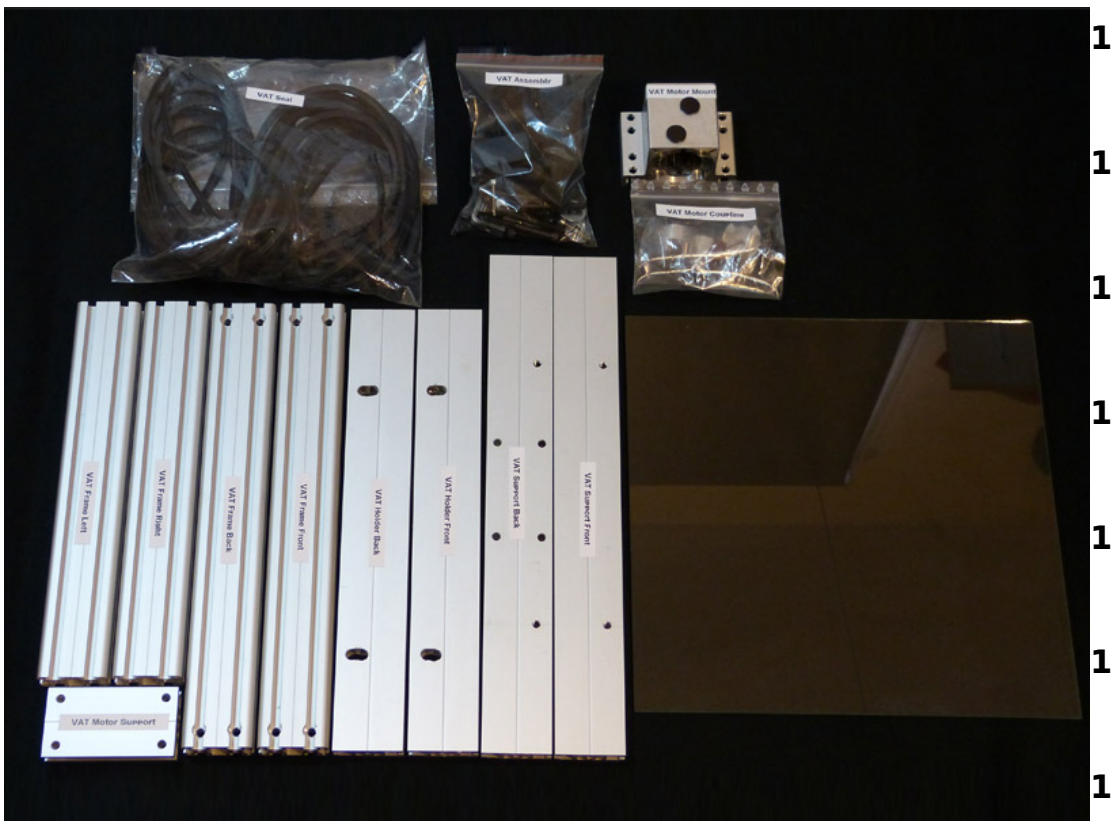
3 - VAT Assembly

The VAT is an important part of the Ilios Kit and it is what shall contain your build material and comes in contact with your model. Please use caution when handling the 3mm glass, included in the kit, since although glass may be hard, it can also brake when force is applied in the wrong places. The glass has already been sanded so you don't cut yourself, but still make sure to wear some protection while handling it. Note that the VAT may come already assembled in the box. If this is the case, it is still recommended to go through these steps, since the VAT may be only partially assembled and may still need few parts to be complete.

Step 1



1 x VAT Frame Front

1 x VAT Frame Right

1 x VAT Frame Left

1 x VAT Frame Back

1 x VAT Holder Back

1 x VAT Holder Front

1 x VAT Support Front

1 x VAT Support Back

1 x VAT Motor Support

1 x Glass Rubber Seal

1 x 31x31cm Clear Glass

1 x Nema 23 Motor Mount

1 x Motor Coupling Bag

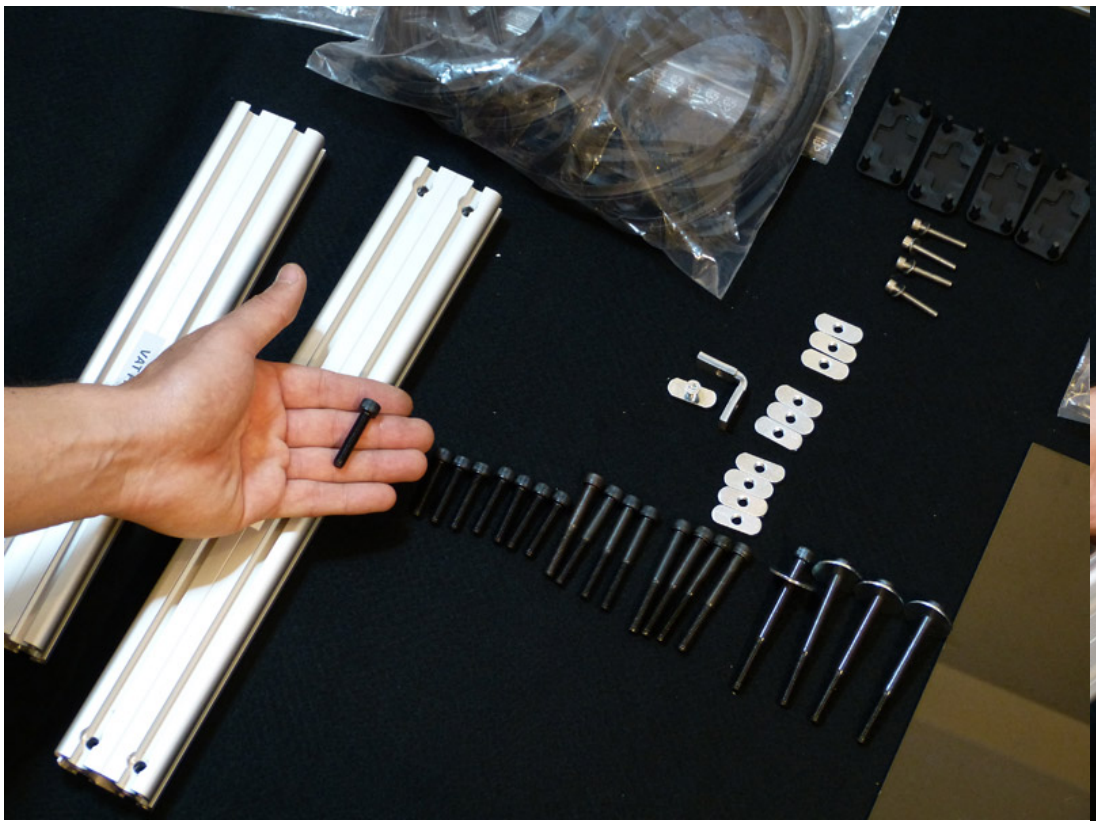
1 x Nuts & Bolts Bag

Make sure you have all parts listed here, before you proceed with this assembly. Would be frustrating to find out you are missing a screw or a bolt in the very last minute just because it rolled over your table :)

