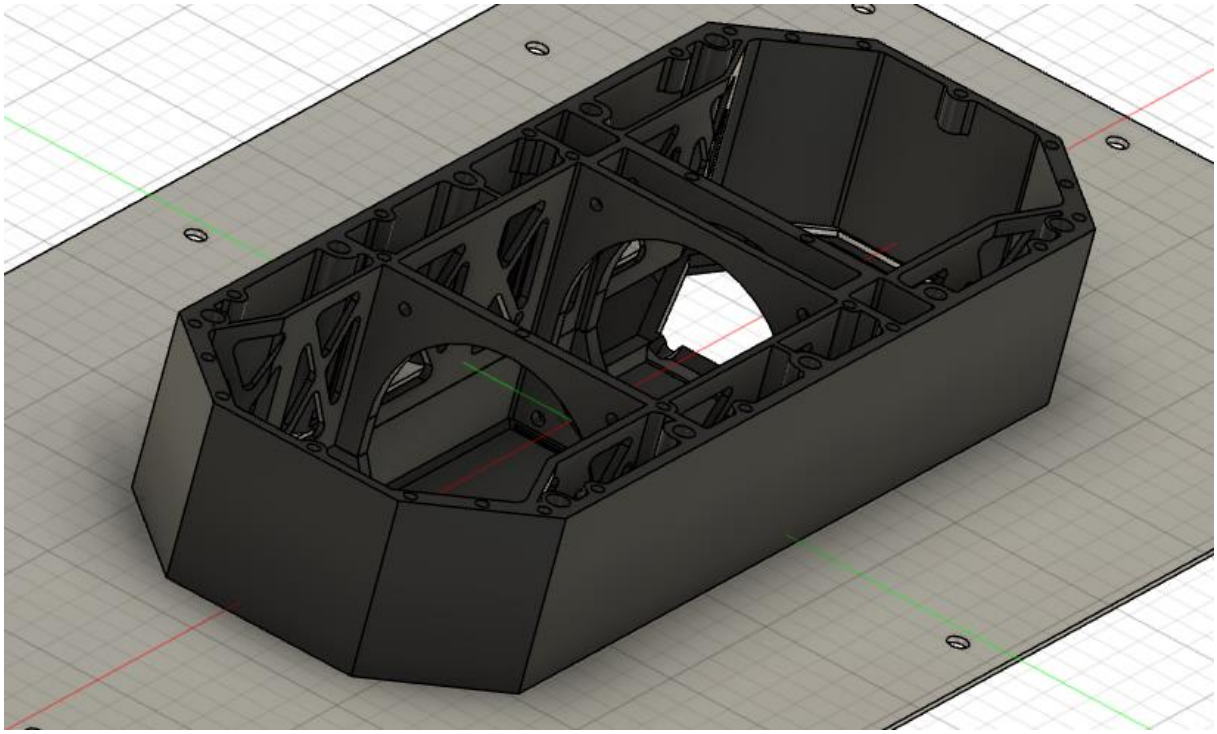
Repeat the previous operation to close the cartridge

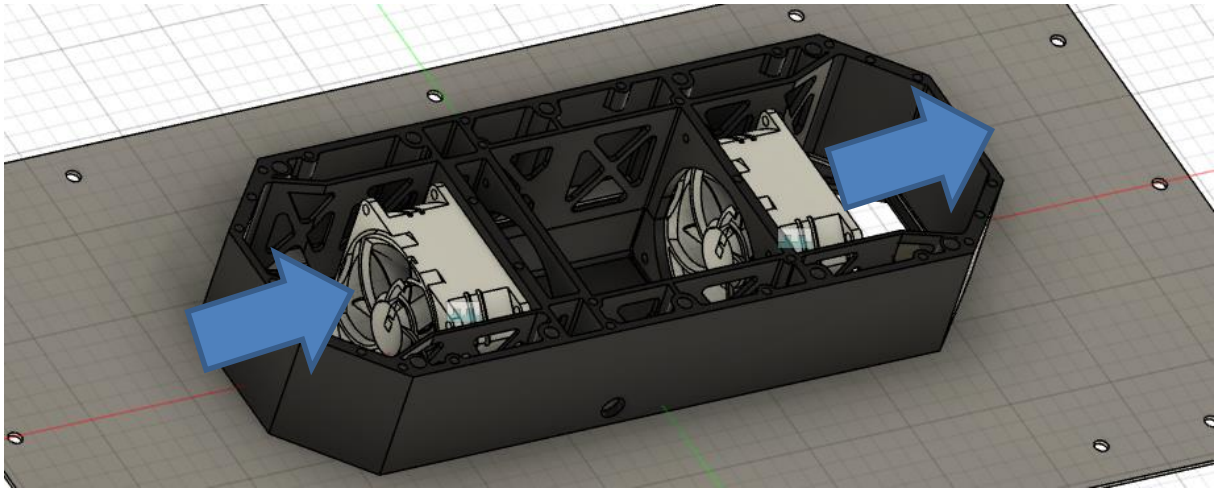
Main assembly





Put the 10 M3x25 and tight them, you have now the main assembly on the rear plate



