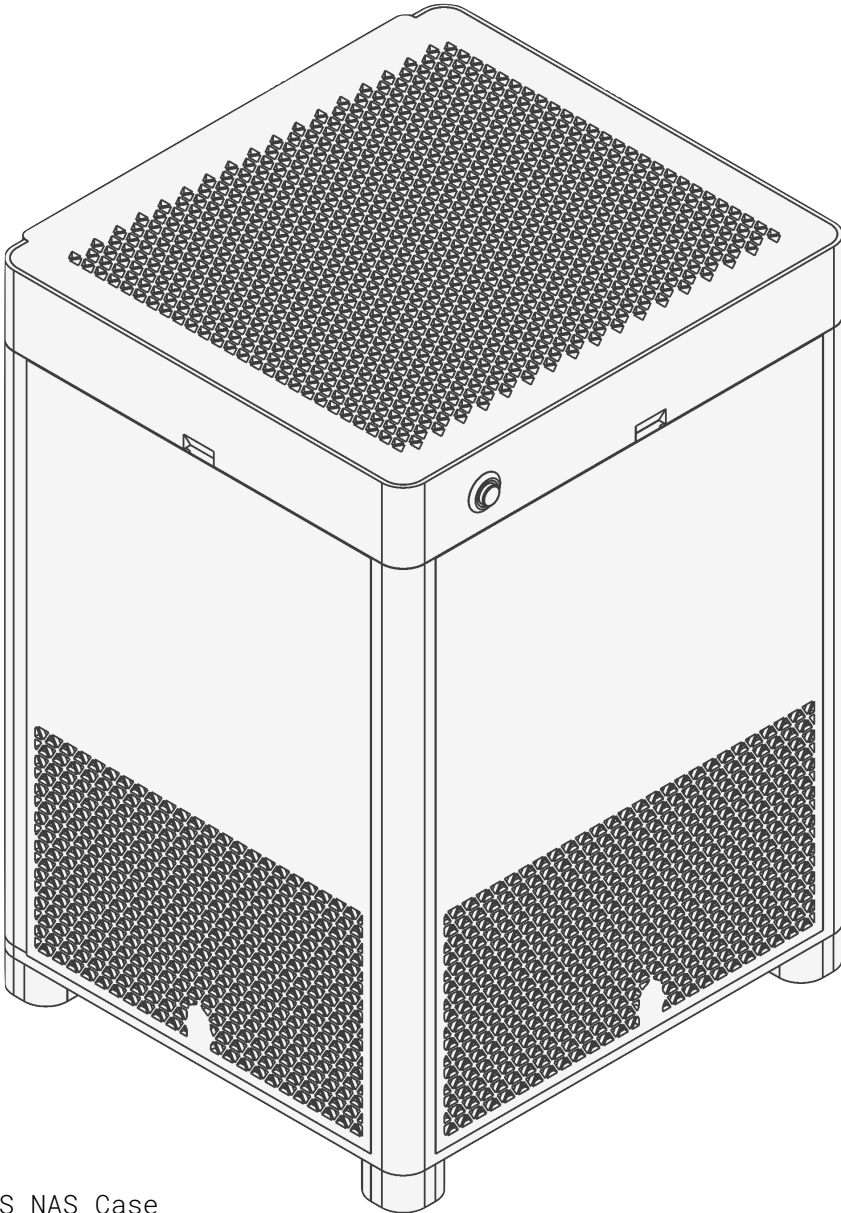


3D Printed NAS Case – Assembly & Printing Guide – **Extended version**



N00S NAS Case

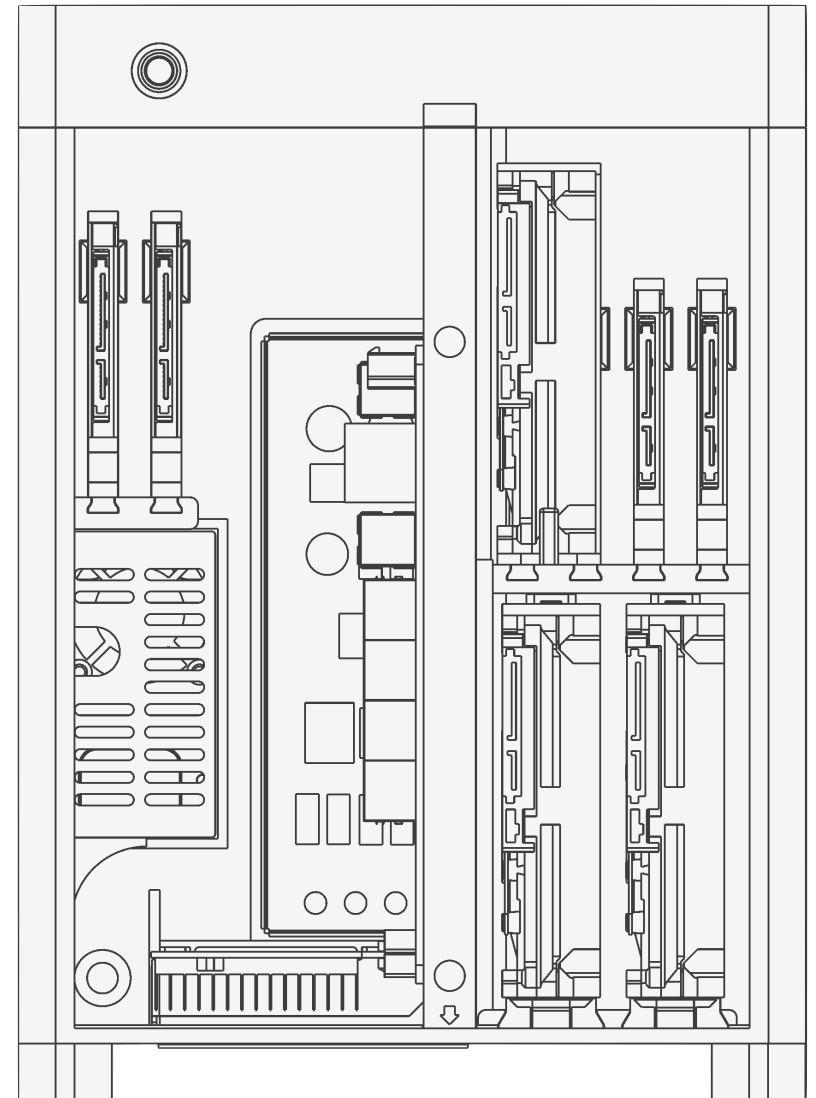


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1. Introduction

This guide has been created to help makers and DIY enthusiasts build a fully functional 3D printed NAS case. It provides everything you need: from the required hardware and printable parts to step-by-step assembly instructions.



Important - Please Read Before Starting

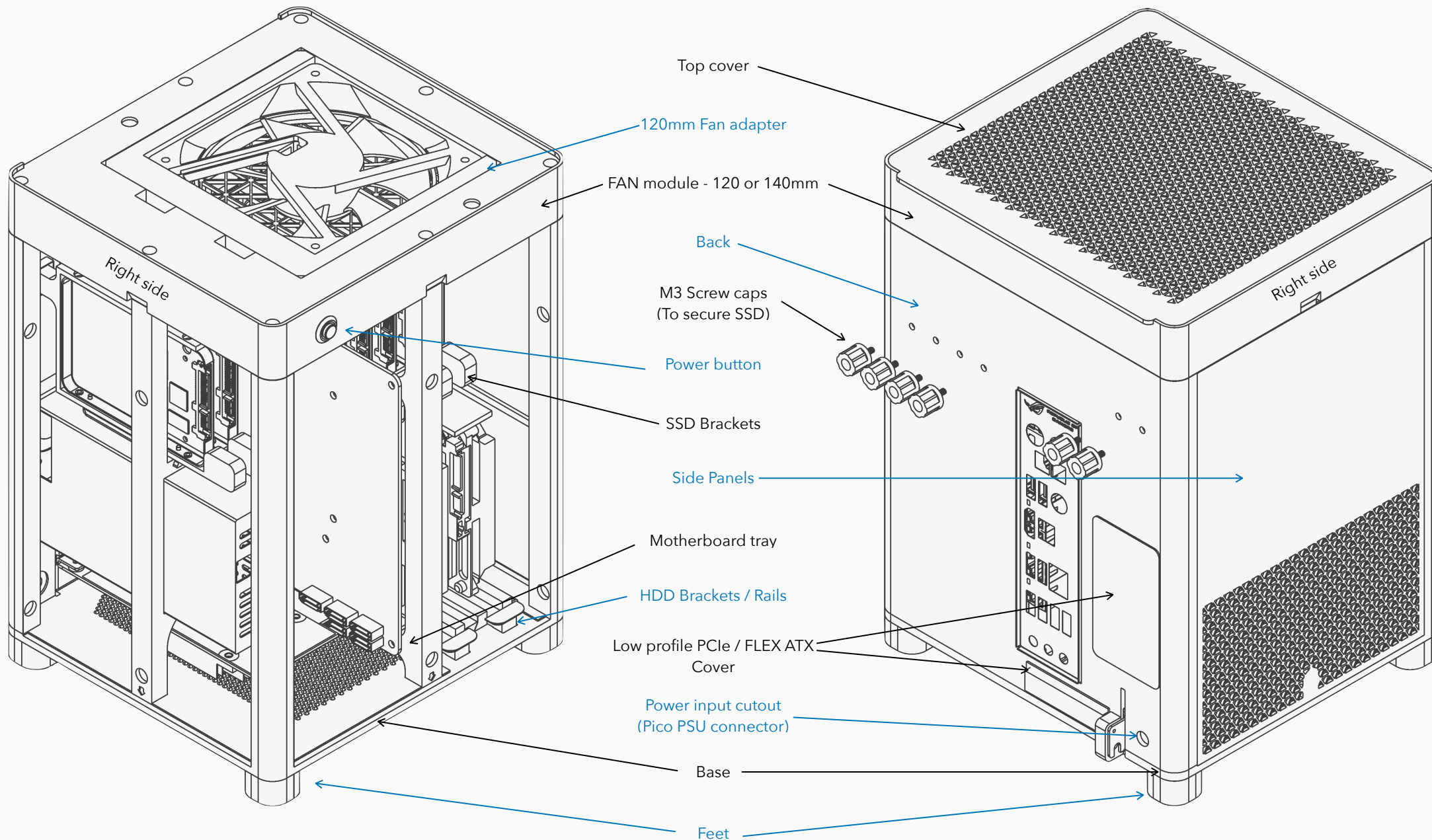
- This NAS case is **compatible only with PicoPSU or Flex ATX power supplies**. Standard ATX power supplies cannot be used.
- Up to **8 storage bays**: [**6** x 2.5" SSD + **2** x 3.5" HDD] or [**4** x 2.5" SSD + **3** x 3.5" HDD] or [**2** x 2.5" SSD + **4** x 3.5" HDD]
 - **4** x 2.5" SSD slots can be turned into **2** x 3.5" HDD slots.
- **The design is intended for Mini-ITX motherboards only.**
- The cooling system supports **one 120 mm or 140 mm fan**, with a maximum thickness of **28 mm**.

You will find **suggested hardware components** to complete your NAS build, ensuring optimal compatibility and performance.

Whether you are an experienced maker or a beginner, this document will walk you through the entire process so you can enjoy a custom, efficient, and elegant storage solution for your home or workspace.

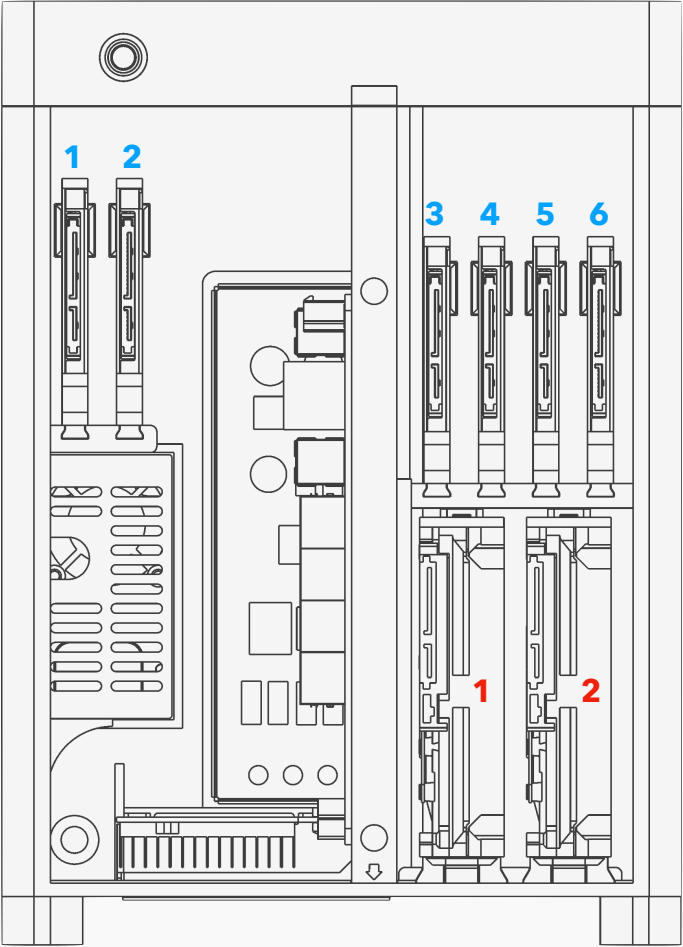
Feature	Specification
Motherboard Support	Mini-ITX only + Low profile PCIE Slots
Storage Bays	8 total – 2 × 3.5" HDD + 4 × 2.5" SSD
Power Supply	PicoPSU or Flex ATX only (ATX not supported)
Cooling	1 × 120 mm or 140 mm fan (maximum thickness 28 mm)
Design	Fully 3D printed case, modular assembly
Target Use	DIY NAS for home or small office storage
Printing volume	Minimum 250x250x250mm
Materials	PETG or ABS