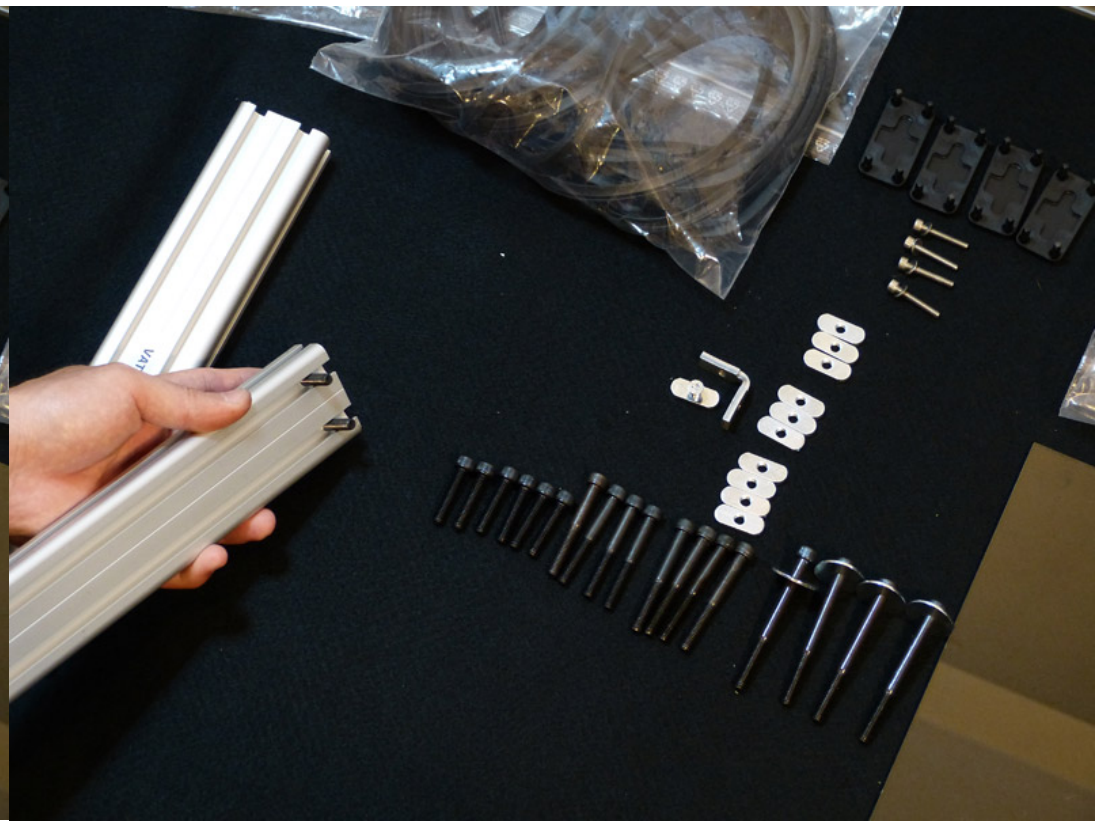
Step 2

Phoca PDF

3 - VAT Assembly

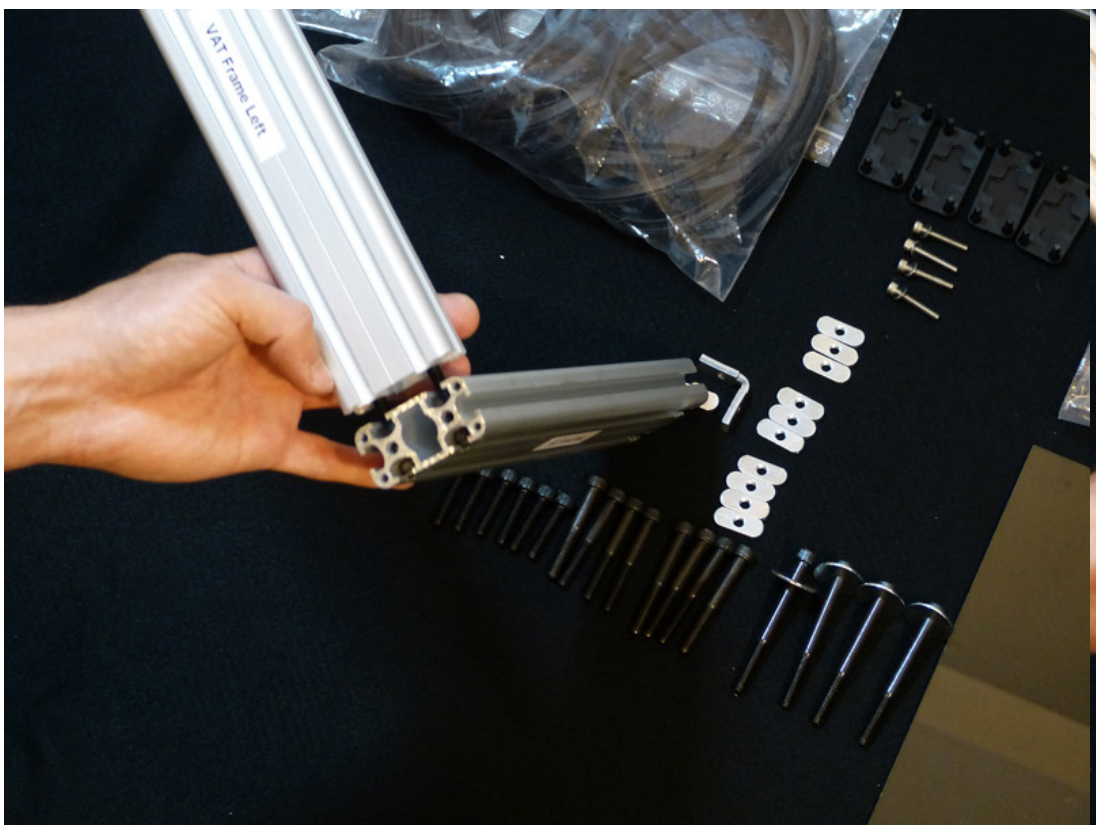


Lay out all the bolts and other items in the bag in front of you. There are many items, so it shall be much easier to select what you need. We begin with the smallest bolts, which shall be connecting the sides of our VAT.

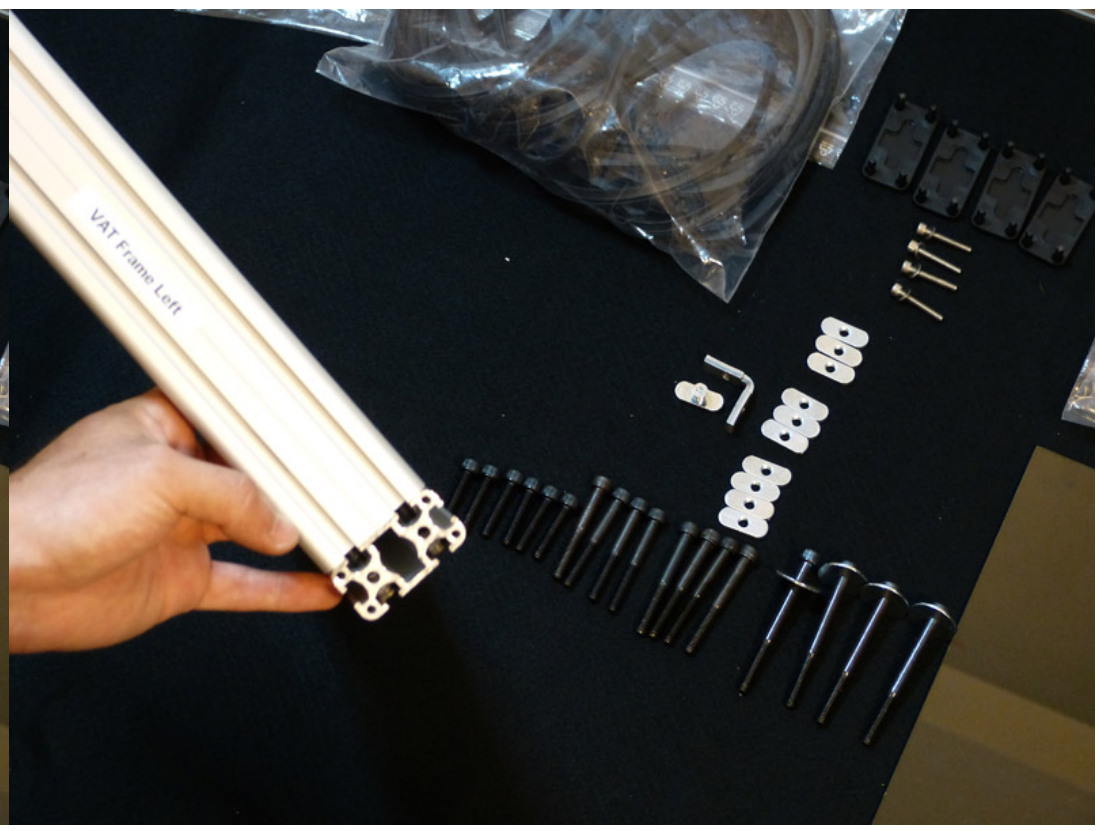


Pull the bolts through the holes of the VAT side parts like shown on the image.