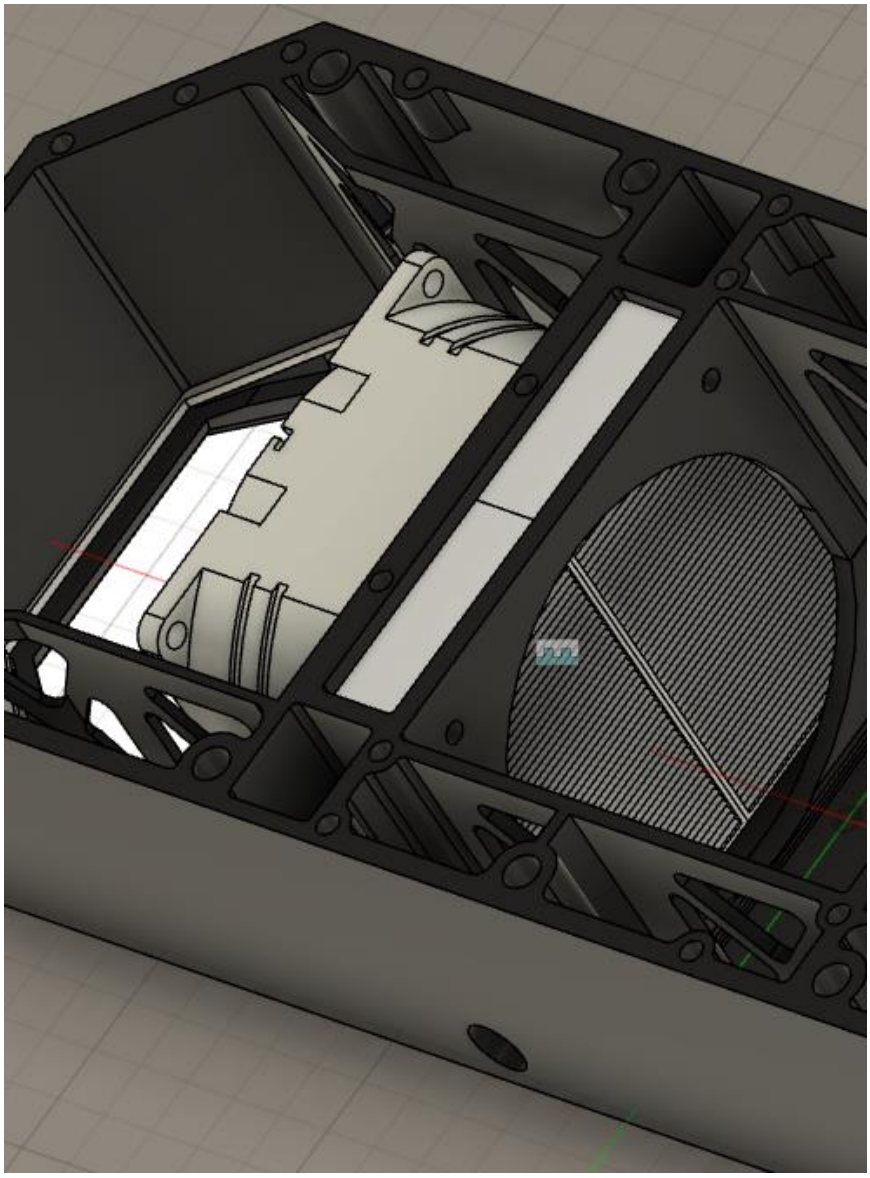


Assemble the Fan, you can use 8x M3x50 screws but I choose to use 10mm foam panner cutted the right length to pressfit them and dampening them way better

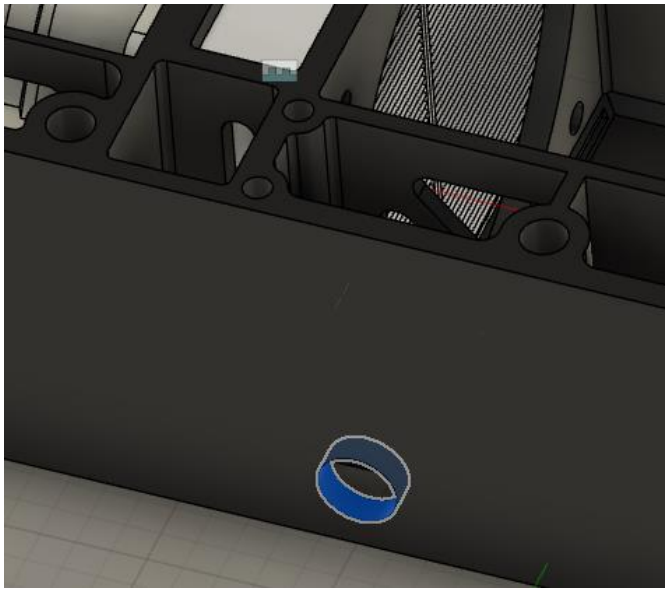
Check the Fan assembly: the flow has to go from the hepa side to the exhaust side

The fan ref here is SUNON PMD2408PMB1-A.(2).GN ***found on*** https://fr.farnell.com/