2. Overview

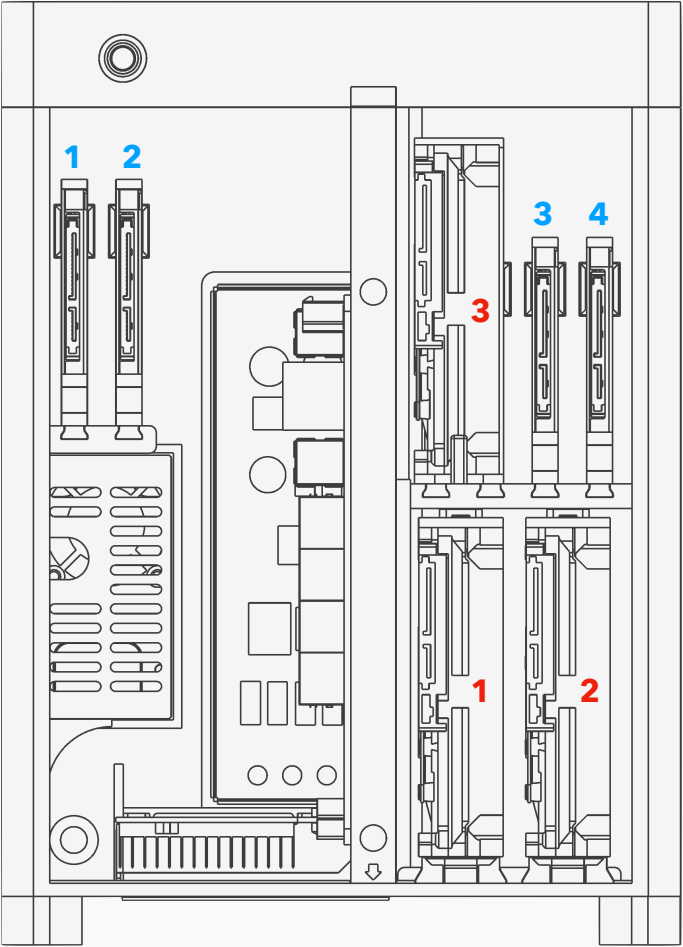


2. Overview - Storage configuration

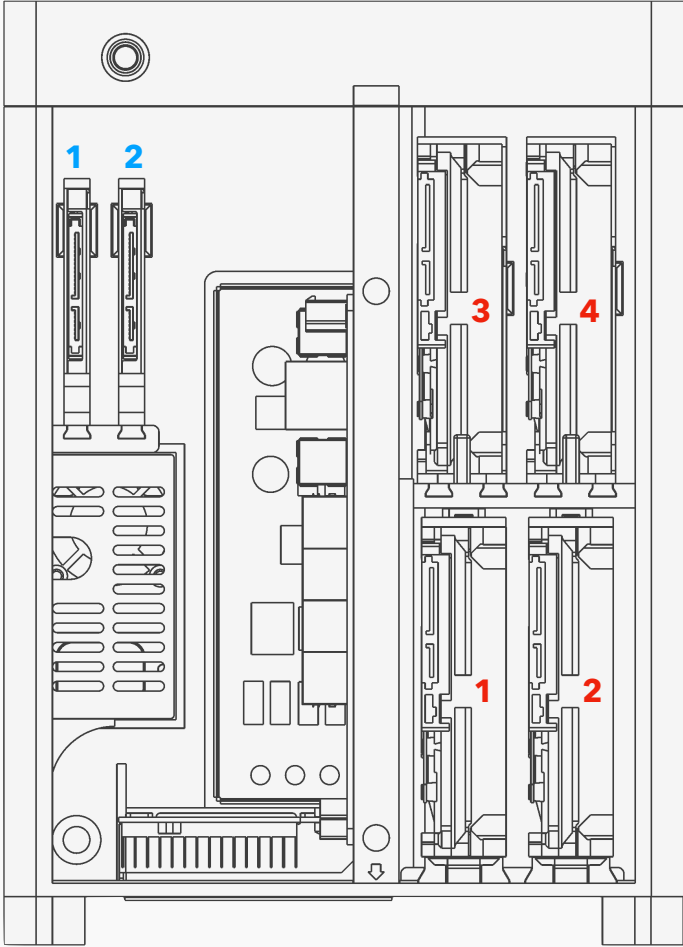
[6 x 2.5" SSD + 2 x 3.5" HDD]



[4 x 2.5" SSD + 3 x 3.5" HDD]



[2 x 2.5" SSD + 4 x 3.5" HDD]



Front view

3. Bill of Materials & tools (Affiliate links)

	Quantity	Materials & Tools	Amazon Link	Aliexpress Link
	24	M3-10mm	Amazon	Aliexpress
	4	M3-14mm	Amazon	Aliexpress
	24	6-32 Phillips Screw 5/16" Flat Head		Aliexpress
	32	Heat insert M3xL5xOD5 or M3xL4xOD5	Amazon	Aliexpress
	40	Round Magnets 8x2mm	Amazon	Aliexpress
	1	LED Metal Button Ø12mm	Amazon	Aliexpress
	4	Silicon damping bumper 10x3mm	Amazon	Aliexpress
	1	Soldering iron	Amazon	Aliexpress
	1	Allen key set	Amazon	Aliexpress
	1	Utility knife	Amazon	Aliexpress
	1	Super glue	Amazon	Aliexpress
	1	Electric screwdriver	Amazon	Aliexpress
	1	Needle-nose pliers	Amazon	Aliexpress
		M3 screw kit (not mandatory)	Amazon	
	1	Tip Set of 7 Soldering Tips for insert	Amazon	Aliexpress

4. Suggested Components

The following components are **suggested** to ensure good compatibility and performance with this 3D printed NAS case.

You are free to adapt them according to your needs and available hardware.

Component	Suggested Option(s)	Notes	Amazon Link	Aliexpress Link
Motherboard	Mini-ITX (e.g. Intel N100 / N150)	Must be Mini-ITX size	Amazon	Aliexpress
PSU	PicoPSU	One with 2 Sata. Can only connect 2 HDD and no SSD without upgrade.	Amazon	Aliexpress
	Flex ATX	ATX and SFX not supported ; case includes cover if Flex slot not used. Better if more than 2xHDD	Amazon	Aliexpress
Storage	1.- 2 × 3.5" HDD 2.- 3 × 3.5" HDD 3.- 4 × 3.5" HDD	Orient HDD connectors to the front.	Amazon	
	1.- 6 × 2.5" SSD 2.- 4 × 2.5" SSD 3.- 2 × 2.5" SSD	Orient SSD connectors to the front.	Amazon	
Cables	90° Sata Cable	90° angled SATA connectors (at least on the HDD side) for easier installation and better cable management.	Amazon	Aliexpress
RAM	8-32 GB DDR4/DDR5 (depending on motherboard)	Enough for light to medium NAS workloads For N100 : 16Go - SODIM 4800MHz	Amazon	Aliexpress
Cache drive	NVMe SSD (e.g. 1-2 TB)	Optional but improves performance	Amazon	Aliexpress
Cooling (Only 1 fan)	120 mm fan (max thickness 28 mm)	Fan must be mounted in exhaust mode	Amazon	Aliexpress
	140 mm fan (max thickness 28 mm)	Fan must be mounted in exhaust mode	Amazon	Aliexpress

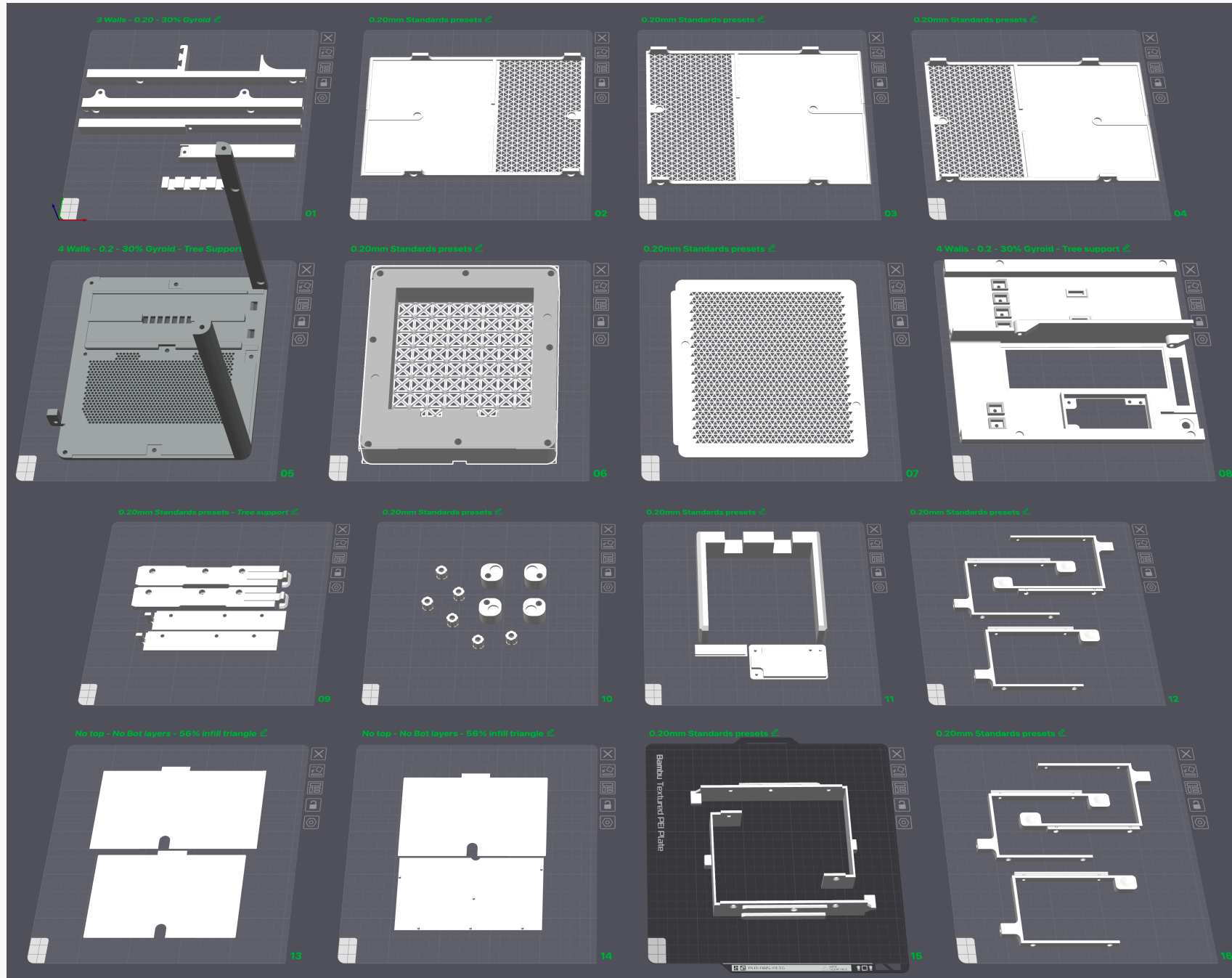
5. 3D Printed Parts & Printing Settings

- A **Bambu Studio 3MF project file** is included.
All parts are already arranged and oriented correctly on separate build plates.
- **Material : PETG recommended, around 1.2Kg**

You only need to adjust the printing parameters according to your printer and material.
- **Layer height:** 0.2 mm for all parts.
- **Standard profile:** The majority of the parts can be printed using the same profile (recommended infill 15–20%, 2 perimeters, no supports unless specified).
- The dust filters are designed to be **permeable** and should **not be printed solid**.
- Stronger settings required for the following parts:
 - Back panel
 - Base
 - **Motherboard & PSU support brackets** (vertical support parts for the motherboard tray, Flex PSU, and SSD brackets)

Part	Layer Height	Infill	Top/Bottom Layers	Perimeters	Supports	Notes
Standard parts (most)	0.2 mm	15–20%	Default (enabled)	2-3	If needed	Use standard profile
Back panel	0.2 mm	25–30% Gyroid	Default (enabled)	3-4	Tree Supports	Structural part, must be strong
Base	0.2 mm	25–30% Gyroid	Default (enabled)	3-4	Tree Supports	Structural part, must be strong
Motherboard support bracket	0.2 mm	25–30% Gyroid	Default (enabled)	3-4	No	Holds motherboard tray
Flex PSU mounting bracket	0.2 mm	25–30% Gyroid	Default (enabled)	3-4	No	Holds Flex PSU securely
SSD bracket support	0.2 mm	25–30% Gyroid	Default (enabled)	3-4	No	Holds SSD bracket
Dust filters	0.2 mm	56% (triangles)	Disabled (0/0)	2	No	Airflow permeability – grid pattern only