Step 3



Join the VAT Frame Left and Front parts. Front or back doesn't matter at this point. any variation should have the same result.

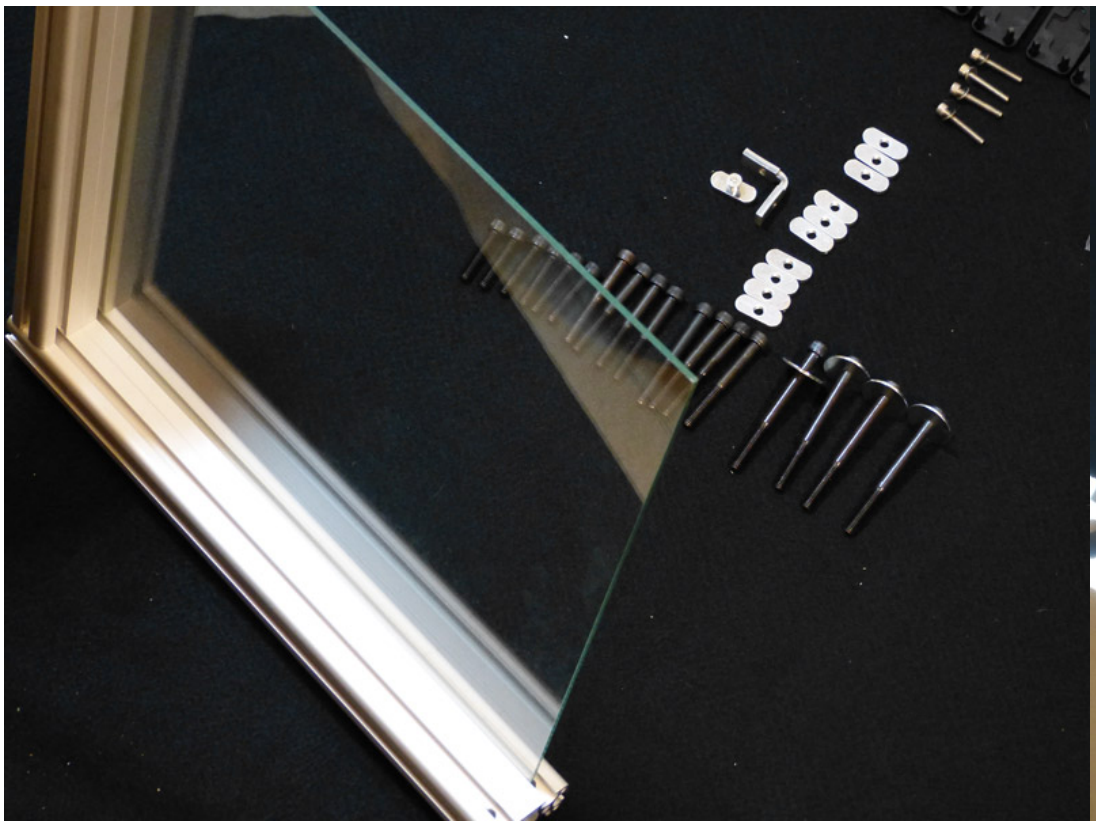


Make sure the bolts go all the way through, as shown in the picture. Tighten the bolts so that the two parts are firmly held together.