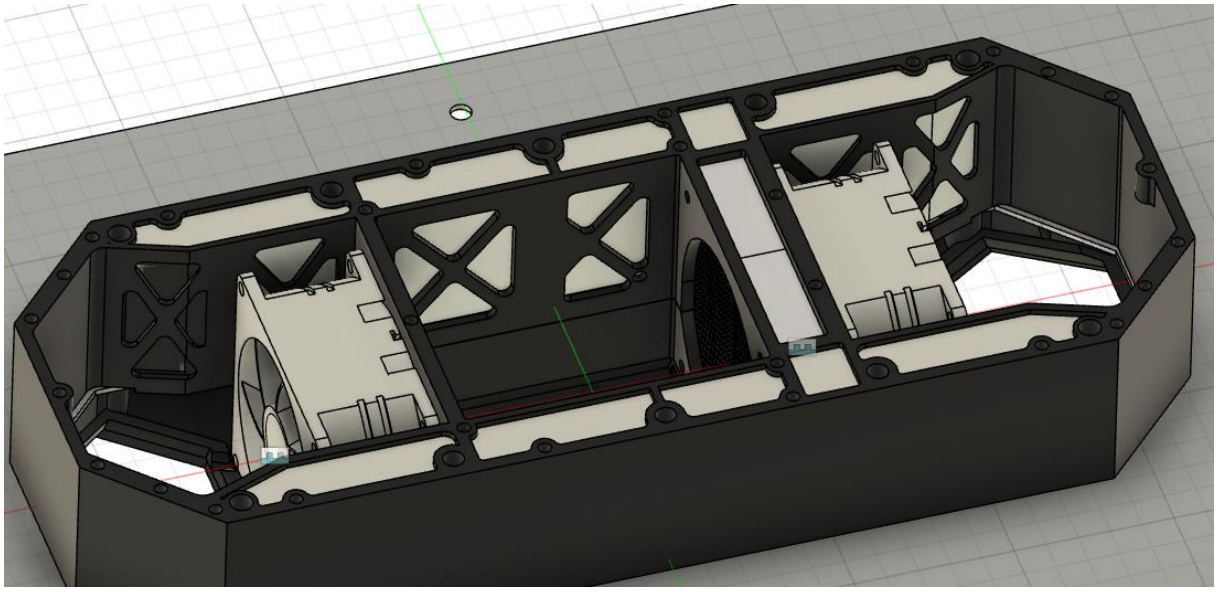
You can choose another one!



Add the 2 HEPA Filters

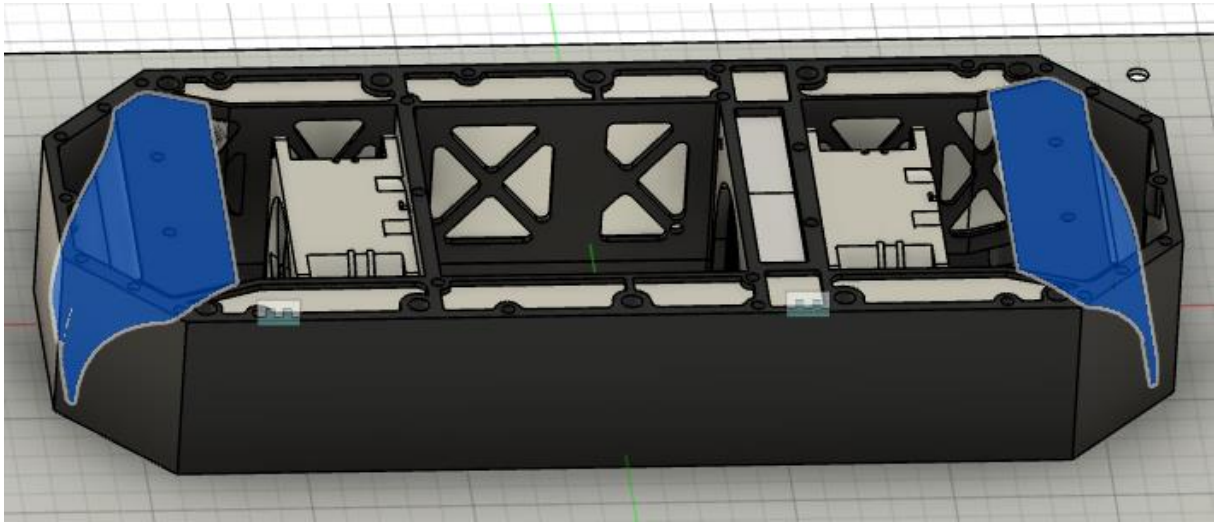


Use a DC jack to make a 2 wires connectors to power the Fans, in derivation mode, route the cable as you with insing, there is room and holes for it. Solder it or use a Wago