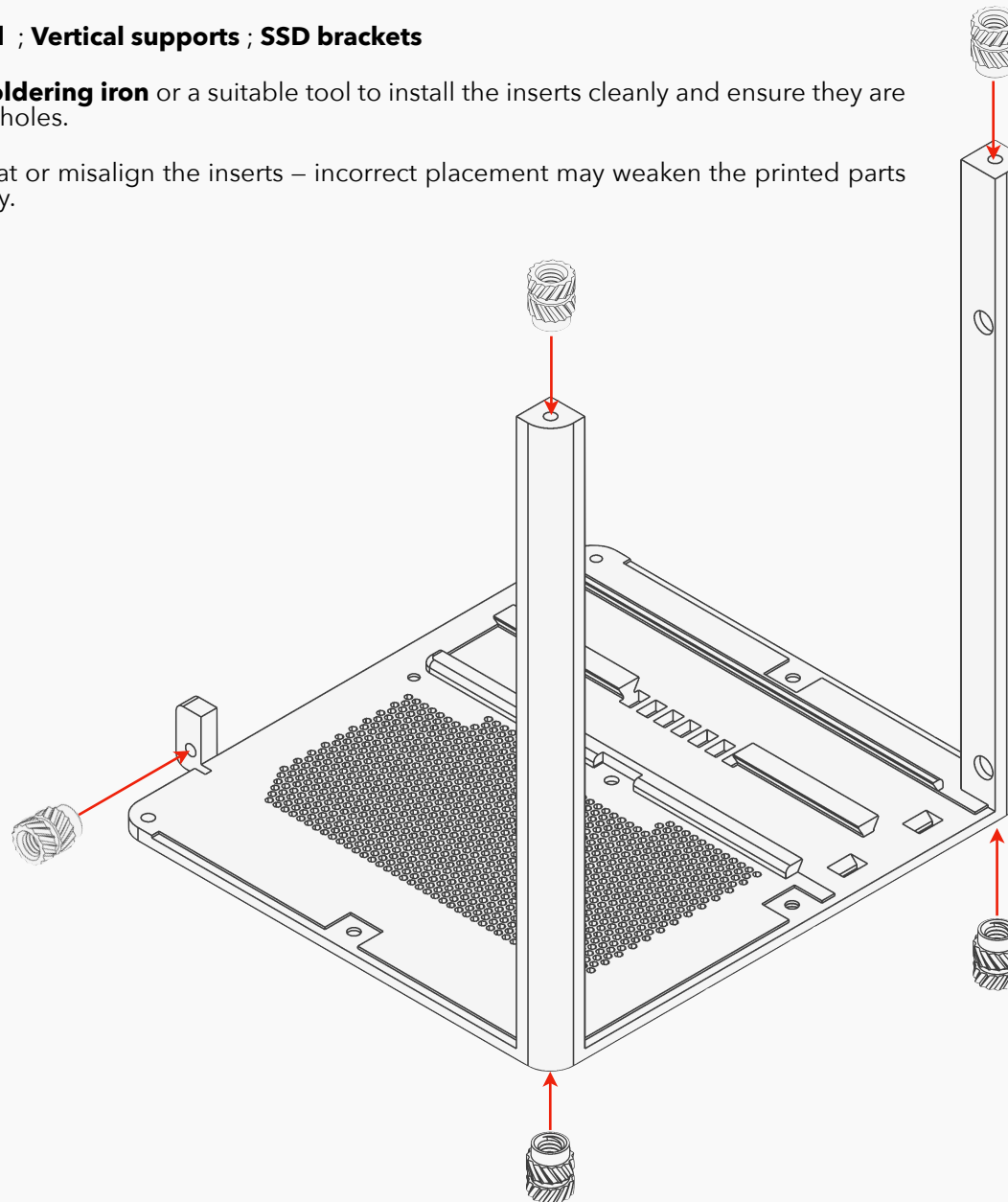
6. 3D Printing Orientation Overview



7. Assembly Steps

Step 1 - Installing the Heat-Set Inserts

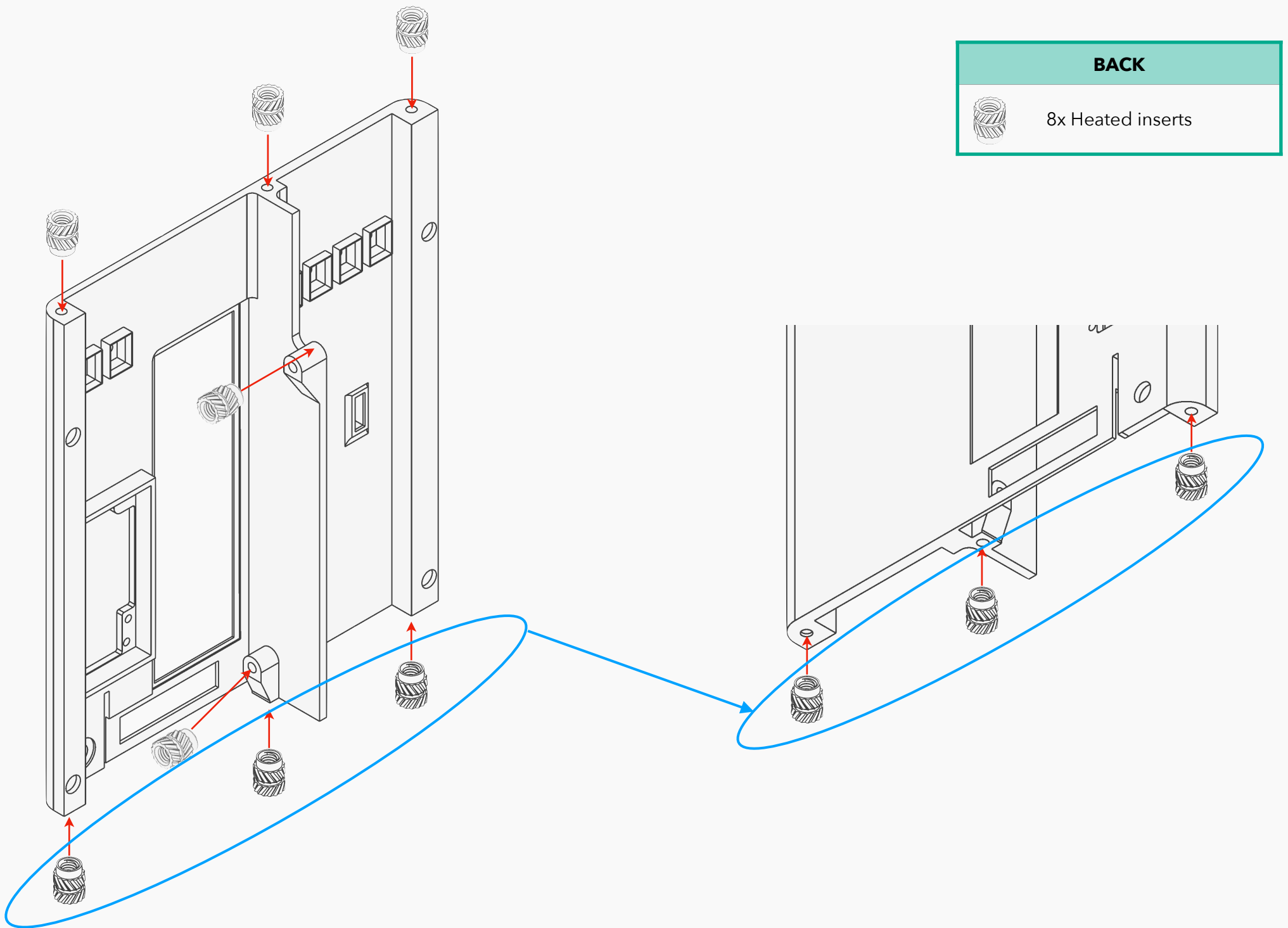
- **Action** : Insert all the **heat-set inserts** into the following parts:
 - **Base ; Back panel ; Vertical supports ; SSD brackets**
- **Important note** : Use a **soldering iron** or a suitable tool to install the inserts cleanly and ensure they are perfectly aligned with the holes.
- **Warning** : Do not overheat or misalign the inserts – incorrect placement may weaken the printed parts and compromise assembly.



BASE



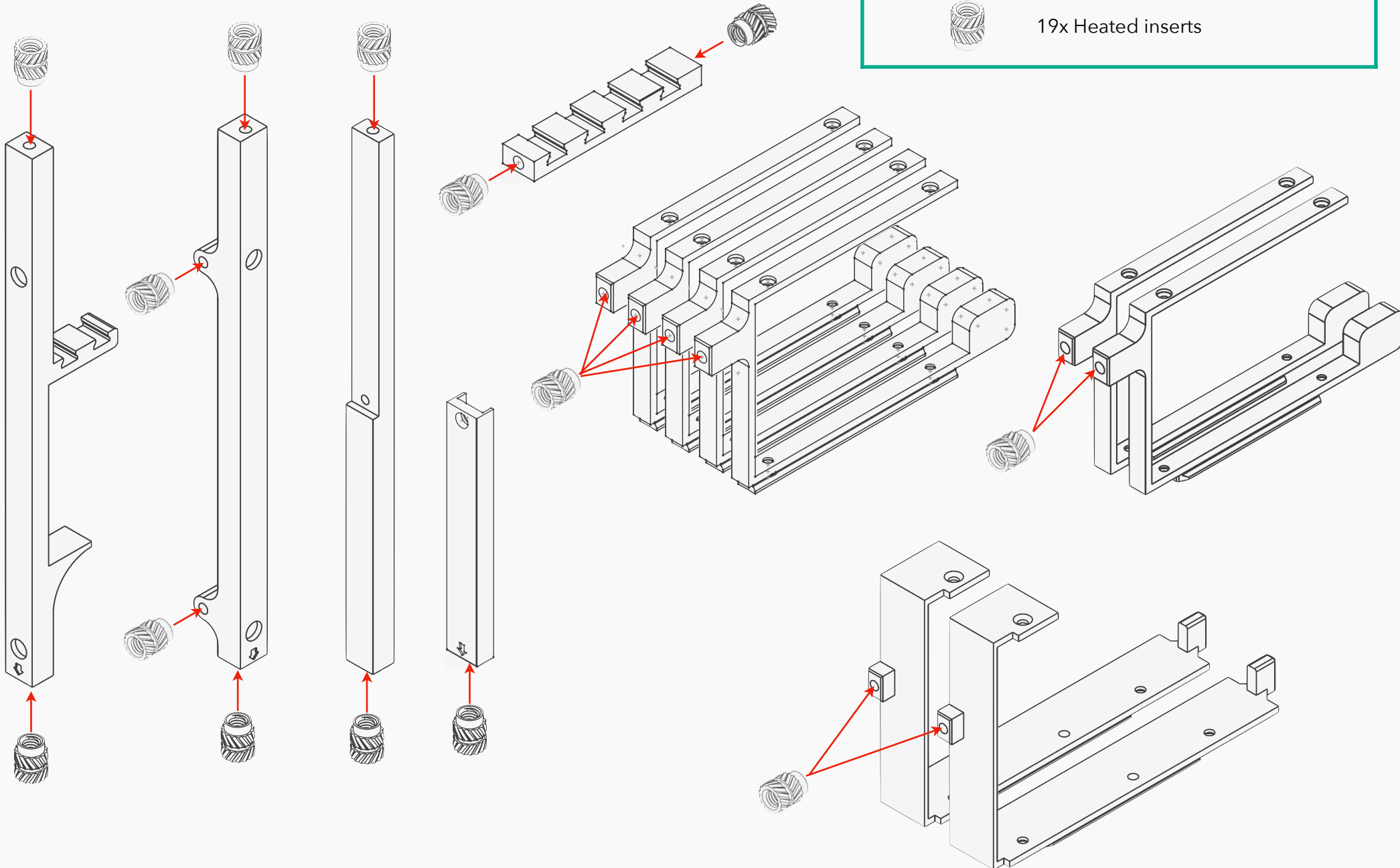
5x Heated inserts



Vertical supports & SSD brackets



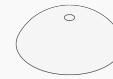
19x Heated inserts



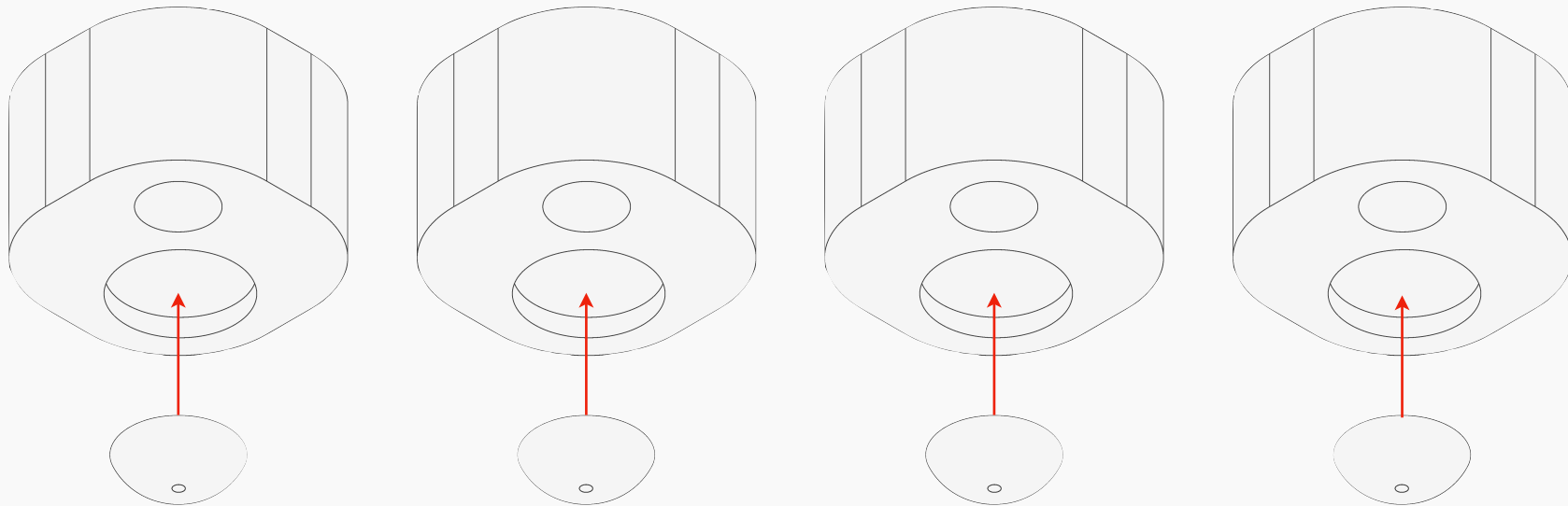
Step 2 - Installing the Silicone Damping Bumpers

- **Action** : Attach the **silicone damping bumpers** under each foot.

4 FEET



4X Silicon damping bumper 10x3mm

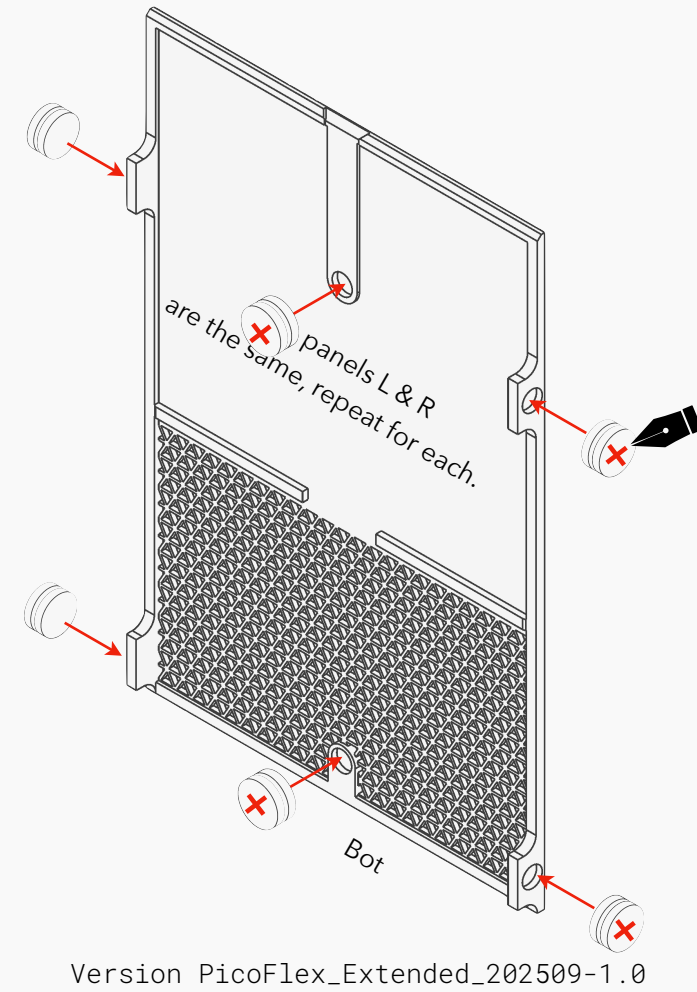
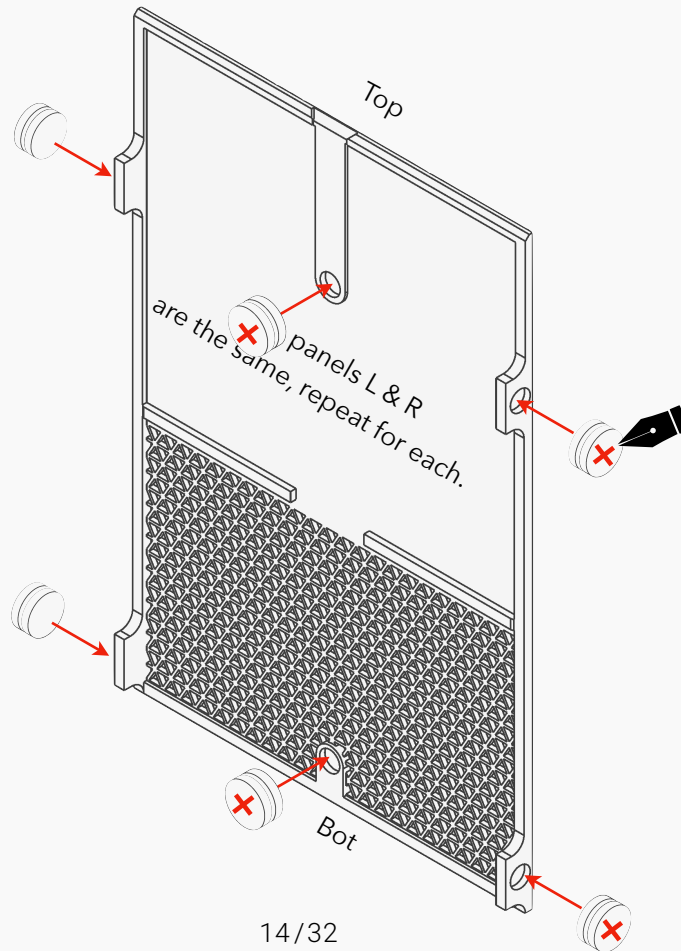
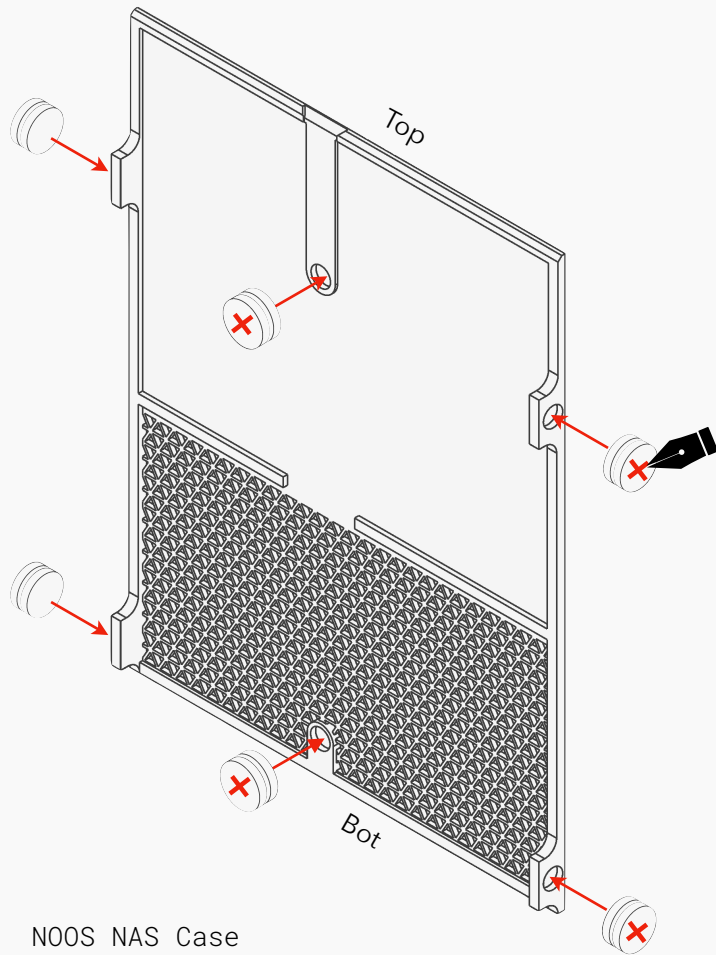


Step 3 - Adding round magnets on side panels.