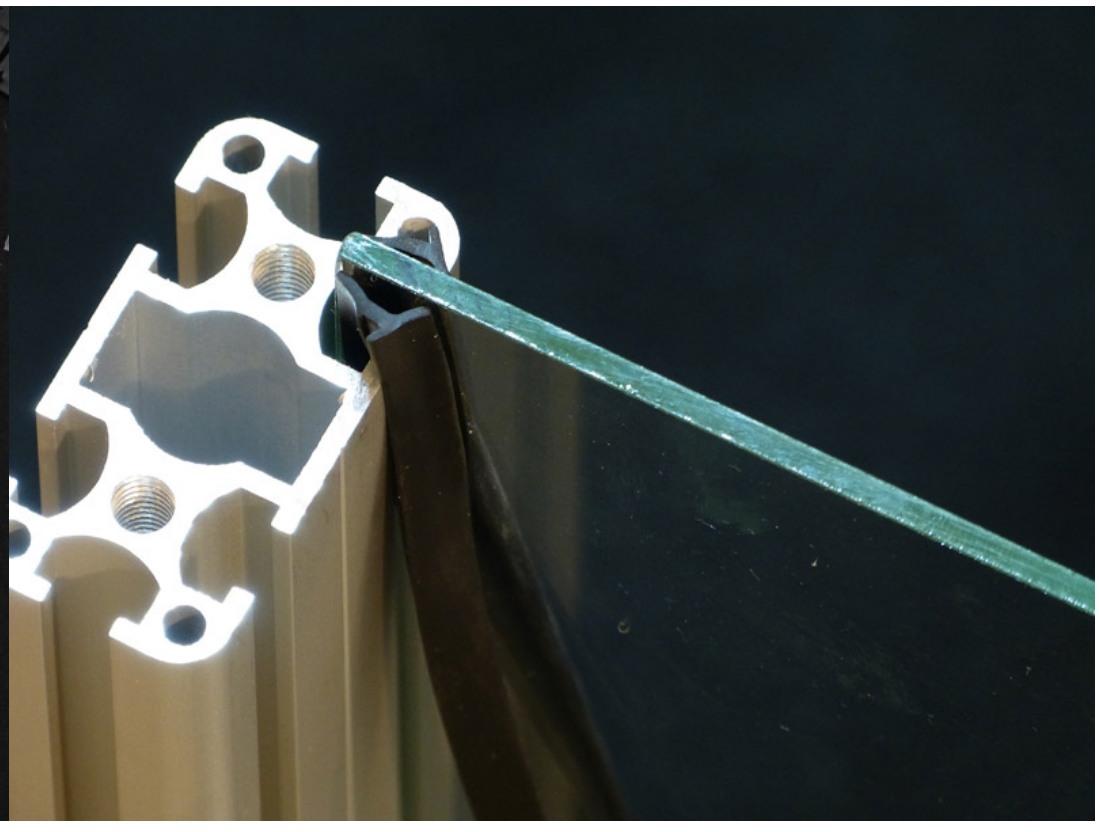
Step 4

Phoca PDF

3 - VAT Assembly

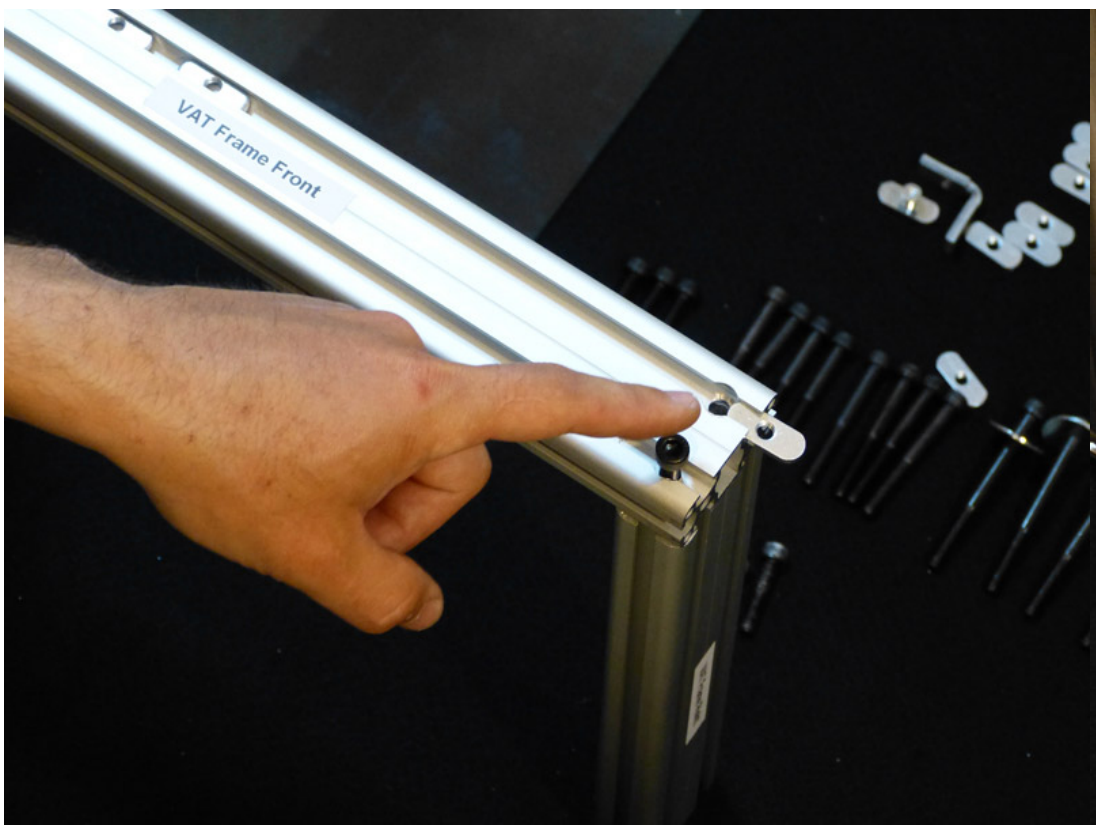


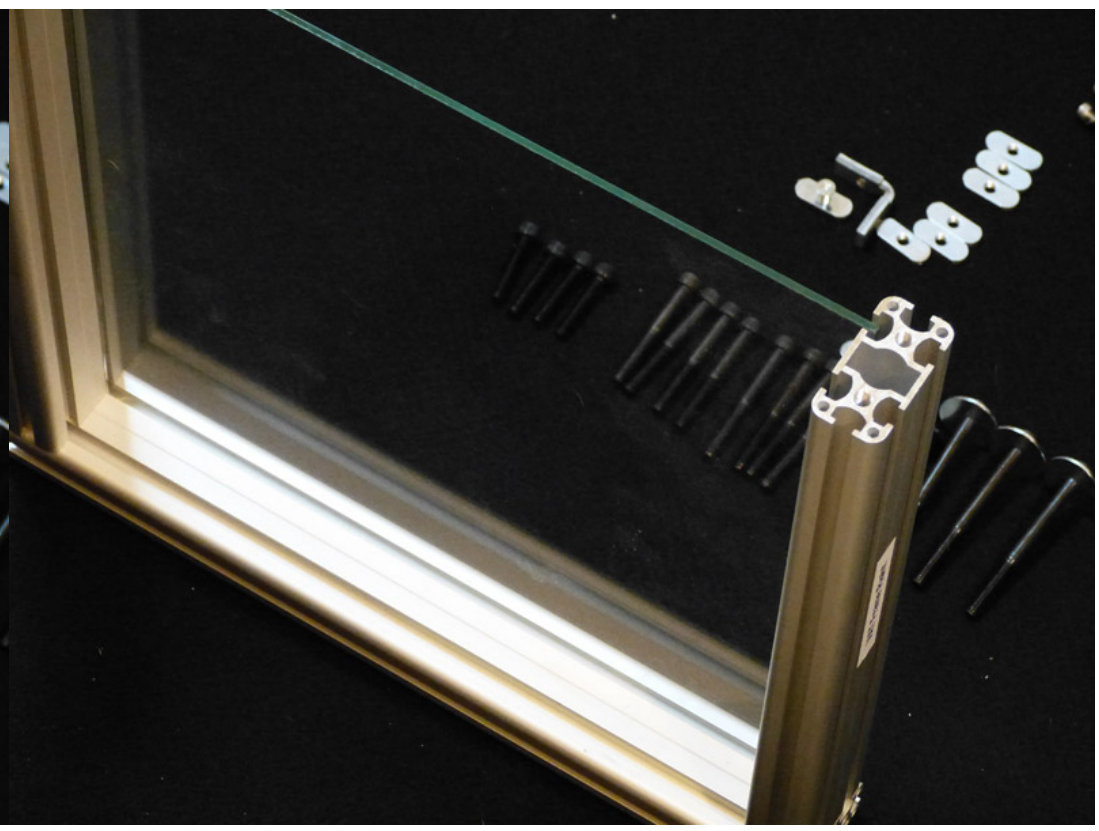
Slide the glass in the bottom slot, as shown in the image above. This is the only chance you shall have to place the glass in the VAT so please be careful when handling it.



This image represents how the rubber seal, which is included, should seal the glass. However, do NOT use the seal until the entire assembly of the VAT is complete. It shall be much easier to do it then, rather than now.

Step 5





Before we connect the rest of the sides, we need to insert three Oval Sliding nuts with a 6mm thread into the TOP slot on the external side of the vat. This should be done for the Front as well as the Back side. If you don't insert them now, the bolts that you shall insert, shall block the slot from doing it later.

Connect the remaining sides of the VAT, always having in mind the glass, which is not secured in place yet.