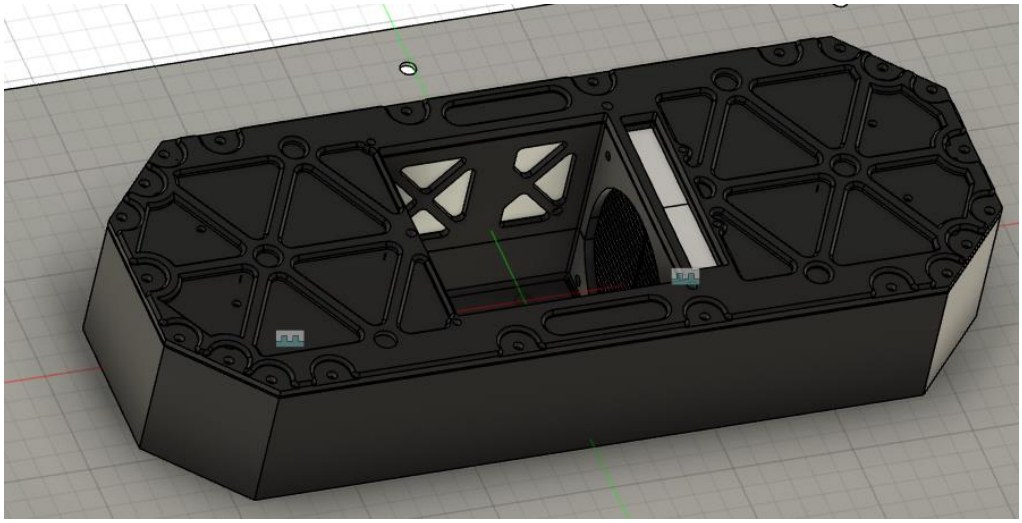


Fill the lateral cavities with Fiberwool/fiberglass/cotton whool

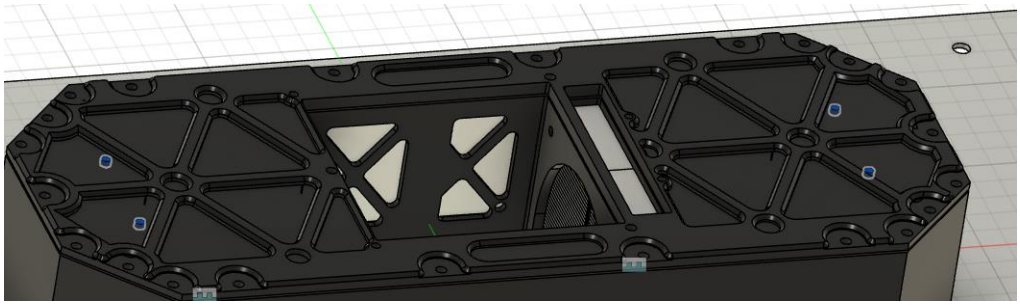
It will isolate thermically the unit and dampened the high pitch fan fraquencies.



Position the 2 flow deflector



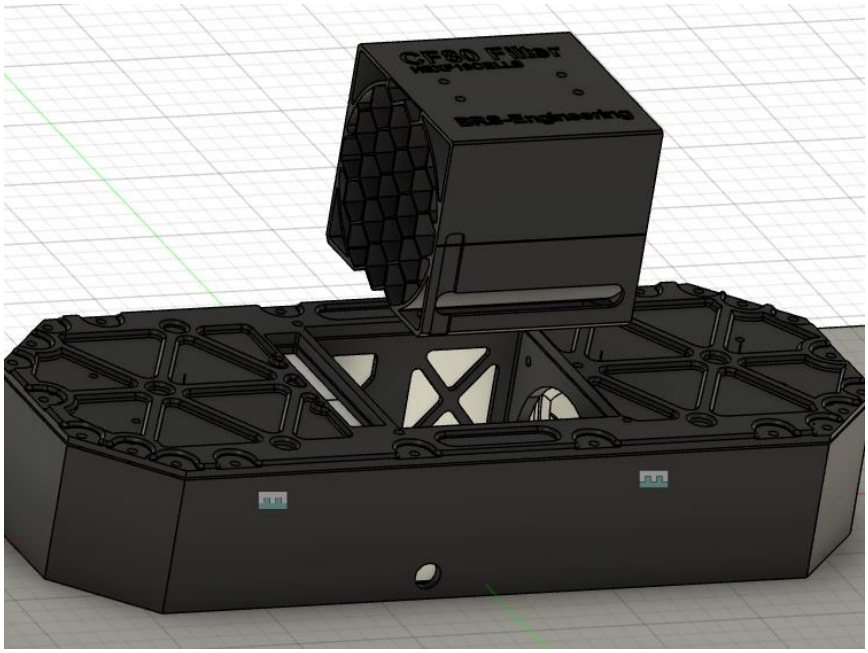
Install the Backplate and secure the peripheral holes with m3x10