When installing the magnets, pay close attention to **polarity**:

- All magnets on the **side panels and frond panel** must be oriented in the **same direction**.
- Place **two magnets per slot**: the first one stays in place, and the second one is used as a **reference for correct polarity when placing it on the base**.
- Mark the **outer face of the second magnet** before inserting it. When installing the side panels on the base, these marks should face **inward**, ensuring perfect alignment.
- You can use glue to hold the magnets

⚠ **Incorrect polarity will prevent the side panels from attaching properly.**

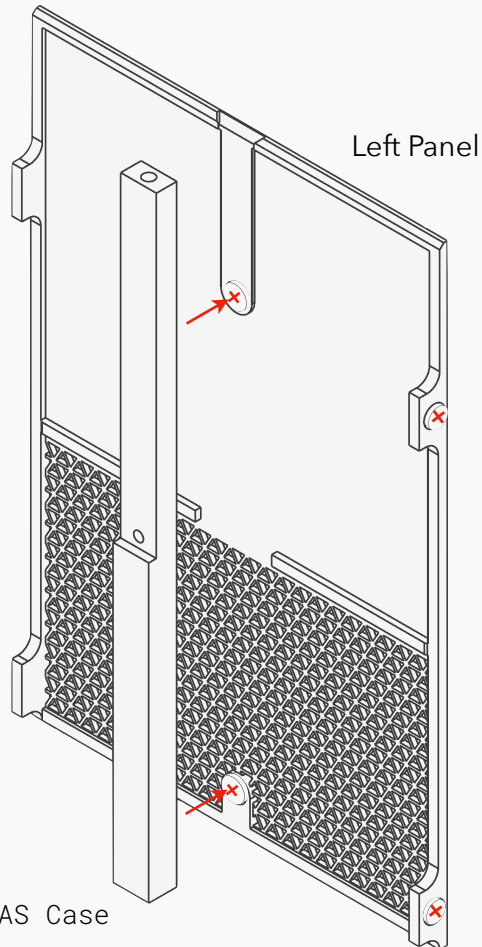


SIDE PANELS & FRONT PANEL	
	36x Round Magnets 8x2mm

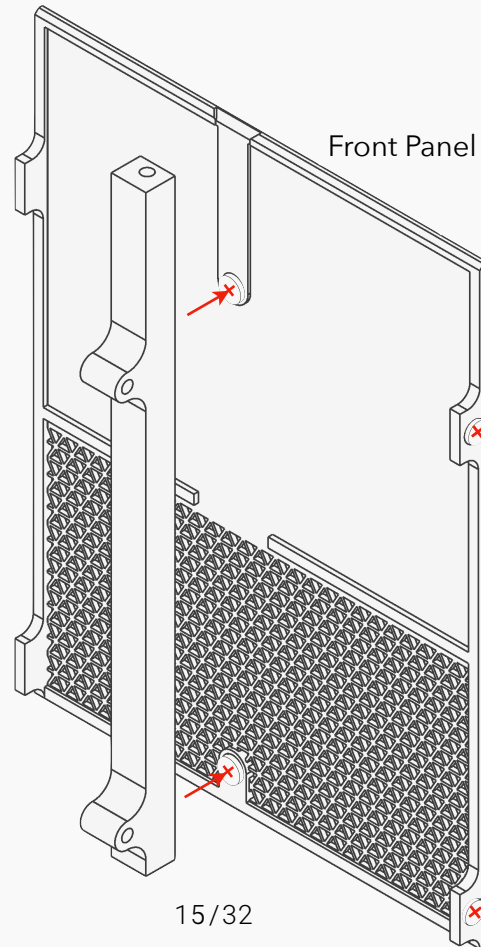
Step 4 - Adding round magnets on vertical supports.

- Take the vertical supports corresponding to each side panel and the front panel:
 - **Left side** → SSD bracket support
 - **Front panel** → Motherboard support
 - **Right side** → Flex PSU support
- Place the vertical supports onto their associated side panels to ensure that the magnets align correctly.
- Remember: the **mark on the second magnet must face inward**.
- Each vertical support has an **arrow indicator**: make sure the arrow is oriented **downward** during installation.

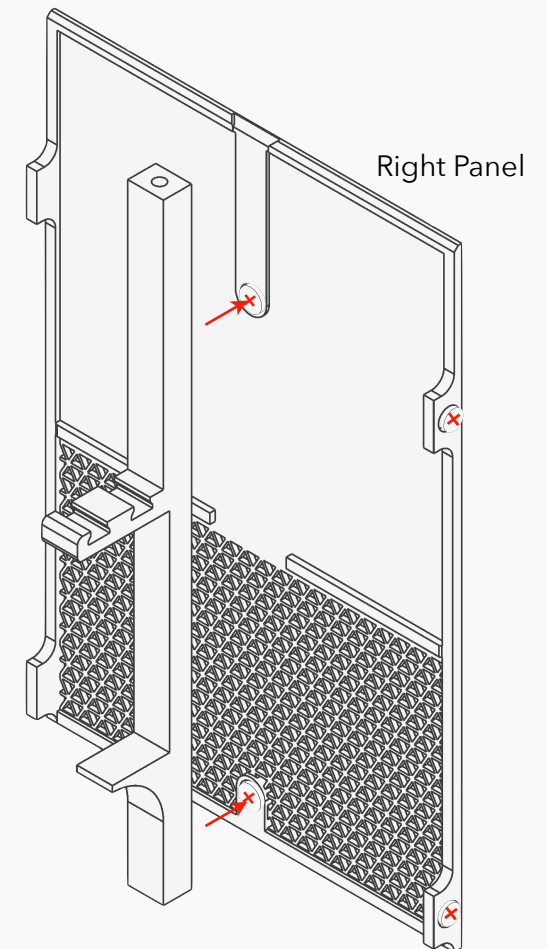
⚠ Incorrect orientation of the supports or magnet polarity will prevent proper assembly of the panels.



N00S NAS Case



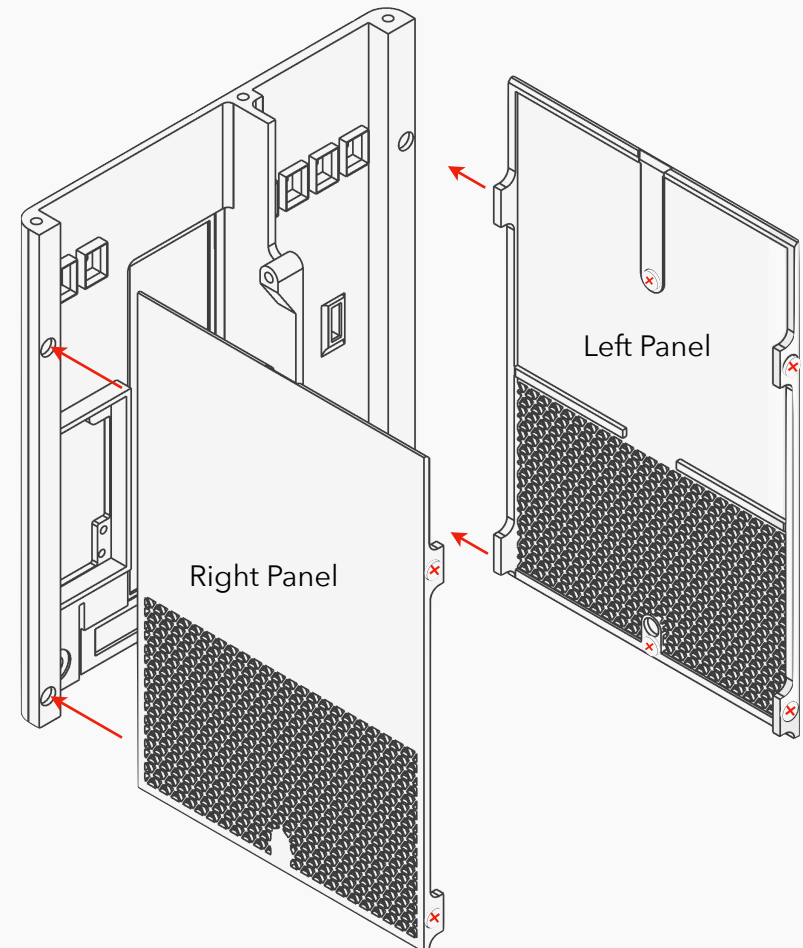
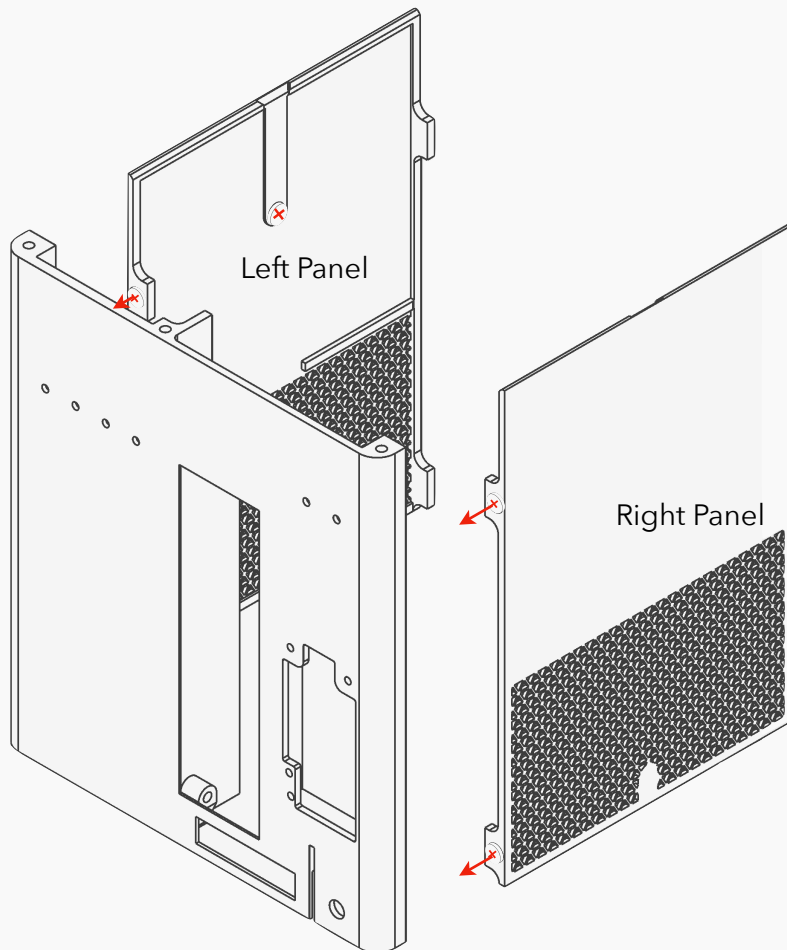
15/32



Version PicoFlex_Extended_202509-1.0

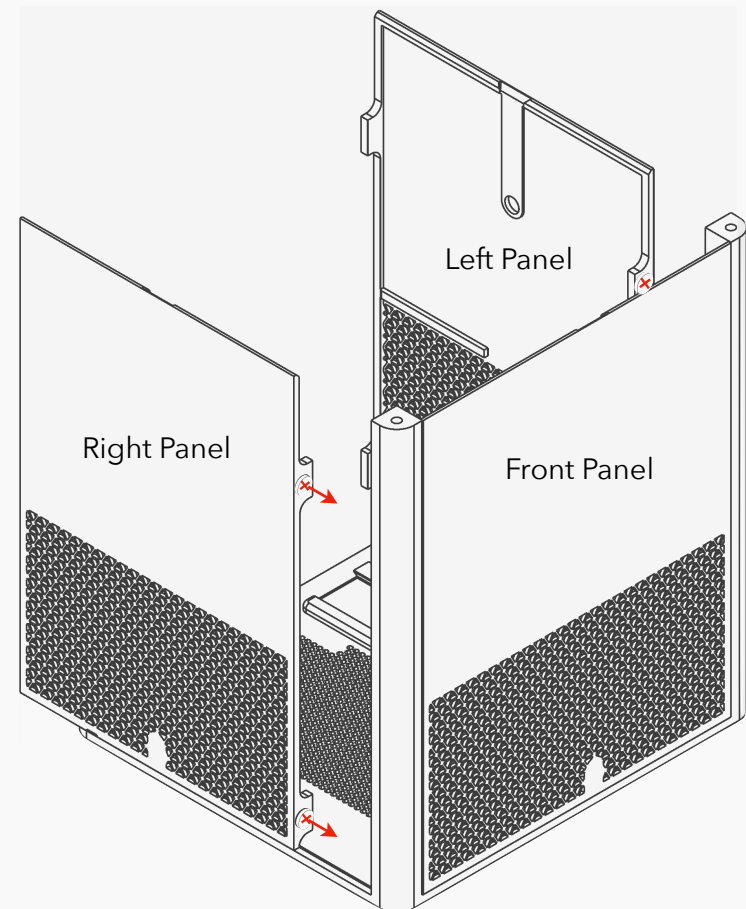
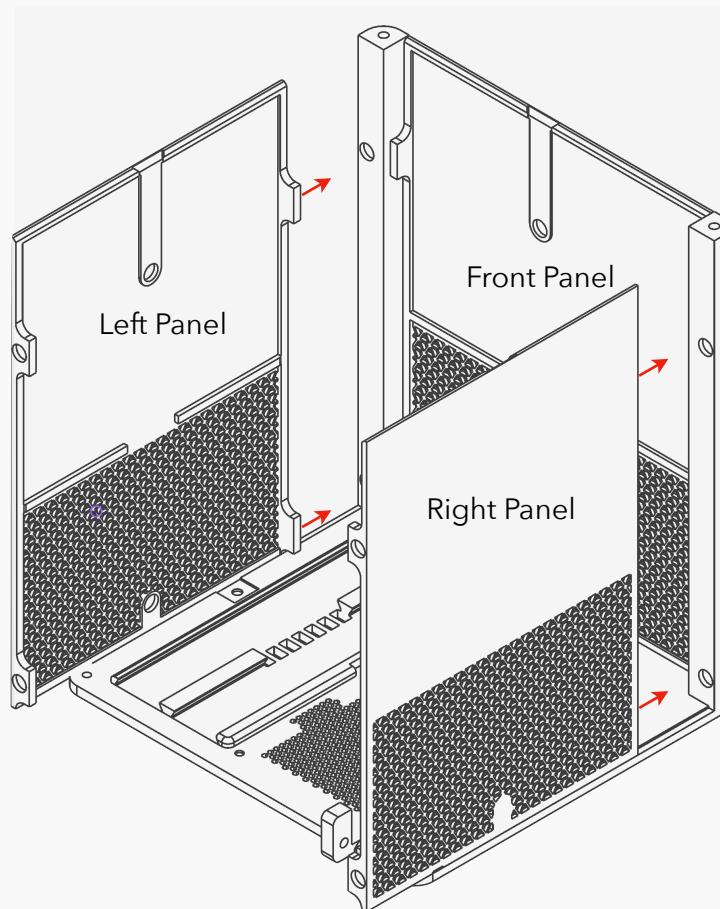
Step 5 - Attaching the Side Panels to the Back Panel

- **Action** : Insert the magnets from the **left** and **right side panels** into the **back panel**.
 - **Right panel** = PSU and motherboard side
 - **Left panel** = HDD/SSD bays side
- **Important note** : Use the **marked magnets** from the side panels and ensure the mark faces **inward** toward the back panel.
- **Warning** : Make sure you don't confuse the left and right panels. Incorrect orientation or magnet polarity will prevent proper alignment.