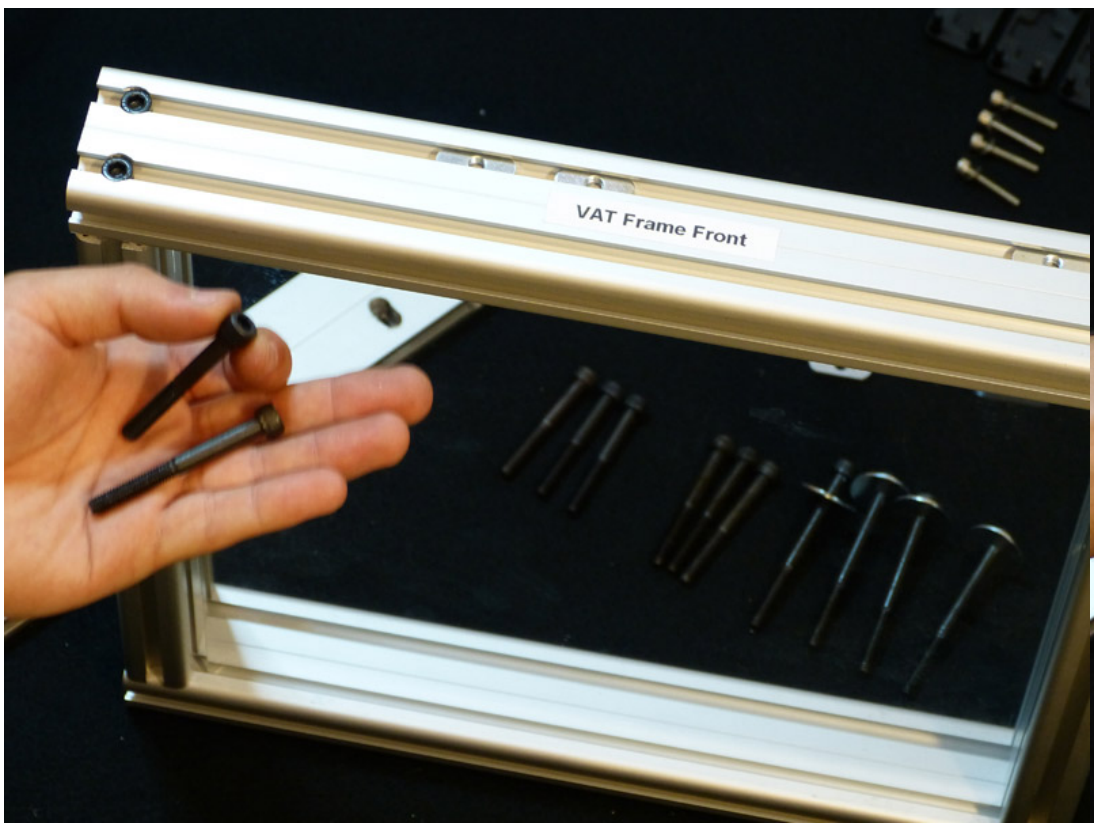
Phoca PDF

3 - VAT Assembly

Don't forget to insert the Oval Sliding nuts on the Back side of the VAT as described before. This is important, since these nuts shall hold the vat in place when on the machine.

Prepare the second in length bolts, since we shall be attaching the VAT holders with them and the length is important at this point.

Step 6

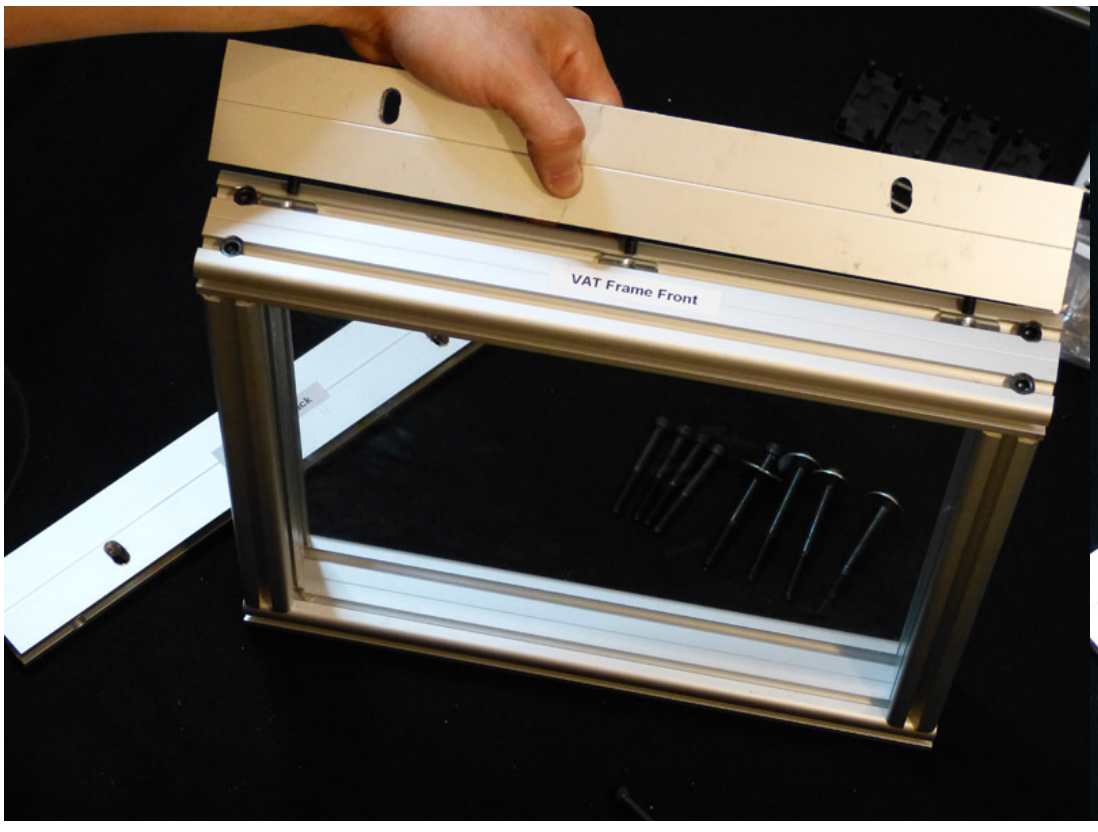


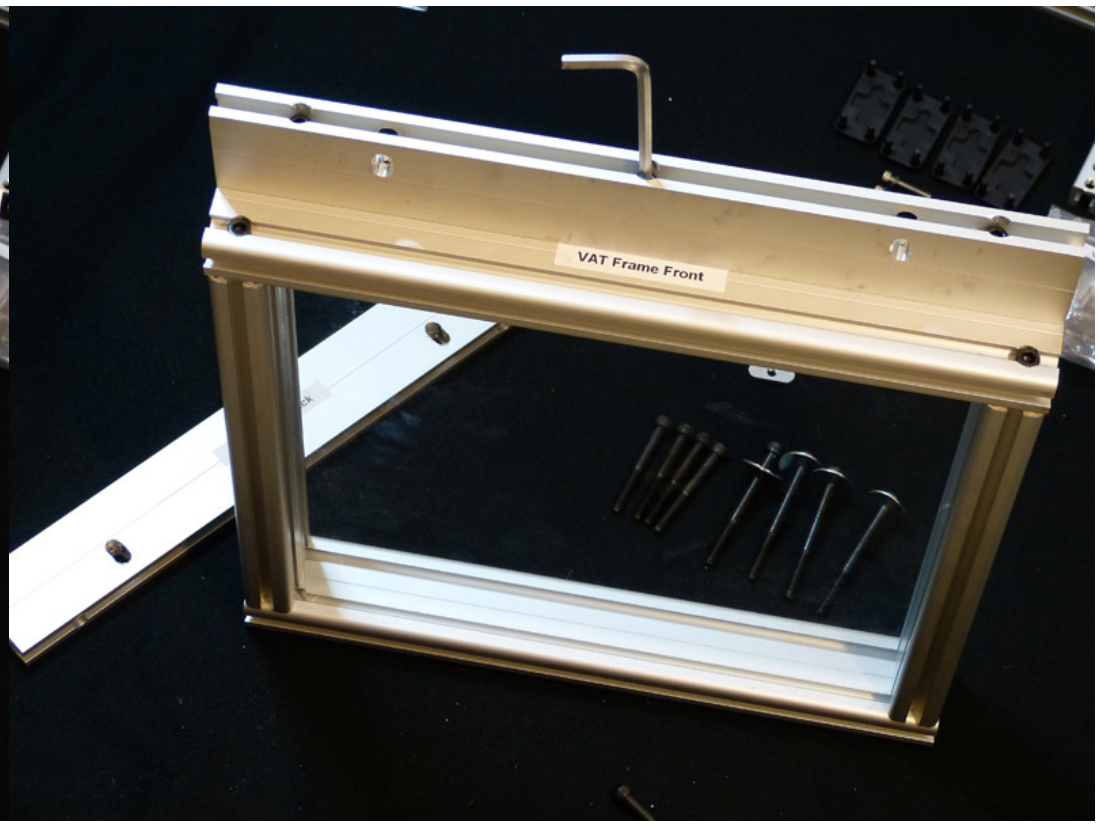
Select the bolts as described in the previous step. We shall be needing 6 of them. 3 for each side.