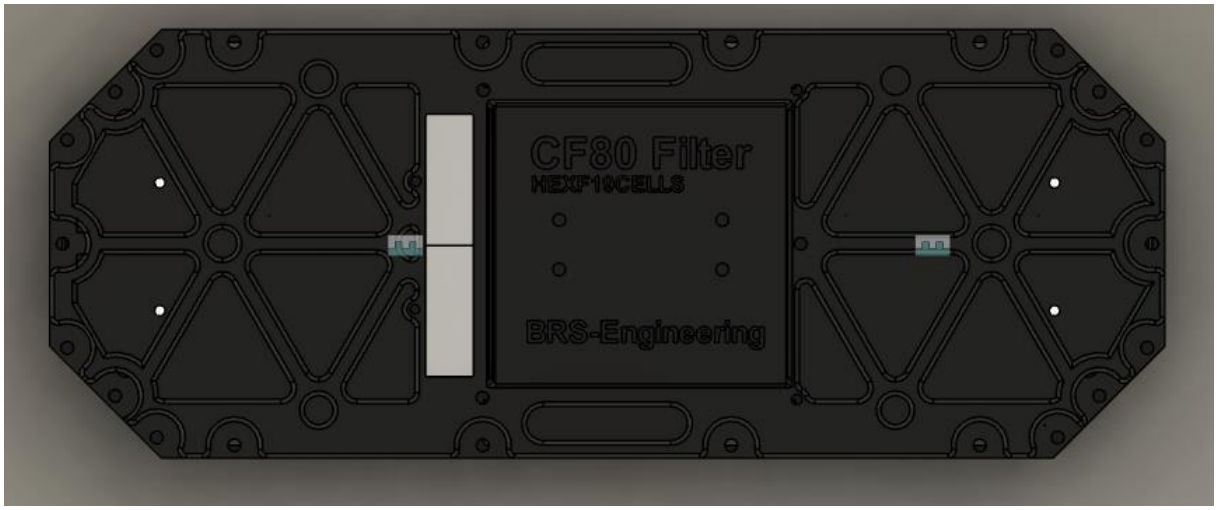
Secure the 2 deflectors with M3x10

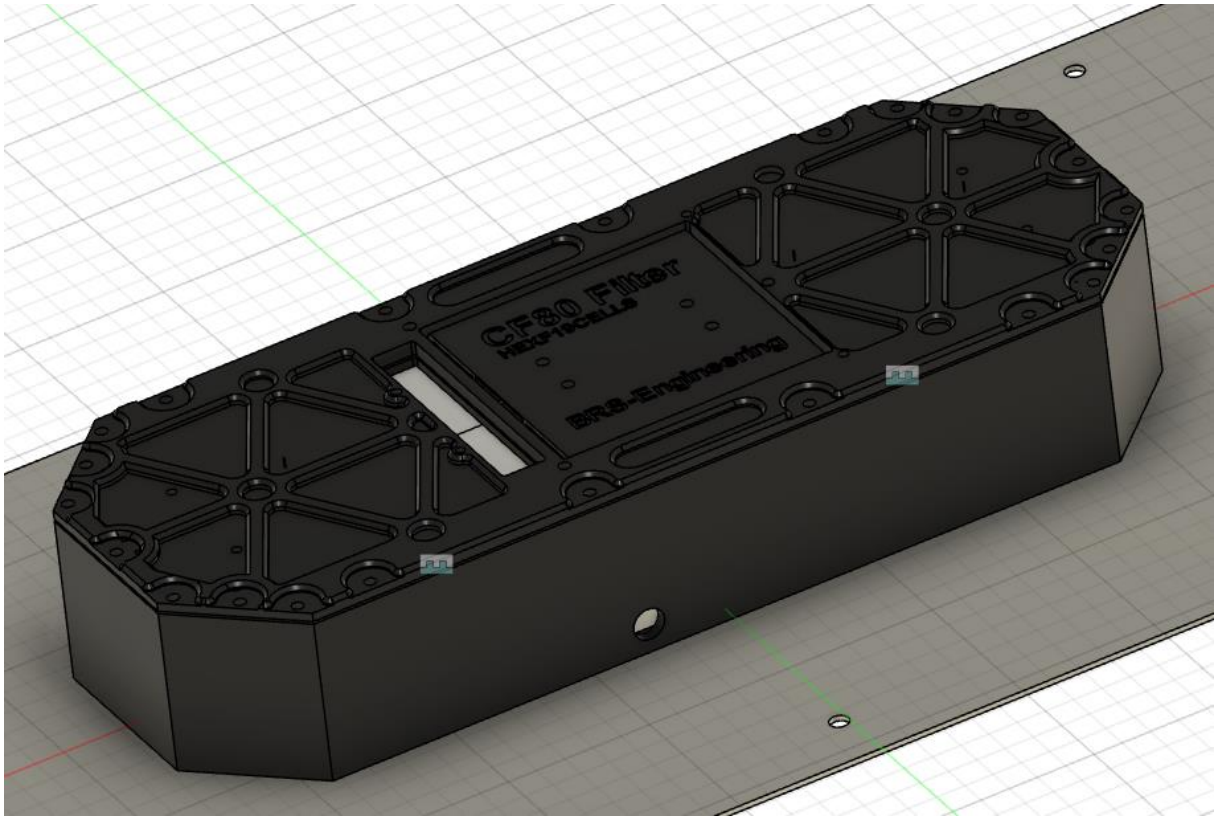
Stack the assemble central disks and install the 2 other balls bearing