Step 6 - Inserting Magnets into the Vertical Supports

- **Action** : Repeat the same process as in the previous step. Insert the magnets from the **side panels** (Left, Right and Front panel) into the **vertical supports** already mounted on the Base.
- **Important note** : Ensure that the **polarity is consistent** and that the **marked side (cross)** of the magnets faces **inward**, inside the vertical supports.
- **Warning** : Misaligned polarity or reversed magnets will prevent the panels from attaching correctly later in the assembly.



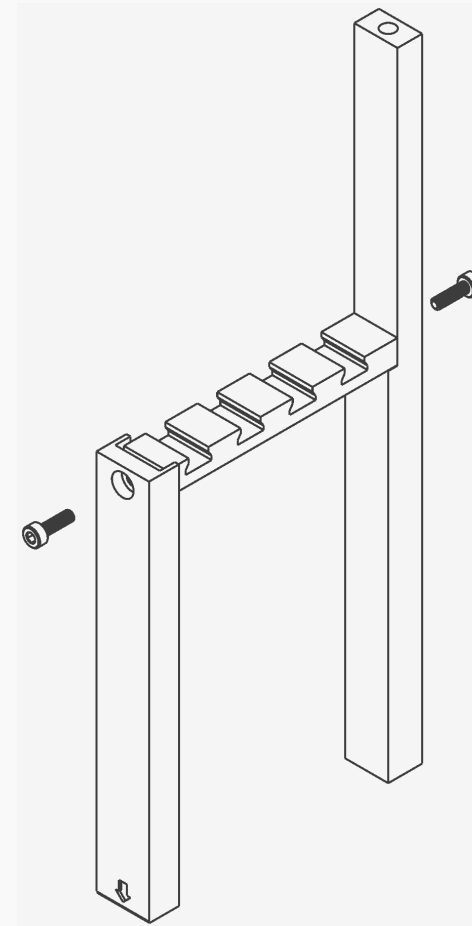
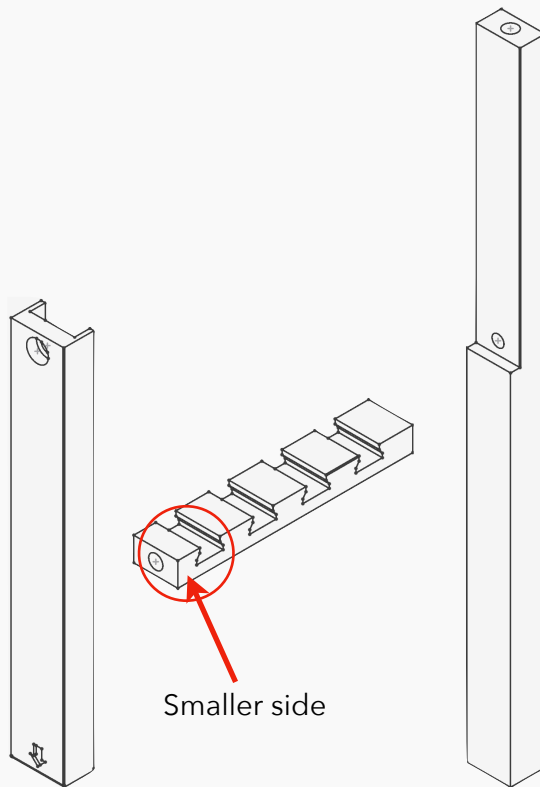
Step 7 - Assembling the SSD Bracket Support

- **Action** : The SSD bracket support consists of **three parts**. Assemble them together using **two M3 × 10 mm screws**.
- **Important note** : Refer to the provided diagram for correct alignment and orientation of the three parts.
- **Warning** : Do not over-tighten the screws – excessive force may damage the printed parts.

Vertical support - SSD brackets



2x M3-10mm



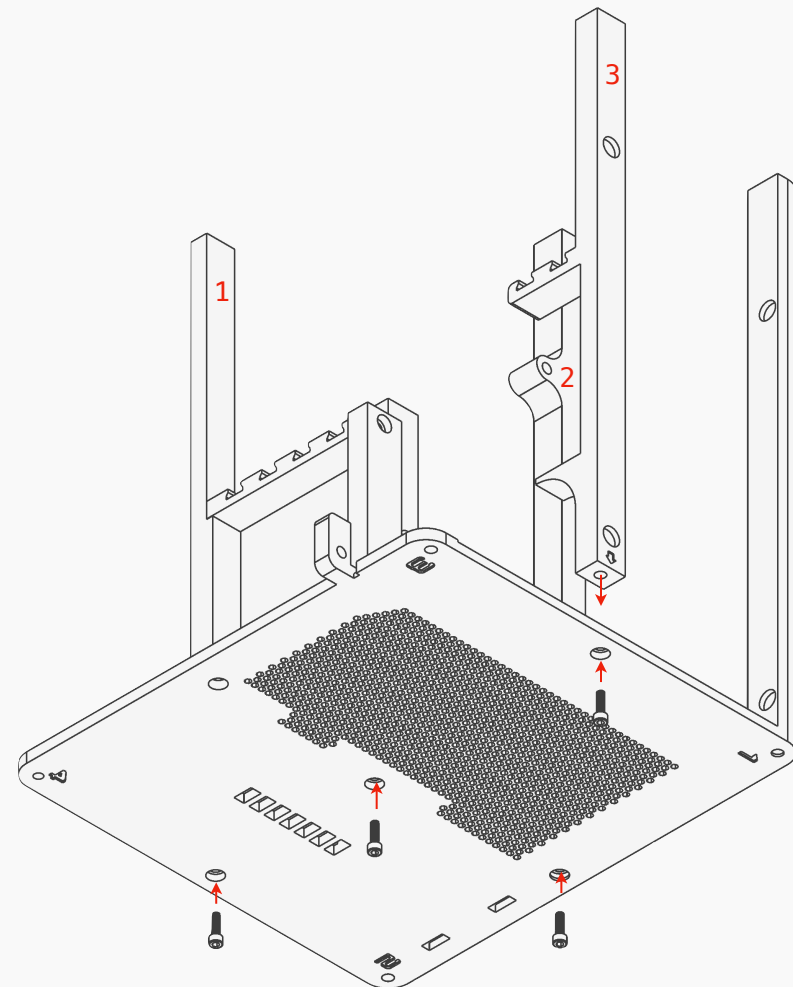
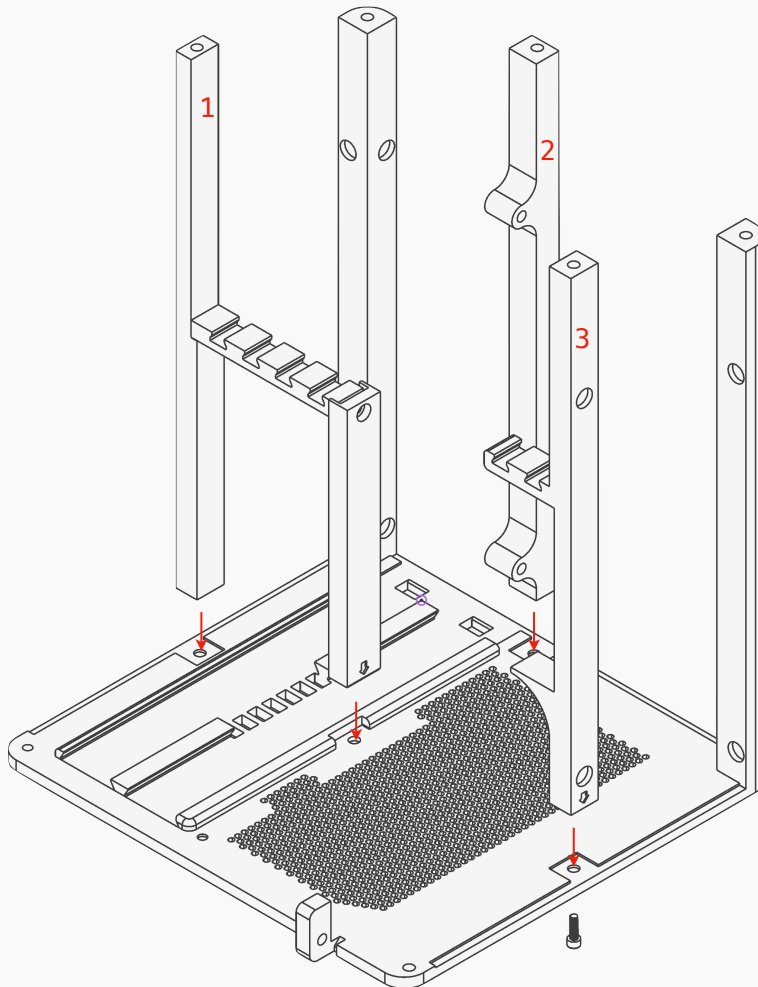
Step 8 - Mounting the Vertical Supports on the Base

- **Action** : Attach the three vertical supports (**SSD support, Flex PSU support, and Motherboard support**) to the **Base** using a total of **4x M3 × 10 mm screws**.
- **Important note** : Each vertical support has an **arrow indicator**. Make sure the arrows are oriented **downward** and pointing to the **outer side** of the case.
- **Warning** : Incorrect orientation of the supports will prevent the correct installation of the brackets and panels later in the assembly.

Vertical supports & Base



4x M3-10mm



Step 9 - Attaching the Back Panel and Feet

- **Action** : Assemble the **Back panel** with the **feet**. Each foot is **numbered** and must be placed in its **corresponding position** under the Base.
- **Important note** : Secure the assembly using **4 x M3 x 14 mm screws** for the feet, and **1 x M3 x 10 mm screw** in the center of the Back panel.
- **Warning** : Make sure each foot is **placed on its correct number**. Incorrect positioning will cause instability of the NAS case.

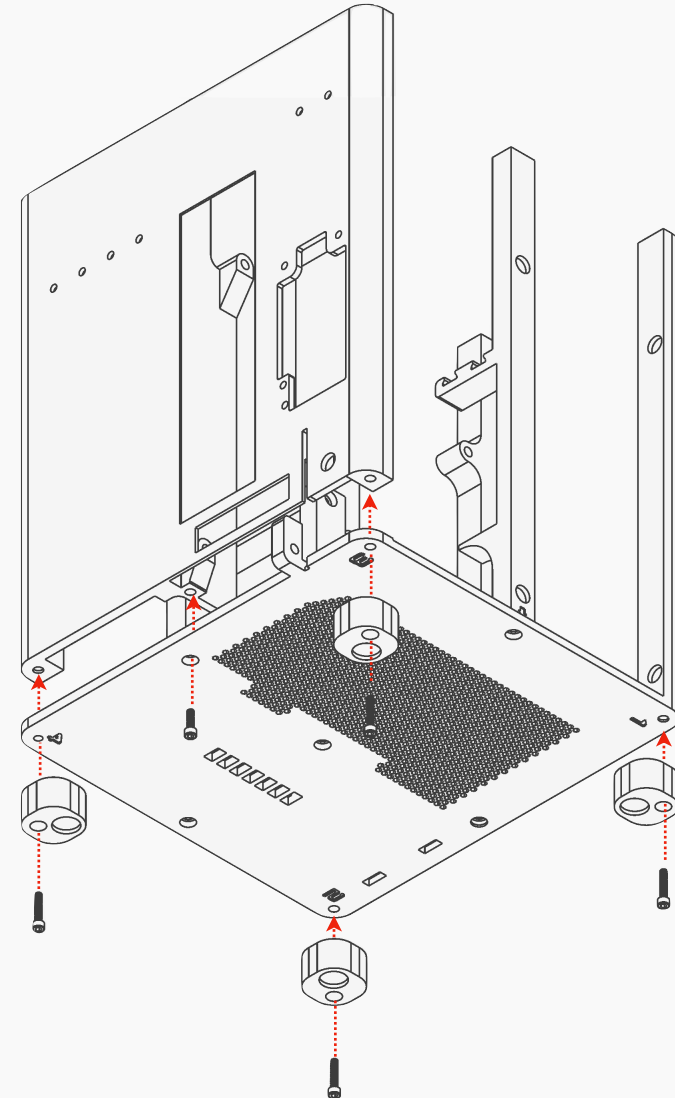
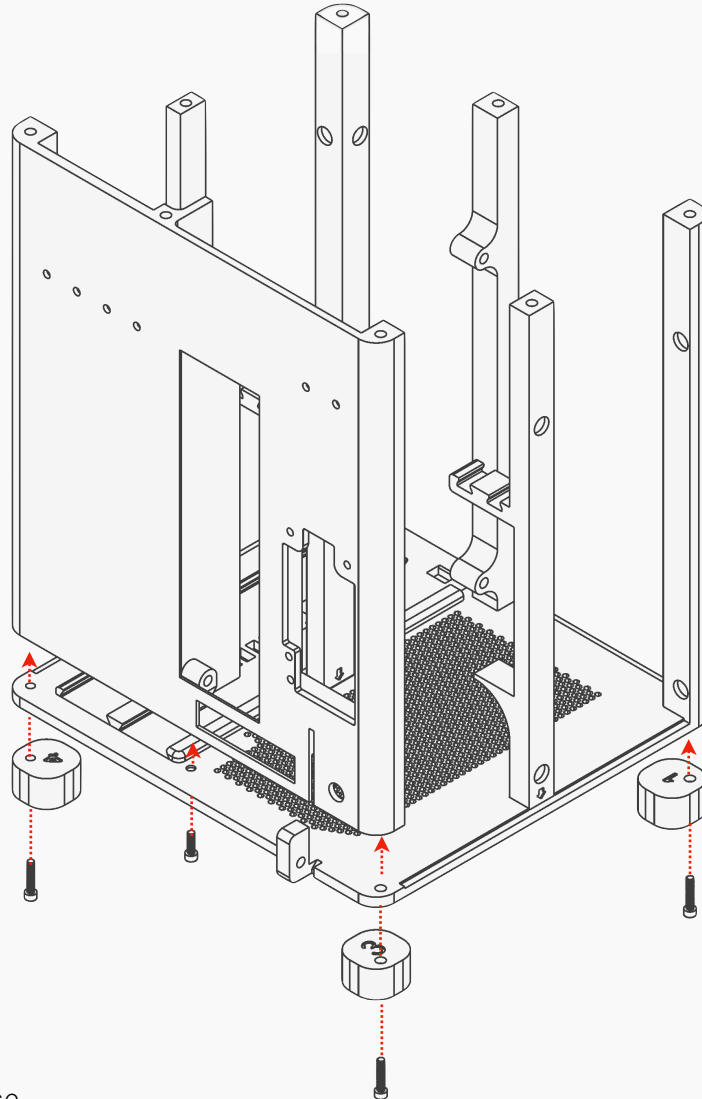
Base & Back & Feet



