ASSEMBLY MANUAL



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TOOLS

ALLEN KEYS

The most important tool for the assembly of the enclosure. The allen keys will be used in almost every step , and the ones provided in the kit are color coded according to their size. In each step the color of the allen key needed will be mentioned.



NOTE:

You will see these hexagons on each slide to let you know which allen key is needed for the step



TOOLS

SCREWDRIVERS

Used in many occasions on the assembly, but very helpful for inserting the self tapping screws into plastic and tightening some electrical connectors

FASTENERS



BUTTON HEAD CAP SCREW (BHCS)

Metric fastener with domed shape head. Uses an hex drive (allen key), and common throughout the build. Both M3 and M4 variants will be used throughout this guide.



SELF TAPPING SCREW

Metric fastener with domed shape head that screws directly into plastic. Uses a philips drive (screwdriver)



FLAT HEAD COUNTERSUNK SCREW (FHCS)

Metric fastener with cone shape head at 90°. Uses an hex drive (allen key), and common throughout the build. Both M3 and M4 variants will be used throughout this guide.



SHOULDER SCREW

Metric fastener with cylindrical shaped head and precision ground section. Uses an hex drive (allen key). Common in motion components.

FASTENERS



PNEUMATIC FITTING PC4 M6*1

Fitting for the ptfe tube that brings filament to the hotend / extruder.



HAMMER HEAD NUT

Metric nut that can be installed in the slot of an aluminium profile. Will be used mainly for mounting accessories.



HEX NUT

Hex nuts couple with bolts to create a tight, secure joint. Both M3 and M4 variants will be used throughout this guide.



T SLOT NUT (T-NUT)

Nut that can be inserted into the slot of an aluminium profile. Used in both M3 and M5 variants throughout this guide

FASTENERS



CIRCULAR 12mm MAGNET

This magnet is used to secure most of the magnetic connections of the acrylic panels.



RECTANGULAR 40mm MAGNET

This magnet is used to secure the top panel of the enclosure.

T-NUTS





Thread - This side up



Spring Loaded Ball

Slide in the T-Nut into the groove of the extrusion. You will feel some resistance since the ball on the bottom is spring loaded to keep the T-Nut in place.

T-NUTS



Another way to insert t nuts is by turning them into the extrusions and pushing them down. To make sure that they are properly inserted try to slide them around, there should be some resistance



INTRODUCTION

BLIND JOINTS



Blind joints are an assembly method where the BHCS head (screw head) slides into one extrusion channel and is tightened through a small access hole. Watch the <u>linked guide</u> or scan the QR code if you're new to this process.





TIPS & TRICKS

It's highly recommended to assemble the enclosure on a level surface like a stone countertop, ceramic tile, etc... This ensures that the frame is square and sturdy. The minimum size of this surface is 60x60cm (24x24inches)

Anyway remember that all of the parts should fit together nicely. If you are having difficulty DON'T use brute force. Just go back in the manual and check the recommended pages for that step. If you are still facing issues after contact us on our site or on discord. We try to reply within 24h.

The assembly will teach you a lot on how the enclosure works giving you the knowledge necessary to fix it, improve it and develop new ideas.

ONE LAST THING!

If there are text boxes on the slide, READ THEM. These usually give very useful information that is essential for a smooth assembly!

With that out of the way Enjoy the assembly! Page intentionally left blank Divider between sections



COMPONENTS

This is the list of materials needed in the assembly for this section. Note the position of the holes on each extrusion, it's important to align them correctly during the installation



24 - M5x16 BHCS

B Extrusion C Extrusion þ þ þ \square

D Extrusion

6 6

0

PREP WORK

As a first step we have to prep the extrusion for the blind joints by inserting fasteners on each end. You can use the 3d printed jig to leave the correct amount of space between the screw and the extrusion. It should be around 2.5mm (a bit less than the width of your allen key)

Insert the screws in both ends of extrusions: A and C. In extrusions D insert the screws just on the side with the hole that is farther away.



22 - M5x16 BHCS

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Slide the alignment jig into place as shown. Move the extrusion until it touches the jig, then lightly tighten it with an Allen key. Repeat for the other side. Double-check the extrusion position with the jig before fully tightening.



After placing the plugs access assembly onto the extrusion tighten it with an allen key. The bottom of the plugs access should be flush with the extrusion



Note the position of the t-nut This is the only direction that will fit in the extrusion. Remember to only slightly tighten it before inserting it into the extrusion

After placing the plugs access assembly onto the extrusion tighten it with an allen key. The bottom of the plugs access should be flush with the extrusion

Note the position of the t-nut This is the only direction that will 0 fit in the extrusion. Remember to only slightly tighten it before inserting it into the extrusion

Repeat the same steps as the last slide.



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MAIN ASSEMBLY OVERVIEW

NOTE:

For the most precise and effortless assembly, perform the following steps on a level surface, such as a glass dining table, granite countertop, or ceramic tiles. If a level surface isn't available, don't worry—you'll just need to take extra care to ensure everything is properly squared.





Place on a flat surface one A extrusion and one c MAIN ASSEMBLY extrusion as shown. Pay attention to the direction of the A extrusion, the hole should be on the opposite side of where you will place the B extrusion. Then place the B extrusion on top making sure that the two bolt heads slide into the channel of the extrusion. Finally tighten both bolts. (\mathbb{D})

Now place another extrusion A, this time on the opposite side, remember to check the direction carefully! After as before place extrusion B on top and tighten the bolts.