Take the Front VAT holder part and insert the bolts as shown in the image. It is important that the bolts go all the way through and pass the cut opening that was made for their heads.

Phoca PDF

3 - VAT Assembly

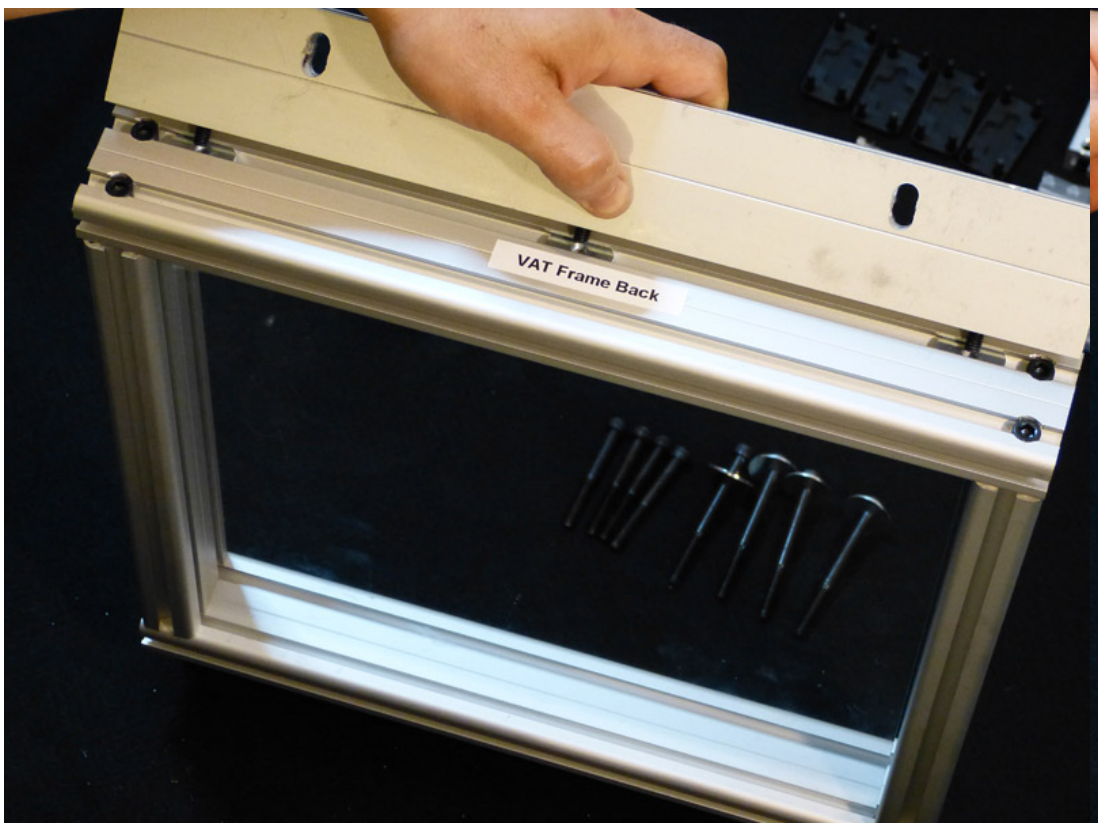




Align the Oval nuts with the bolts on the VAT holder as shown. Be as steady as possible when doing this, so you don't budge them when bolting them on.

Tighten the bolts periodically and NOT one at a time, so that the holder goes in smoothly and doesn't bend nor twist. Be patient and make sure the holder is as straight as possible.

Step 7



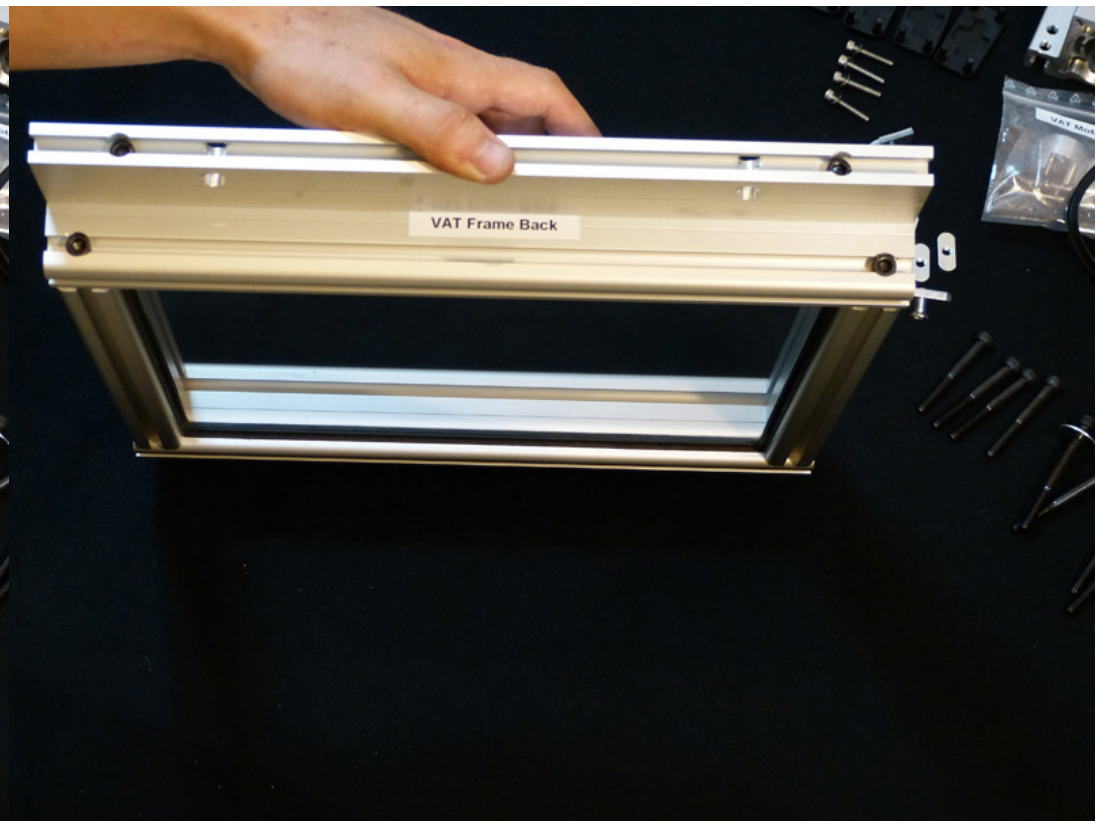
Select the Back VAT holder and repeat the process for the back side of the VAT. Make sure the Oval Sliding nuts are aligned before tightening them down.

The VAT Holder is the same length as the side on which it sits on the VAT. Make sure that the holders on both sides are aligned and are as flush to the edge of the VAT side as possible so that both sides have equal distances for the Slotted holes on which the VAT shall sit.