1x M3-10mm



4x M3-14mm



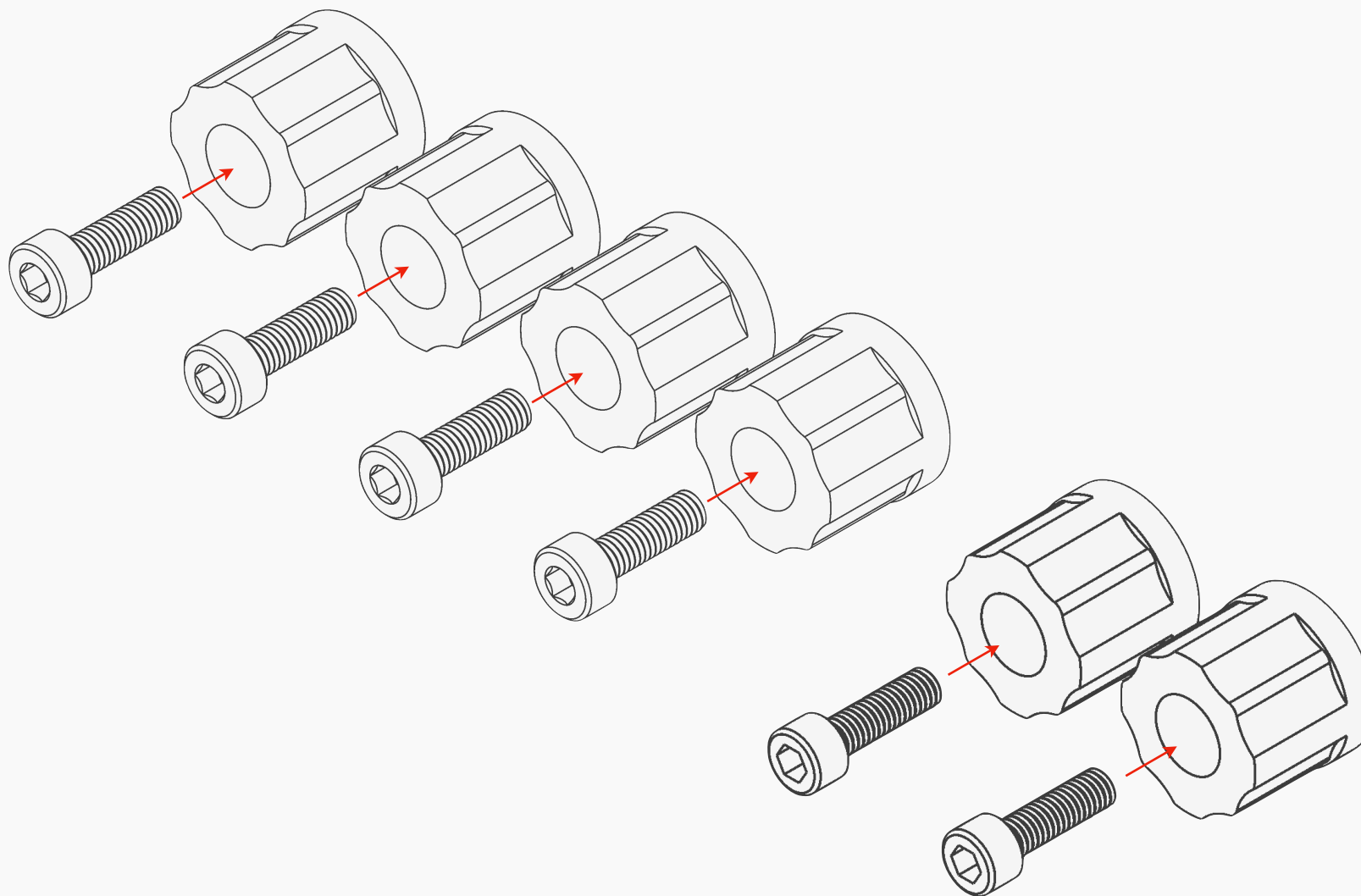
Step 10 - Securing the SSD Brackets

- **Action** : Insert **6 × M3 × 10 mm screws** into the **four screw caps**. These screws hold the **SSD brackets** in place.
- **Note** : The screw caps have a **tight tolerance**, so installing the screws may require some extra care and pressure.

Screw caps



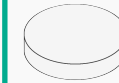
6x M3-10mm



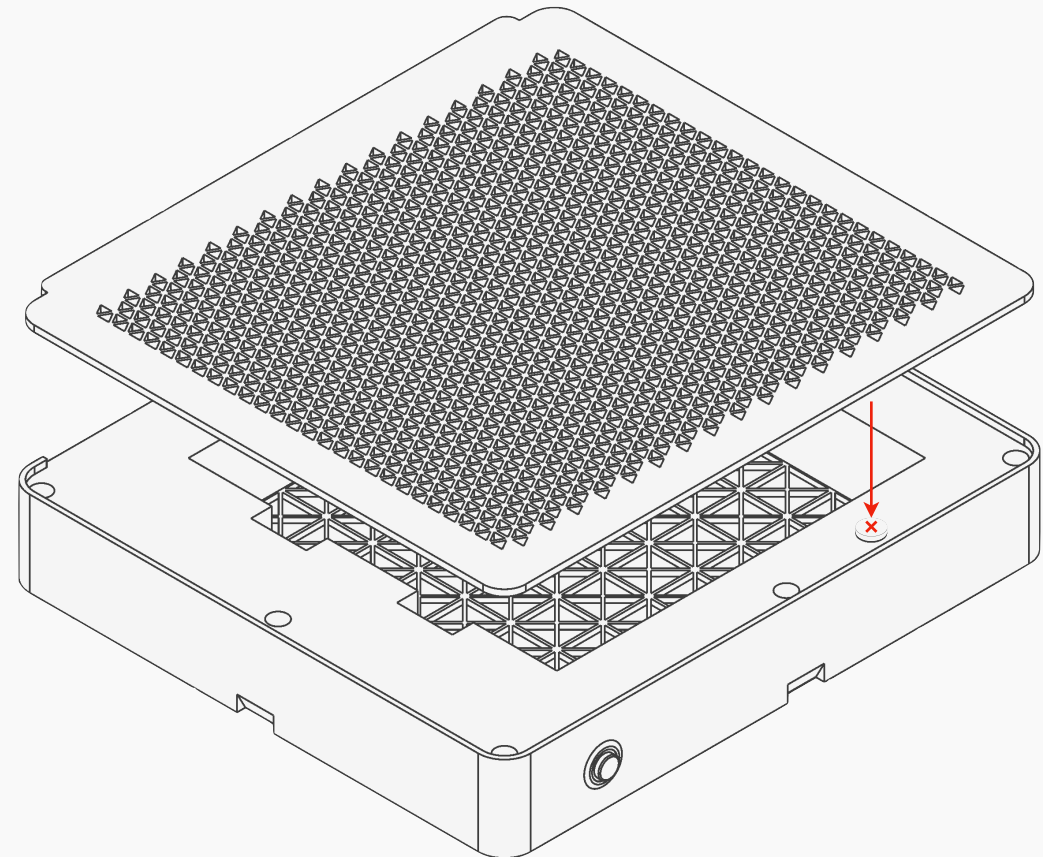
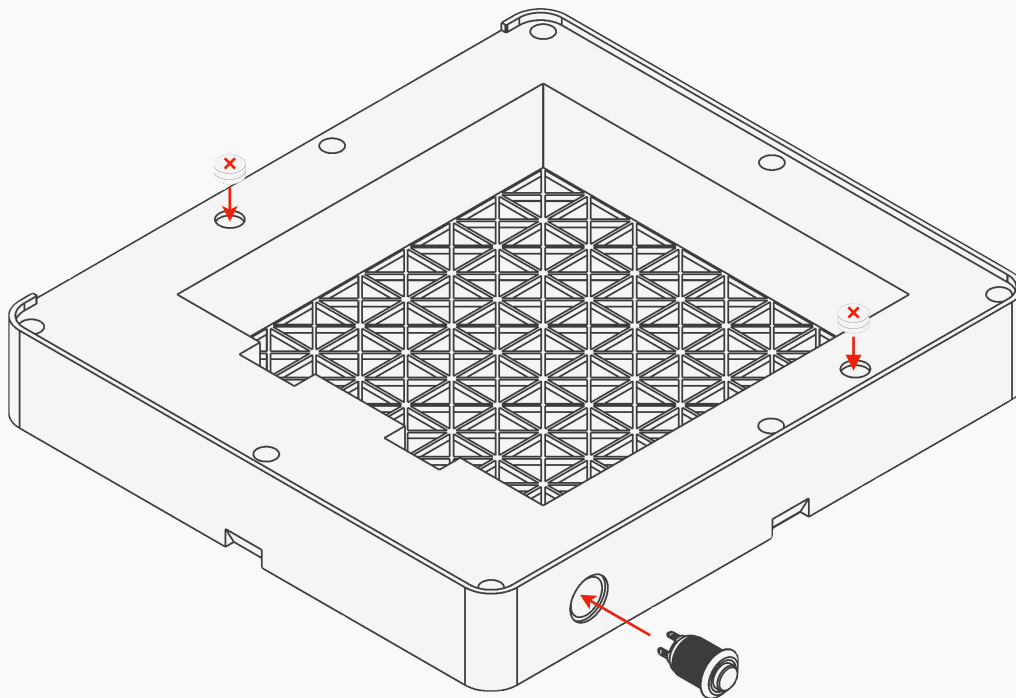
Step 11 - Installing Magnets and Power Button

- **Action :** Install the **remaining magnets** on the **fan module** and the **top cover**.
 - Always check the **polarity**.
 - Place **two magnets per slot** on the **fan module** to ensure the correct orientation for the magnets on the **top cover**.
- **Action :** Install the **power button** on the fan module.
 - First, pass the **cable** through the hole.
 - Then, push the **button** firmly into place.

SIDE PANELS & FRONT PANEL

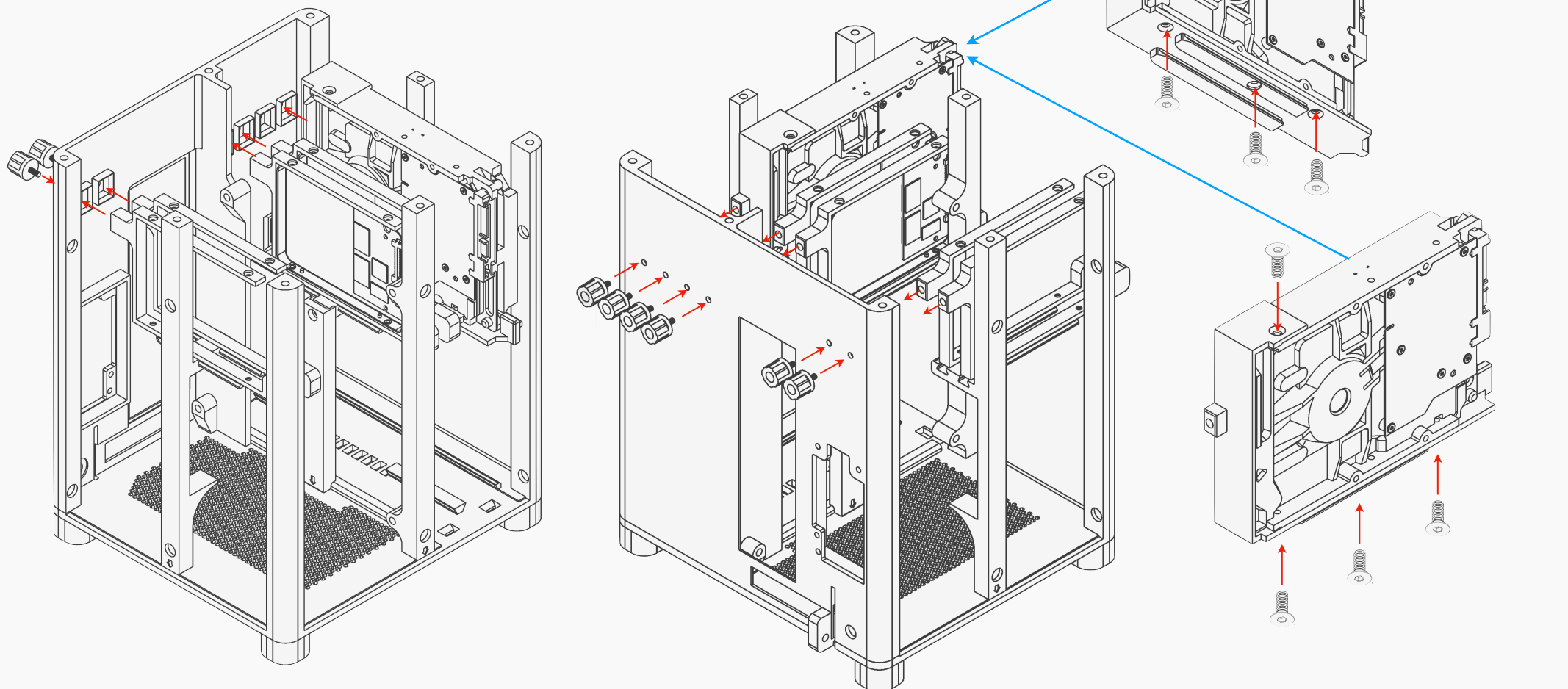


2x Round Magnets 8x2mm



Step 12 - Installing the SSDs or HDDs on Top bay

- **Action** : If SSDs are used, insert them into their **brackets**.
- **Action** : If more than 2 HDDs are used, insert the other in their brackets dedicated to the top bay
- **Action** : Slide the brackets into the **dedicated rails** inside the case.
- **Action** : Secure each bracket by tightening the **rear mounting screws** at the back of the case.