Cartridge installation

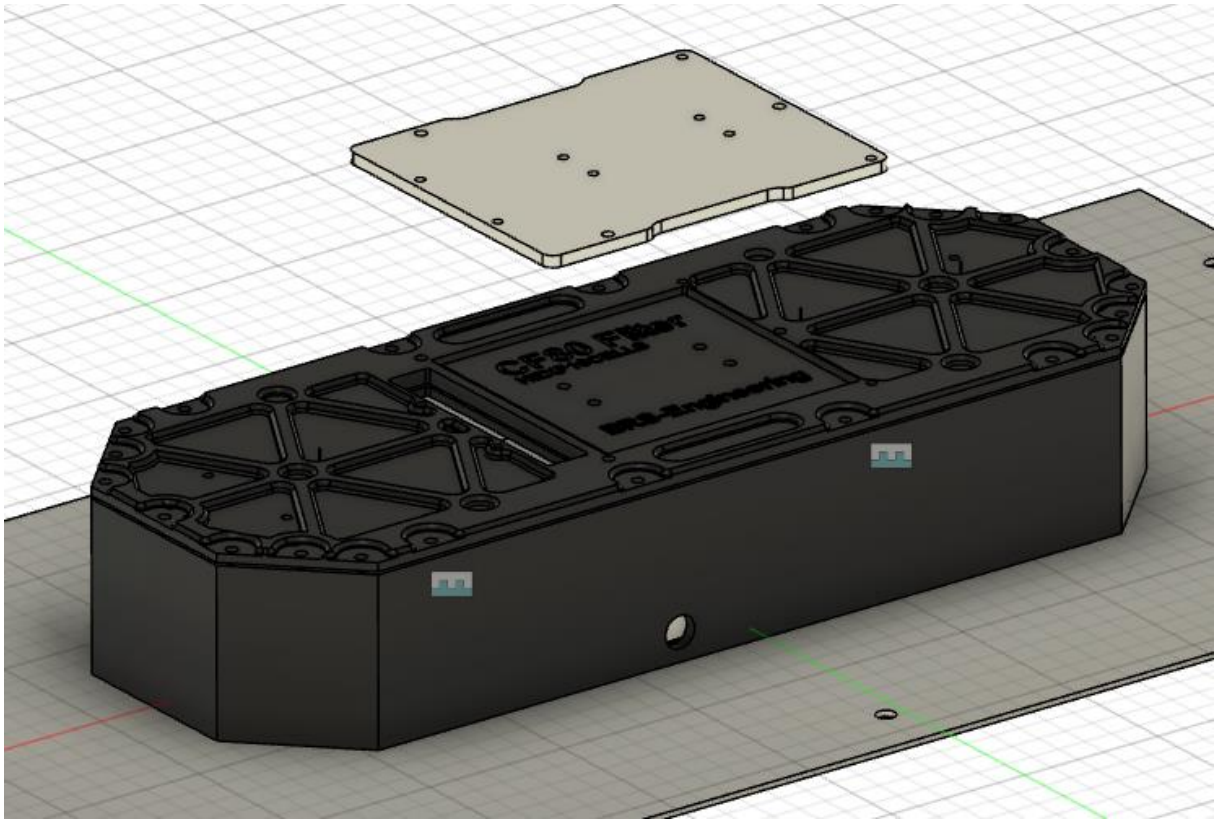


Slide the cartridge in the block

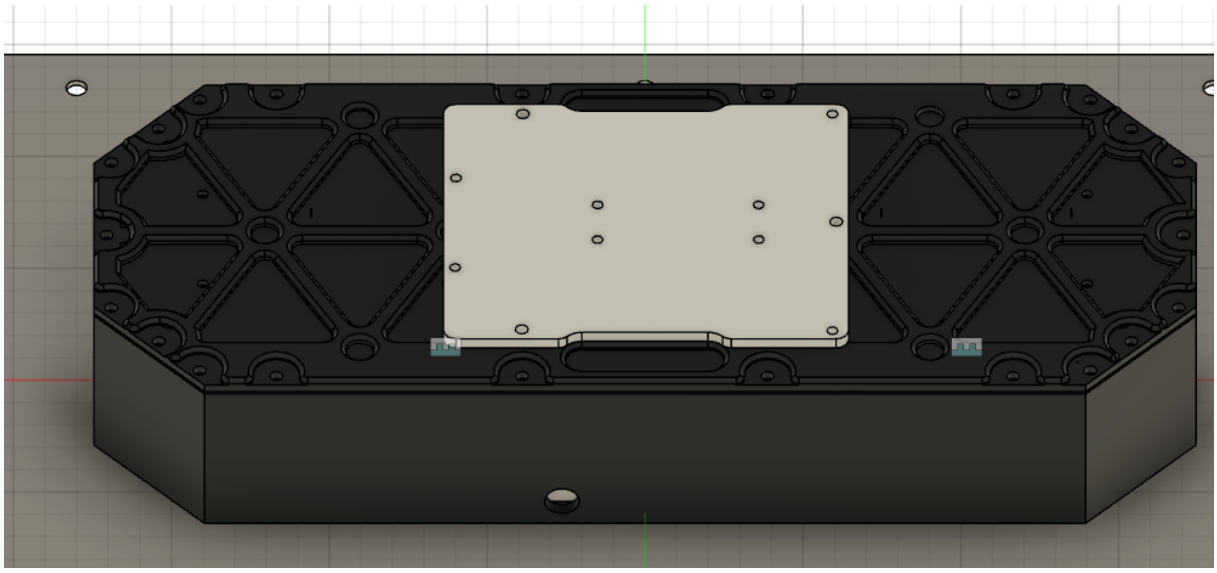