Step 8

Phoca PDF

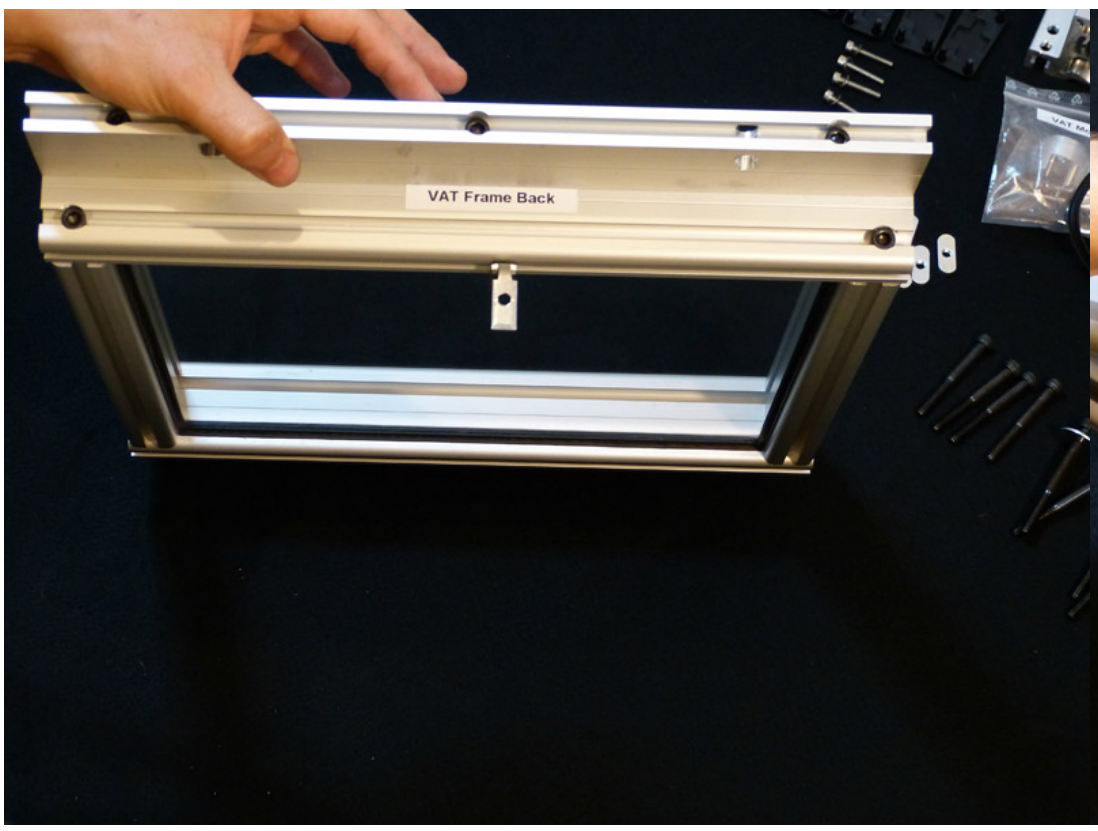
3 - VAT Assembly



When the VAT is assembled, it should look like on the image above. Note that Holder Front is together with the Front side of the VAT and the Back holder is in the back. Use the labels on the parts to guide you.

In the bag you shall find an Oval Sliding nut that has 5mm threaded hole and a 5mm nut attached to it. Slide this nut through the slot on the Front Bottom side of the VAT assembly. This is what shall be holding out Tilting mechanism later on.

Step 9



Step 10

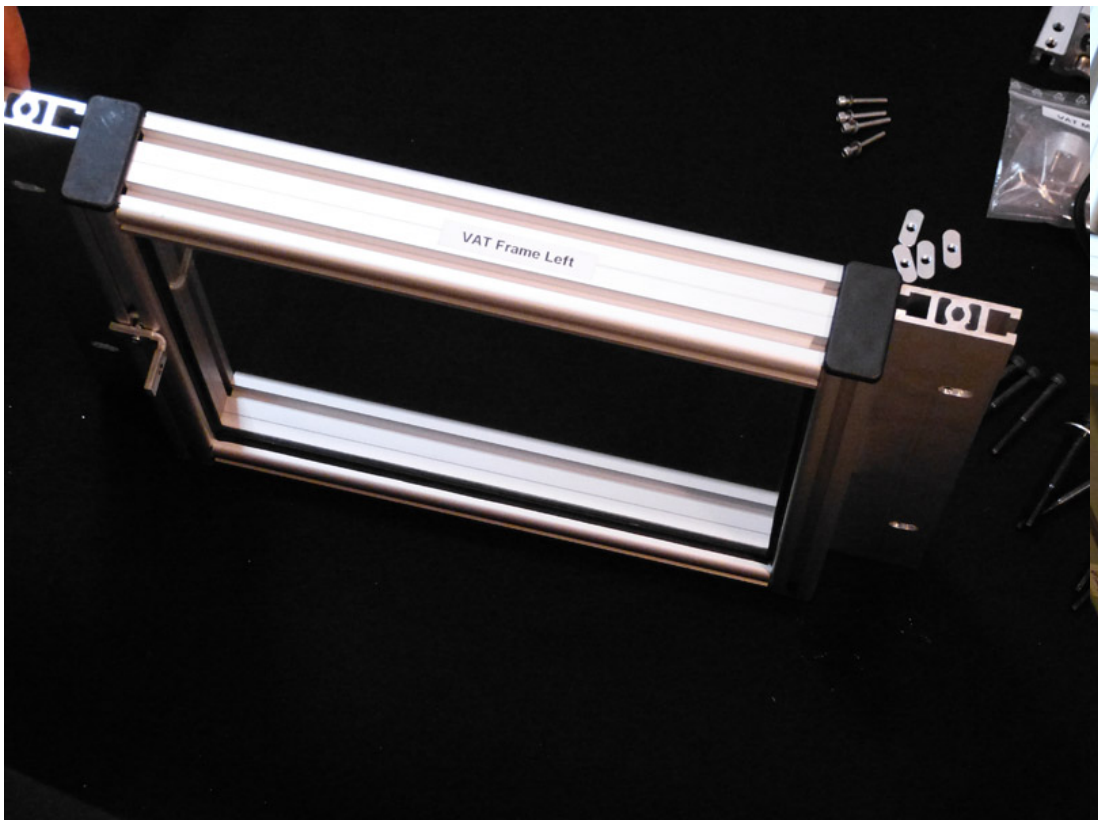
In the bag with the nuts and bolts, you shall find a Corner Bracket. Bolt this bracket with the bolt you just inserted into the slot. Don't tighten it yet, we shall adjust it later in the assembly.

Once the VAT is assembled, use the provided side caps for the 25x50VAT sides. You should have 4 of these caps to insert into the slots, as shown on the image above.