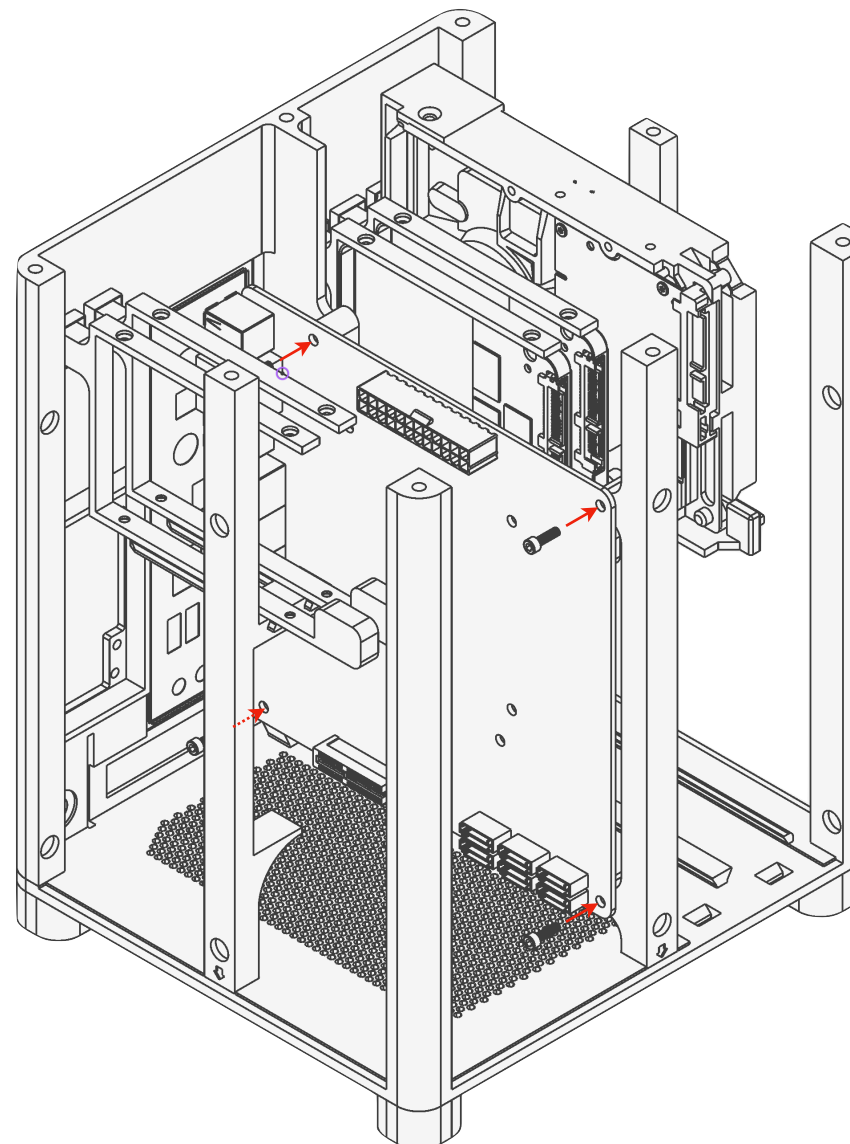
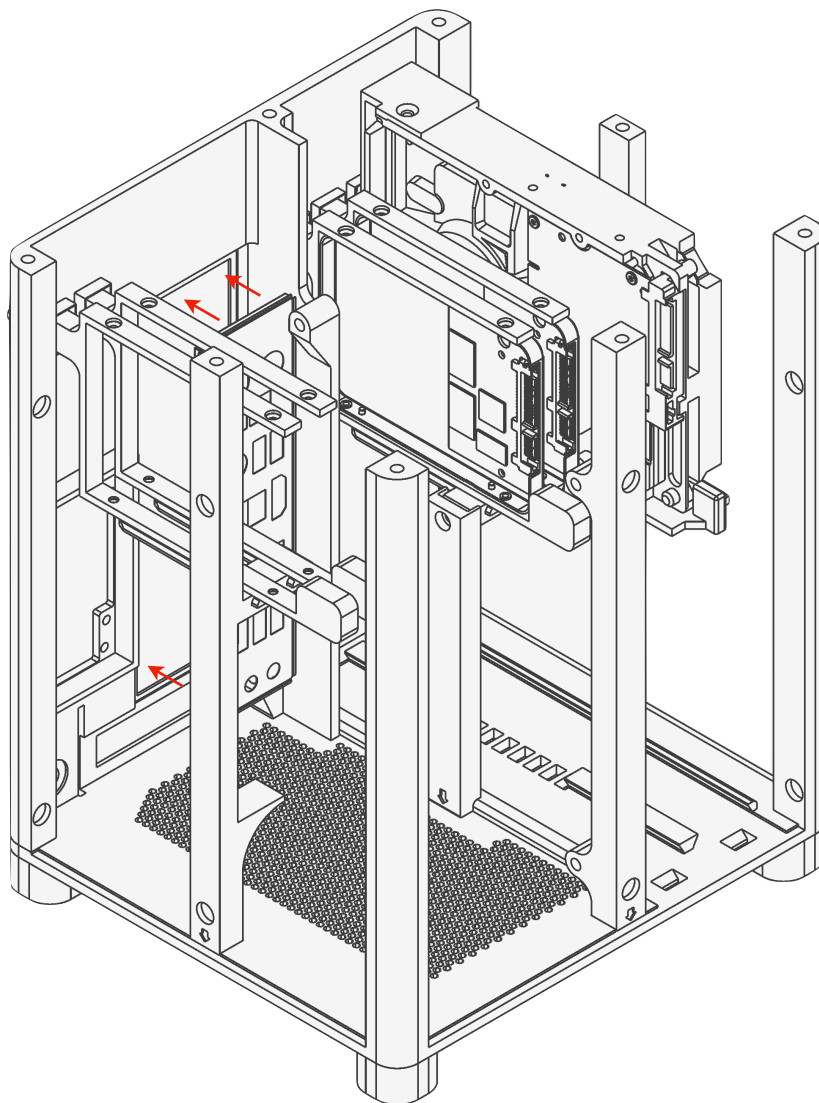
Step 13 - Installing the Motherboard and I/O Shield

- **Action** : Install the **I/O shield** from the inside of the case.
- **Note** : Make sure the orientation is correct before placing the motherboard. The I/O shield is **optional** since the case is plastic, but it provides a cleaner look.
- **Action** : Place the **motherboard** in position and secure it with **4 × M3 × 10 mm screws**.

Motherboard

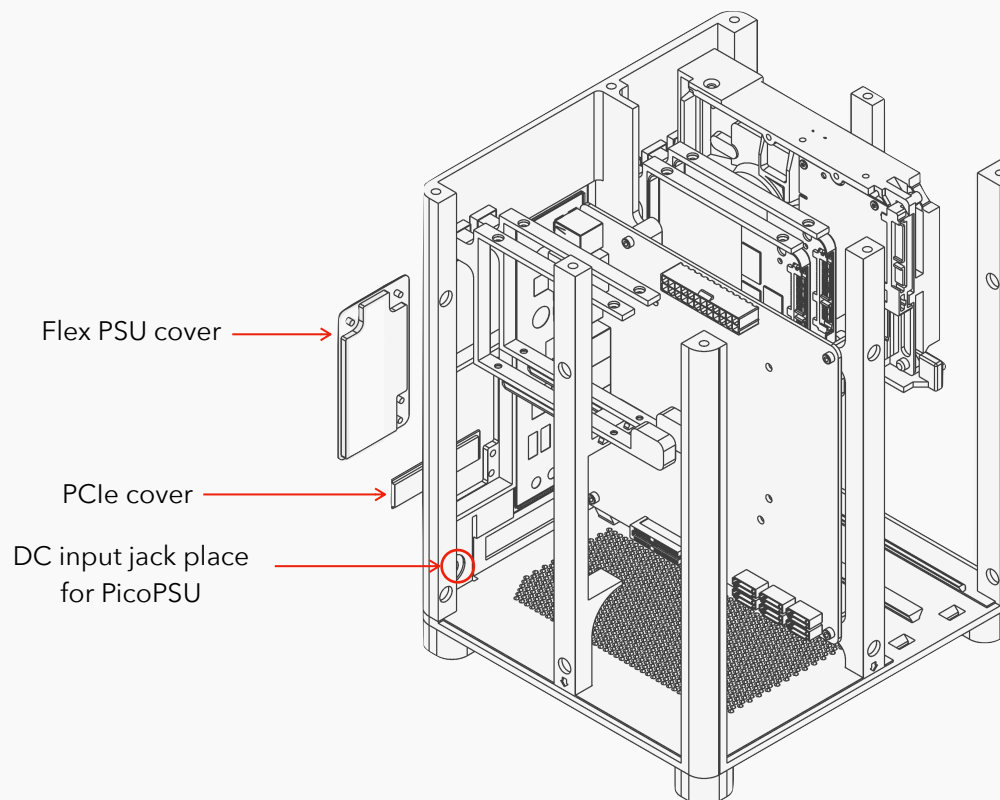


4x M3-10mm



Step 14 - Installing the PSU and SATA Cables

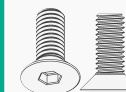
- **Action** : Install the chosen **power supply**:
 - **PicoPSU** → Plug it directly into the motherboard. The DC input jack is located at the bottom; insert it and secure it with screws from the outside.
 - **Flex PSU** → Place it against the **back panel** from the **inside** of the case, then secure it by tightening the screws from the **outside**. The unit also rests on its vertical support.
- **Action** : If no Flex PSU is used, install the **cover plate** provided for the Flex PSU slot. This cover is mounted from the **outside** of the case.
- **Action** : Once the PSU (or cover plate) is in place, connect the **SATA power and data cables** that will link the HDDs to the motherboard and the PSU.
- **Note** :
 - Space is limited, so it is strongly recommended to install the SATA cables **before placing the HDDs**.
 - Use **90° angled SATA connectors** (at least on the HDD side) for easier installation and better cable management.
 - If a **PCIe card** needs to be installed, it is best to do so **before mounting the Flex PSU**. You may need to temporarily remove the Flex PSU vertical support during installation.



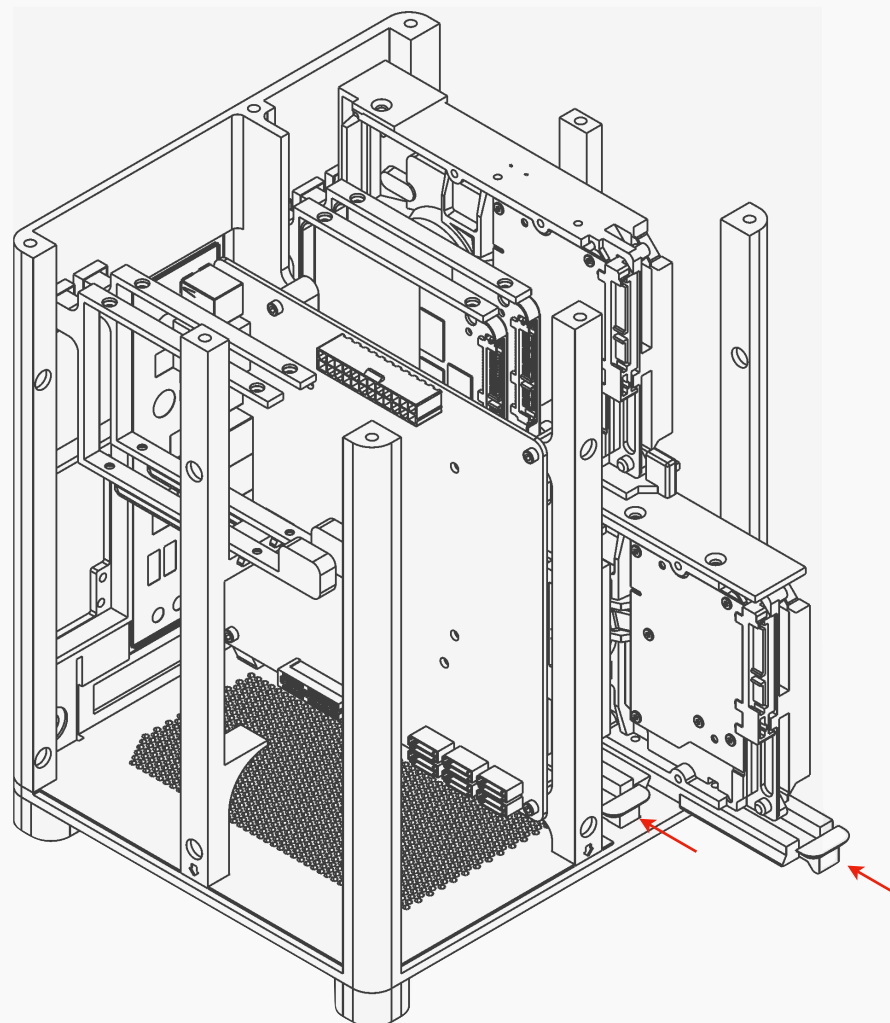
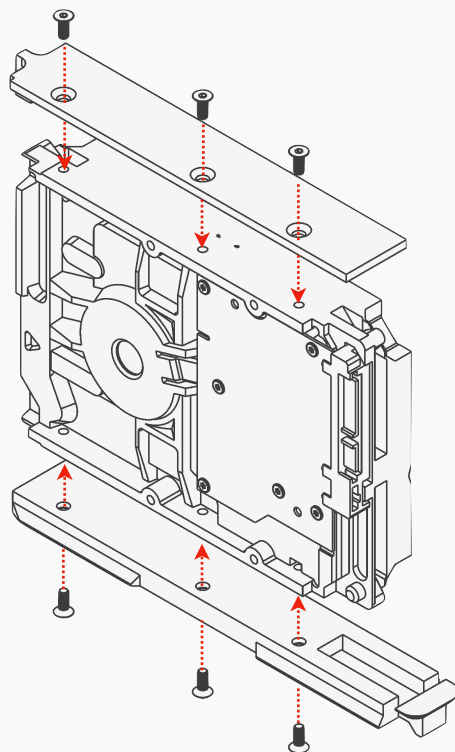
Step 15 - Installing the HDDs

- **Action** : Mount the **HDDs** onto their **brackets**, making sure the **connectors are facing the front** of the NAS.
- **Action** : Slide each bracket into its **dedicated rail** inside the case.
- **Action** : Push the bracket fully to the back until the rail locks in place. The rail is secured when the **front latch tab** snaps into its slot.
- **Note** : To remove a bracket later, gently lift the **latch tab** to unlock the rail and slide the bracket back out.

HDDs brackets



12x 6-32 Phillips Screw
5/16" Flat Head



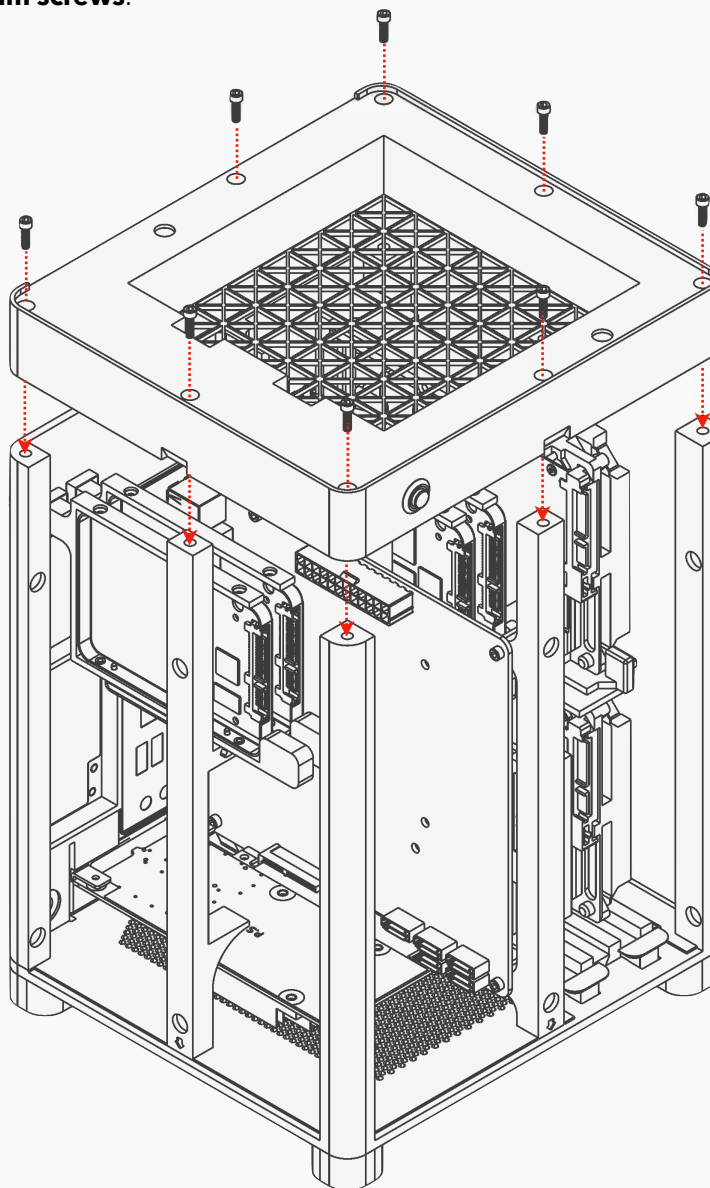
Step 16 - Installing the Fan Module

- **Action** : Place the **Fan module** on top of the case to close it.
- **Action** : Make sure the orientation is correct – the **power button** must face the **front side**.
- **Action** : Secure the module using **8 × M3 × 10 mm screws**.