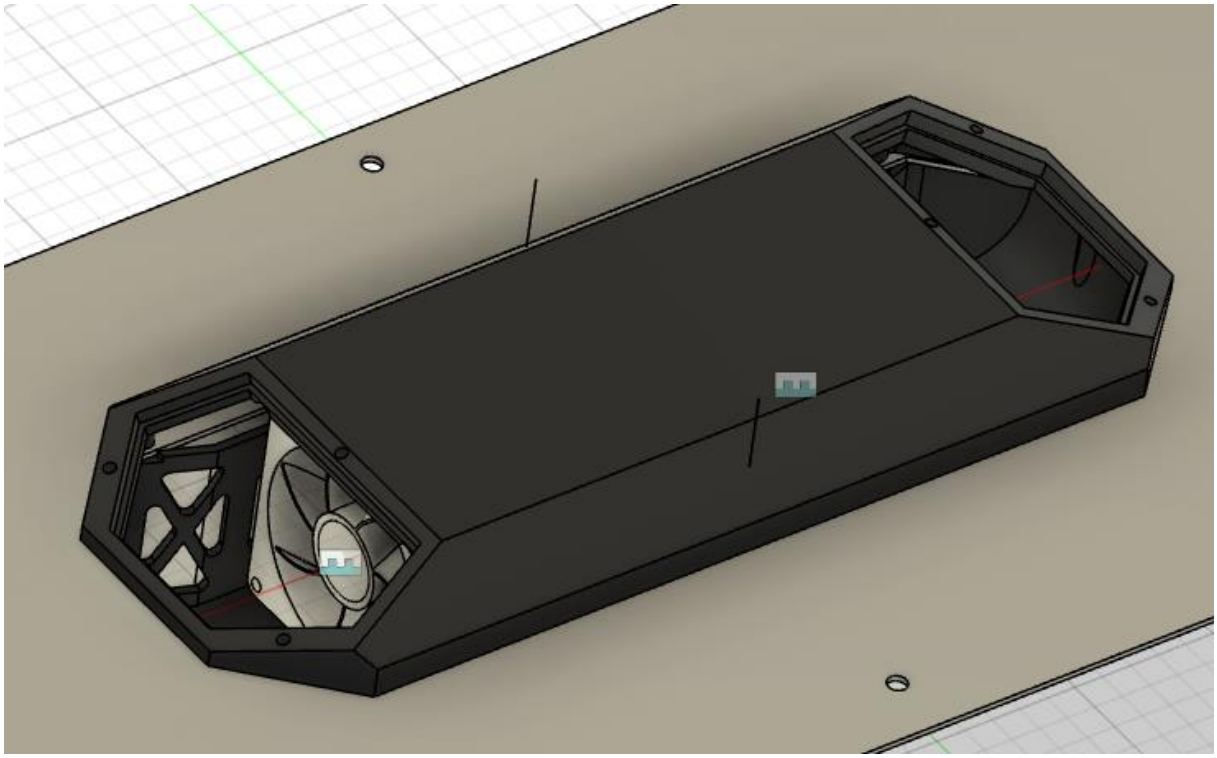
Result



Fix the closing plate with M3x10 screws to ensure a good sealing.