Now get the back assembly that we have made before, and slide it into the two A extrusions. The Plugs access should be flush with the ends of the A extrusions.



Now move the all assembly on the edge of a table, and tighten the bolt that you can see from the right picture. Repeat this step for the other side. (don't completely tighten them as we will need a bit of movement later for aligning the panels)





Place a C extrusion as shown in the picture. Then lower a B extrusion on top and tighten the bolts on each side



Lower one B extrusion on top and tighten the bolts on each side.





Tighten the highlighted M3x8 screw on both sides of the enclosure. (one for each of the plugs access). To facilitate the process push the back assembly toward the back of the enclosure, so that the plug access piece is fully touching the B extrusion



Lower one C extrusion on top and tighten the bolts on each side. Make sure that it's flush and straight.


MAIN ASSEMBLY



Lower one C extrusion on top and tighten the bolts on each side. Make sure that it's flush and straight.



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BACK PANEL OVERVIEW



NOTE:

Take a moment now to peel off the protective plastic film that is placed on both sides of the acrylic panel used in this step as it will be difficult to do so later.

COMPONENTS



COMPONENTS



Every extrusion guide segment should already have the M3x10 screws and t nuts installed.

















Now you have to install the same acrylic guides on the other side. This time the order will be opposite, so Segment a goes on the bottom, and Segment B goes on the top



Take a moment to check that your back panel looks just like this one. On the back of the panel there should be 6 T-Nuts. (Two on each sides, two on the top)



Take a moment to check that your back panel looks just like this one. It's very important that on the back of the panel there are 6 T-Nuts. (Two on each sides, two on the top)



When pushing the panel against the aluminum extrusions, make sure that the T-nuts are facing in the right direction. (Parallel to the grooves in the extrusion)











NOTE:

Repeat this step for the other identical part also.





Repeat this step for the other identical part also.







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BACK PANEL ACCESSORIES

This step is where you assemble what you want to have on your enclosure. In the manual i will cover all of the possible accessories for now, but if there is something that you don't want to install you can just print the corresponding hole cover.



THE ACCESSORIES to be installed







2 - Air quality filters



1 - Sensor box



1 - Power cable passthrough















FILTERS





FILTERS



Insert the filter into the

FILTERS

Get an M5x16 BHCS bolt and insert it into the hole shown. Then tighten onto the bolt an M5 t nut.








Take a moment to align the filter assembly as shown. The fan should be approximately in the middle of the opening as shown. This is very important for the next step!





Take a moment to apply the insulation foam on the fan grill. This will help with sealing the connection.













CABLE PASSTHROUGH



Insert the cable access plug in the hole. It might be a bit tight since it should be a pressure fit



CABLE PASSTHROUGH



Insert the two M3x8 self tapping screws and tighten them on both sides. This is to make sure that the hole cover does not move



CABLE PASSTHROUGH









BED CABLE CHANNEL



Place the bed cable channel where it's shown. Consider that it's not fixed in place yet, so you have to hold it with one hand



BED CABLE CHANNEL

Now place the front part of the cable channel. This should lock in place the other part. Freeing up your hand for the next step



BED CABLE CHANNEL



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Now we are starting to see the enclosure taking shape... In this step the most important thing is taking things slowly and aligning things right.











3 - M5x16 BHCS



2 - M3x10 BHCS



2 - M5 T-Nuts



2 - M3 T-nuts





2 - 15mm Circular magnets



A Roll of 10x1.5mm foam



2 - M3x8 Self tapping screw









Now screw in place the front part to the back part with three M3x8 self tapping screws







Now screw in place the front part to the back part with three M3x8 self tapping screws



Do the same steps onto the second handle. In the end you should have 2 handles that look like this







Remove the double sided tape cover from the metal plate that will eventually hold the dust filter







You can attach the dust filter covers now. They are magnetic, so you can just bring them close to the metal bracket and they should snap into place. (make sure to align them though)







If the panels don't fit try to move slightly the back extrusion assembly. (We did not fully tighten it before for a reason.) If by mistake you fully tightened it, just unscrew a bit the two bolts that are under the bottom extrusions). If the panels are too loose don't worry, we will fix this later.







Repeat the same steps as before but with the remaining A extrusion, the handle and the M5x16 bolt. Remember that this time you should mirror what we did before, so just install the handle on the opposite side of the extrusion as shown. In the end you should have two extrusions that look just like these



In this step pay attention to 3 things:

- Make sure on both ends of the extrusion the M5x16 Bolt enters into the slot of the extrusion
- Make sure the M5x16 bolt that is underneath the A extrusion enters into the threads of the vertical extrusion as shown. (You should tighten this bolt with an allen key until the two extrusions are flush)
- Make sure that the side panel enters into the extrusion guide as shown

After having checked and done these things you just need to tighten the M5x16 bolts on each end of the extrusion.



Tighten the M3x8 bolts so that the magnetic side panel attachment point is fixed in place.







Repeat the previous step for

Now that everything for the side panels is assembled I would recommend to try and move the back assembly towards the front of the enclosure to make the panels have a tighter fit. Screw in the back assembly with the 4 screws (2 top , 2 bottom) as you go along.




SIDE PANELS



Now also tighten fully these 4 screws.

FRONT PANELS











3 - M5x16 BHCS



2 - M3x10 BHCS



2 - M5 T-Nuts



2 - M3 T-nuts





2 - 15mm Circular magnets

1 - 10x40mm Magnet



15- M3x8 Self tapping screw

TOP PANEL



ELECTRONICS



STARTUP