FAN Module

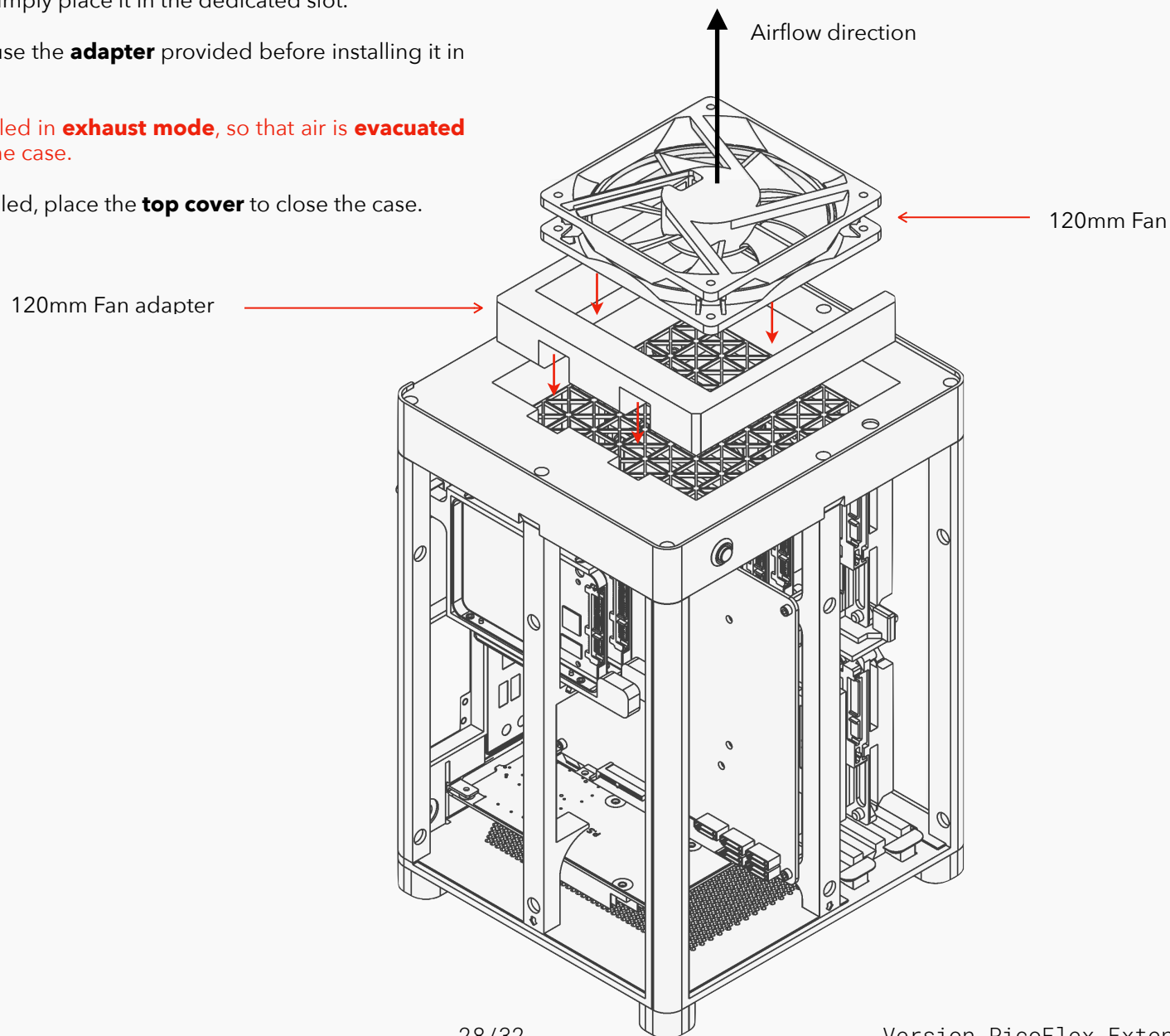


8x M3-10mm



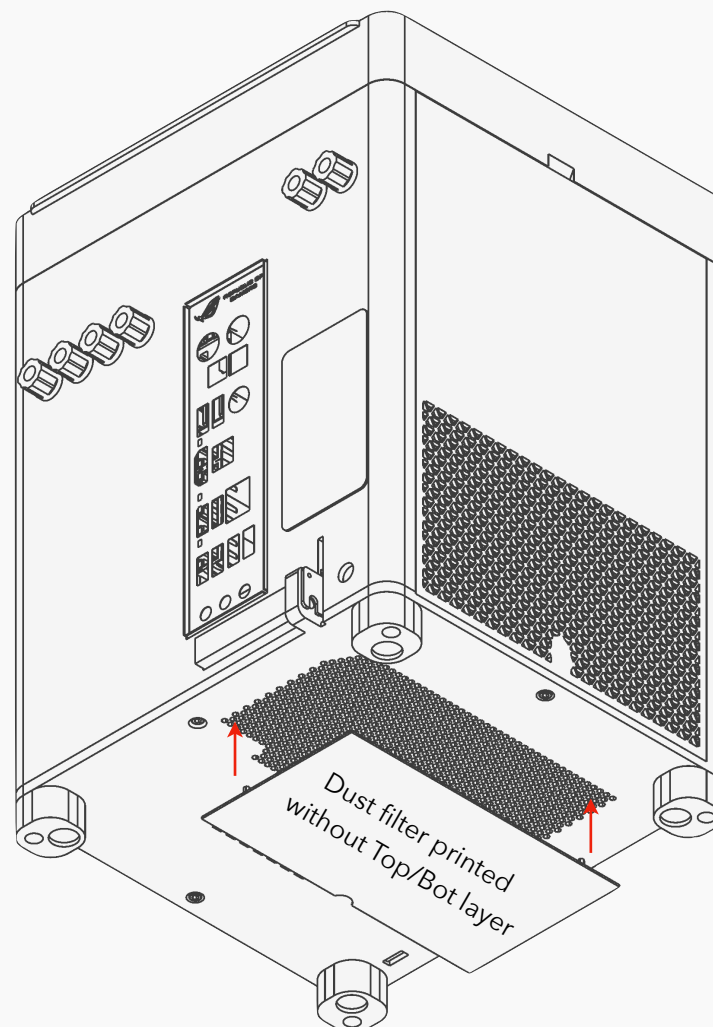
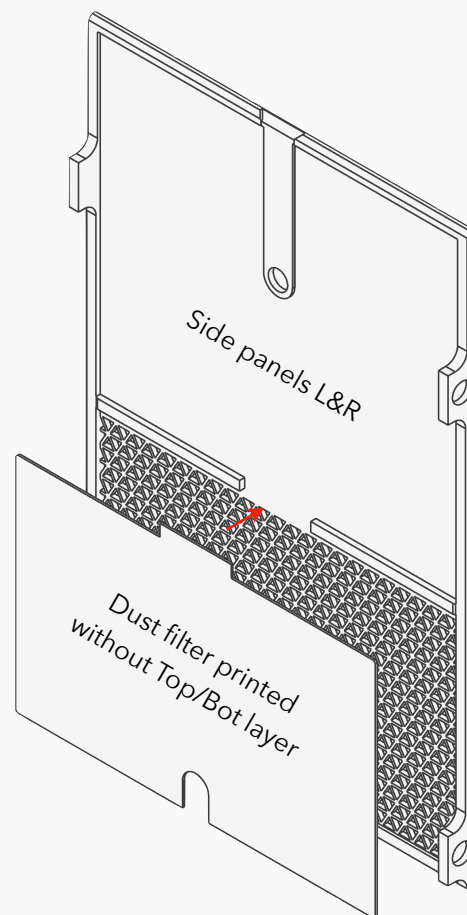
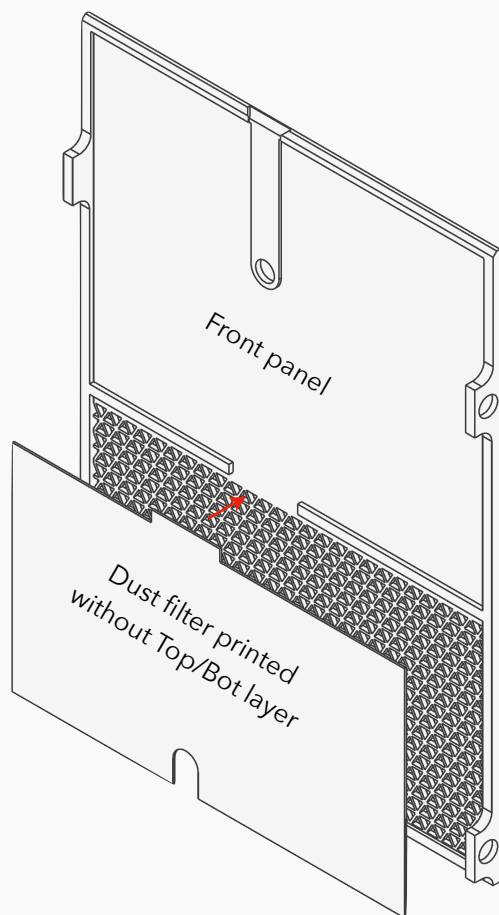
Step 17 - Installing the Cooling Fan

- **Action** : Install a **120 mm or 140 mm fan** in the fan module.
- **Action** : Make sure the **fan cable is routed toward the motherboard side**.
- **Action** : For a **140 mm fan**, simply place it in the dedicated slot.
- **Action** : For a **120 mm fan**, use the **adapter** provided before installing it in the slot.
- **Note** : The fan must be installed in **exhaust mode**, so that air is **evacuated upward** through the top of the case.
- **Action** : Once the fan is installed, place the **top cover** to close the case.



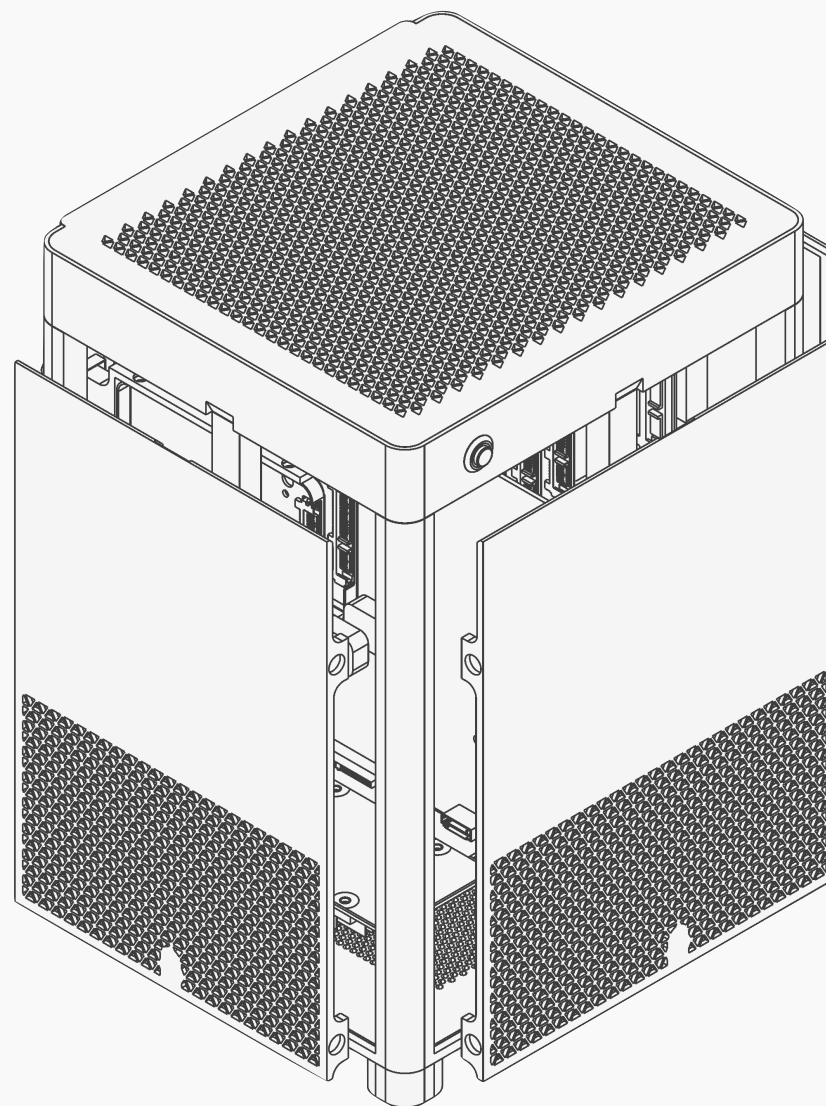
Step 18 - Installing the Dust Filters

- **Action** : Install the **dust filters** on each **side panel**.
- **Action** : Place the additional **dust filter** under the **Base**.
- **Note** : Dust filters are **optional**, but they help reduce dust accumulation inside the NAS.



Step 19 - Installing the Side Panels

- **Action** : Install the **side panels** onto the NAS.
- **Action** : Once installed, check that everything is correctly aligned and securely in place.
- **Note** : If you notice misalignment between the **vertical supports** and the **fan module**, simply loosen the screws between the two parts, adjust the alignment, and then retighten the screws.



8. Final Checklist

Make sure the following points are completed and verified before starting your NAS:

- **All screws** are tightened and all inserts are properly seated.
- **Motherboard** is correctly installed and aligned with the I/O shield (if used).
- **PSU (PicoPSU or Flex PSU)** is firmly secured and the input jack is accessible.
- **SATA data and power cables** are connected to all drives and the motherboard.
- **SSDs** are properly mounted in their brackets and secured in the rails.
- **HDDs** are fully inserted, locked in place, and oriented with connectors facing the front.
- **Fan** is installed in **exhaust mode**, blowing air upward out of the case.
- **Top cover and side panels** are installed and aligned correctly.
- **Dust filters** are installed (if used).
- **Power button** is connected and firmly seated in the fan module.

⚠ Only power on the NAS once everything above has been verified.

9. Where to Go Next

Congratulations – your **3D printed NAS case assembly is now complete!**

This guide has focused on the **hardware assembly only**.

To get your NAS up and running, you will need to install and configure the software of your choice.

Here are some useful resources to help you with the next steps:

- **Unraid** → [Official documentation](#) and community guides on YouTube.
- **TrueNAS** → [Official website](#) with detailed setup tutorials.
- **OpenMediaVault** → [Project page](#) for Debian-based NAS setup.
- **DIY NAS Communities** → Reddit (/r/homelab, /r/DataHoarder) and Discord groups for tips and real-world builds.

Depending on your hardware, you may want to explore:

- RAID configuration (redundancy vs storage efficiency)
- Cache drive setup (using NVMe for faster performance)
- Docker containers and virtualization for extended use cases

Thank You

Thank you for following this guide and building your own **3D printed NAS case!**
I hope this project helps you enjoy a reliable and customized storage solution.

If you have feedback or suggestions, feel free to reach out – every contribution helps improve the project.

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