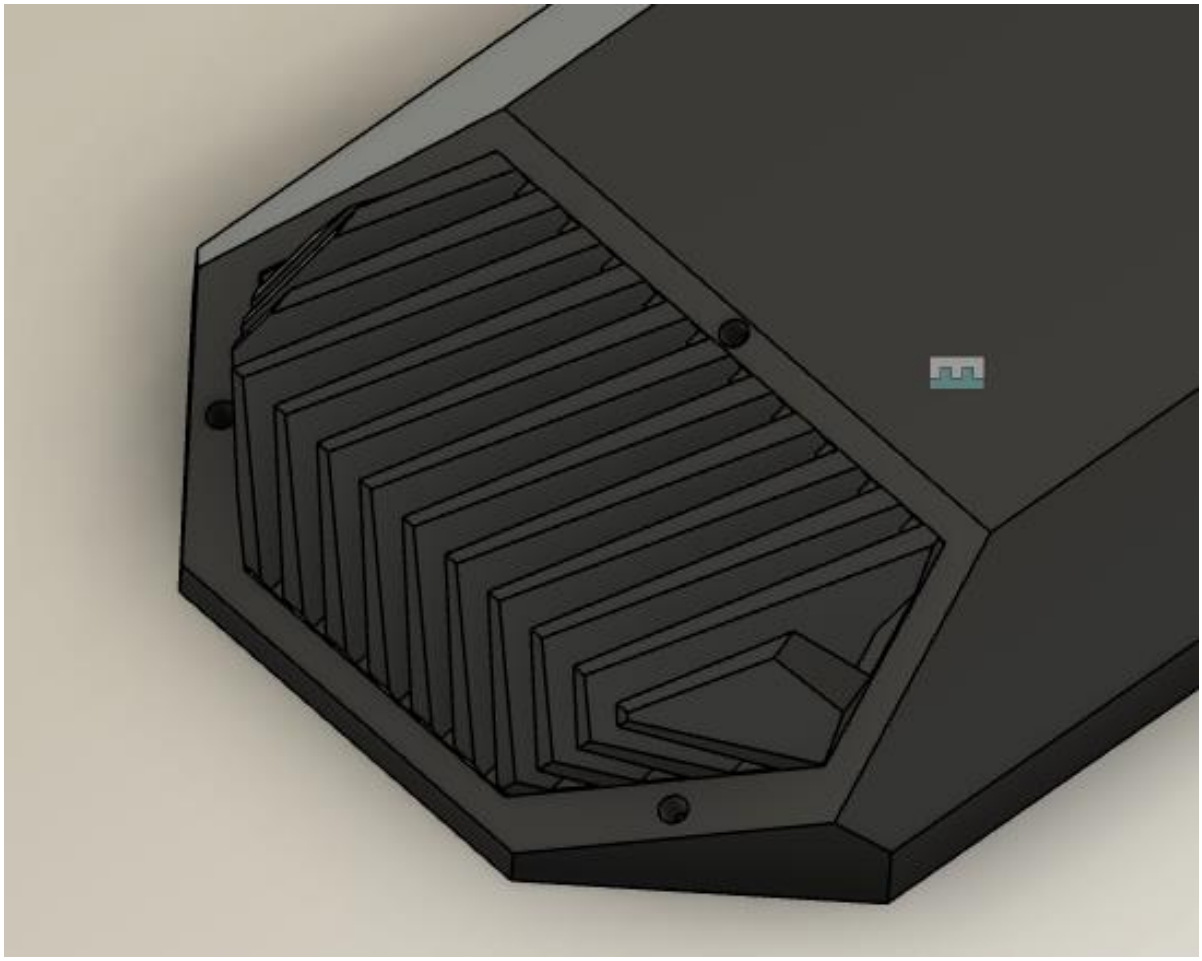


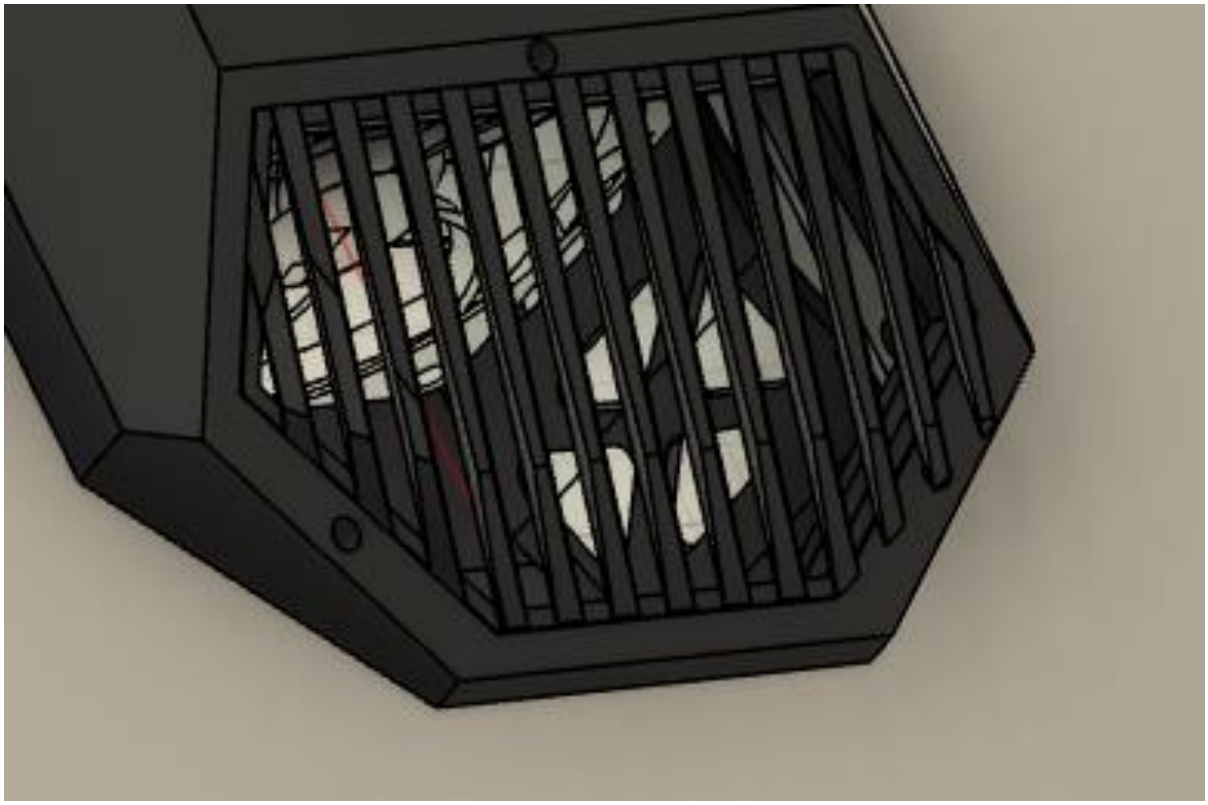
result



you can now close the front intakes with the fins parts.

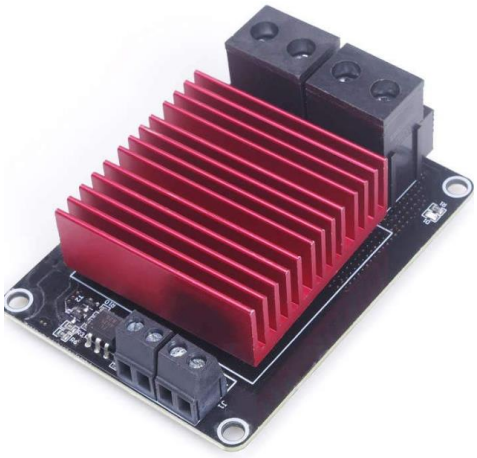
They have been designed to circulate the air in the top part of the chamber to prevent moving the air on the build printing volume and doesn't interfere with ASA/NYLON/ABS/PC warping potential issues. The fins must aim the top. You can use cyanoacrylate to secure them





Power it

I personally use a Mosfet to drive the fans via the PI, **choose this mosfet accordingly to the Fan total power**



https://www.amazon.fr/ANGEEK-printer-Printhead-heating-control/dp/B08Z7R9YZ4/ref=sr_1_7?__mk_fr_FR=%C3%85M%C3%85%C5%BD%C3%95%C3%91&crid=2Y9BD31MEJTJR&keywords=mosfet+print&qid=1658831328&sprefix=mosfet+print%2Caps%2C110&sr=8-7

I add this to the printer.cfg

[fan_generic filter]

pin: rpi:gpio26

max_power: 1

shutdown_speed: 0

Replace the gpio26 with the one you will use

Thanks

If there is any issue or questions for this manual, all feedbacks are welcome 😊