Step 11

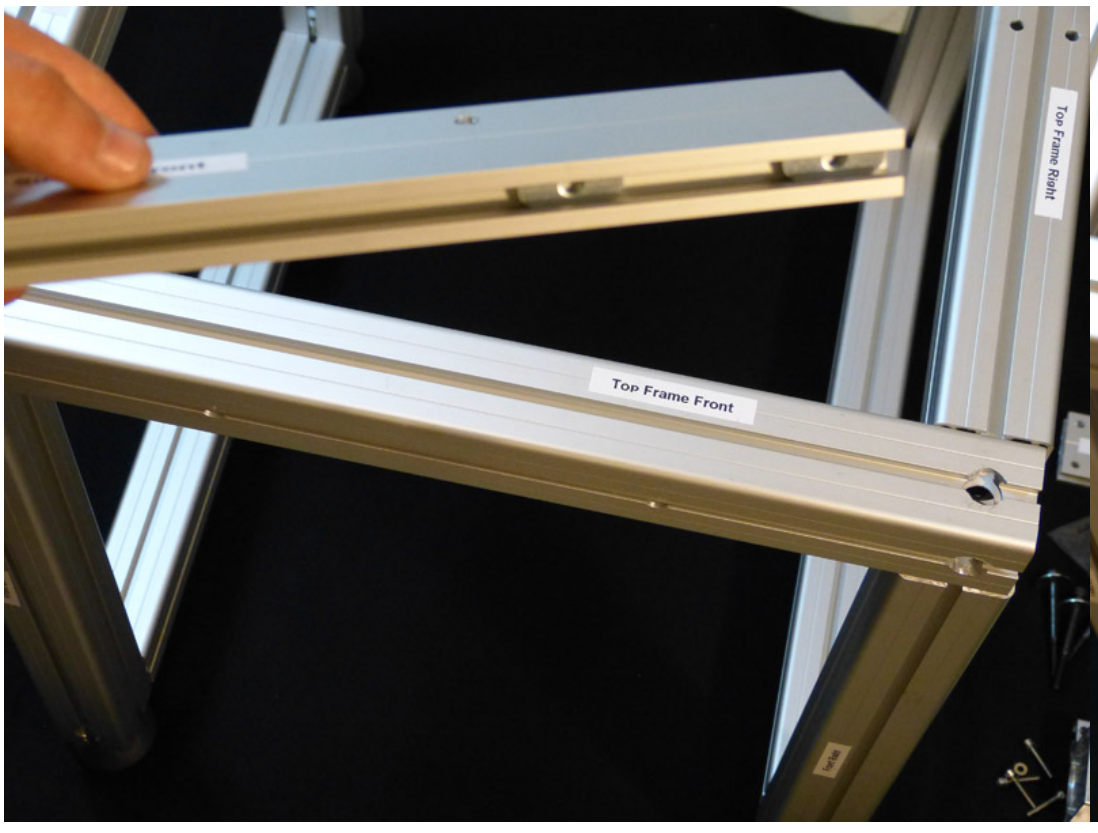
Phoca PDF

3 - VAT Assembly



Once all plastic caps are in place, the final assembly of the VAT should look like in the above image. Much better now :) Love these caps.

We shall now be bolting on the VAT supports. Select the Front support as shown on the image. Take note of the hole orientation on the support, this is important.

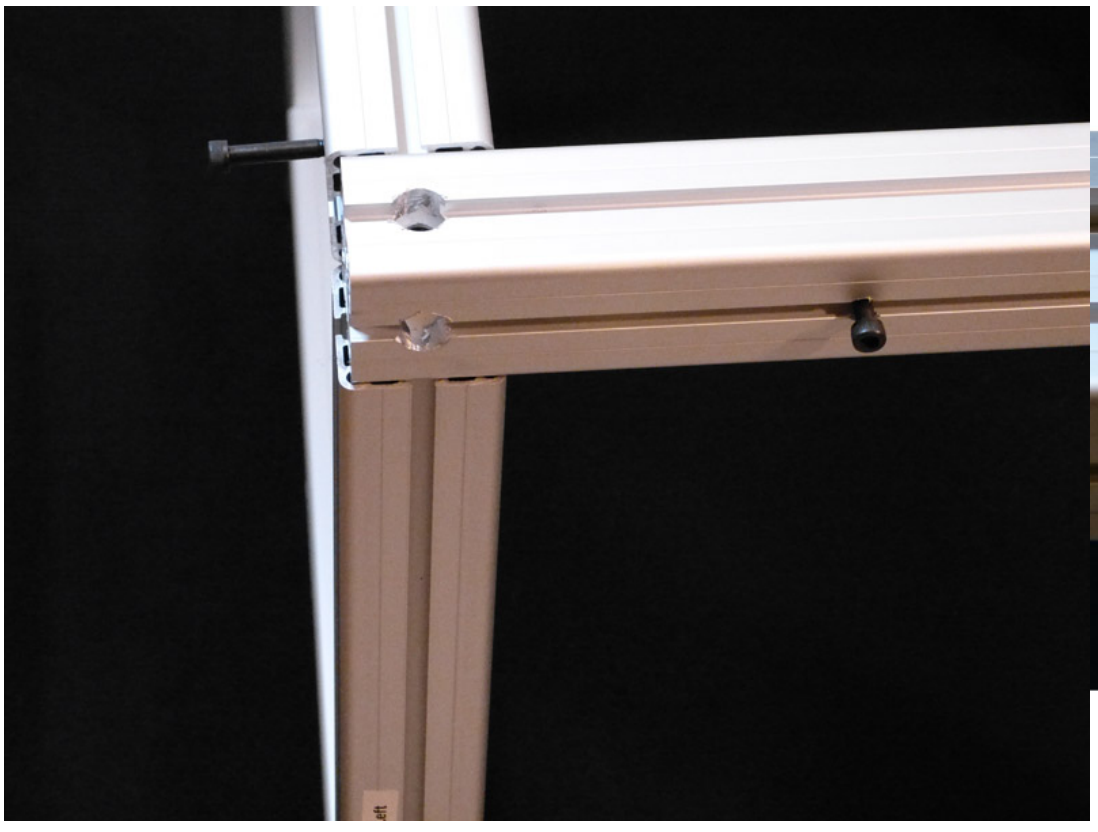


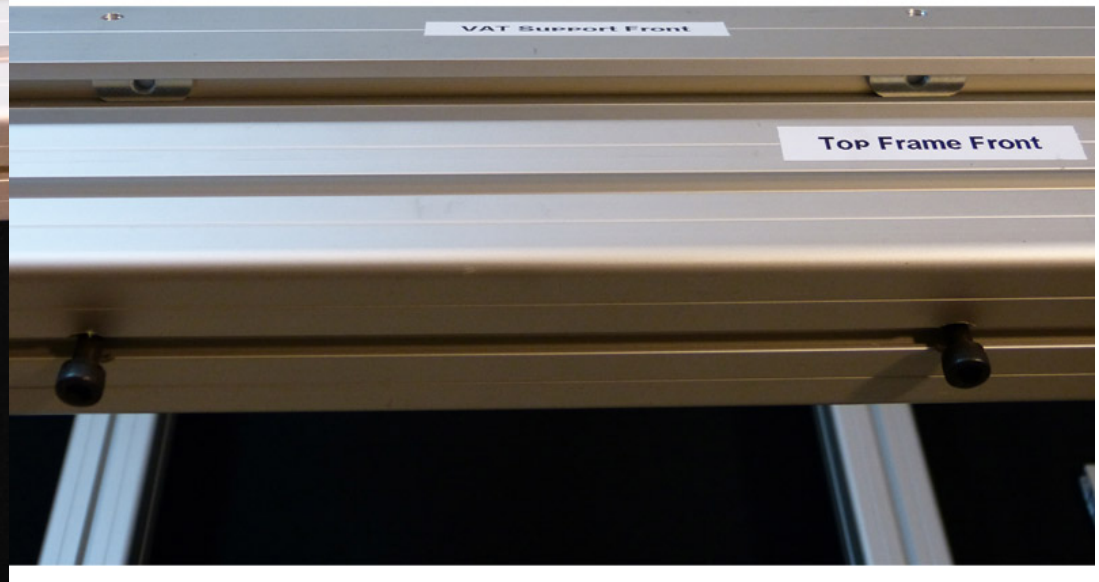
Slide through the slots of the support two Oval Sliding nuts, these shall be holding this support tight against the front and back sides of the frame.

Insert the bolts in the holes on the Front and back sides of the frame as shown on the picture. Make sure the length of the bolts is correct and shall be noted below.

Phoca PDF

3 - VAT Assembly





Note NOT to pull the bolts all the way through until you have the Support part in place, since the bolts shall be in the way. Note from the image the places where they are located. There are two on the front and back sides of the frame and one on each side of the support.

Align the Sliding nuts to the bolt positions. This can be tricky but with some careful placement should not be a problem. If you need some space to move the Support in place, loosen the 10mm bolts that hold the frame together.

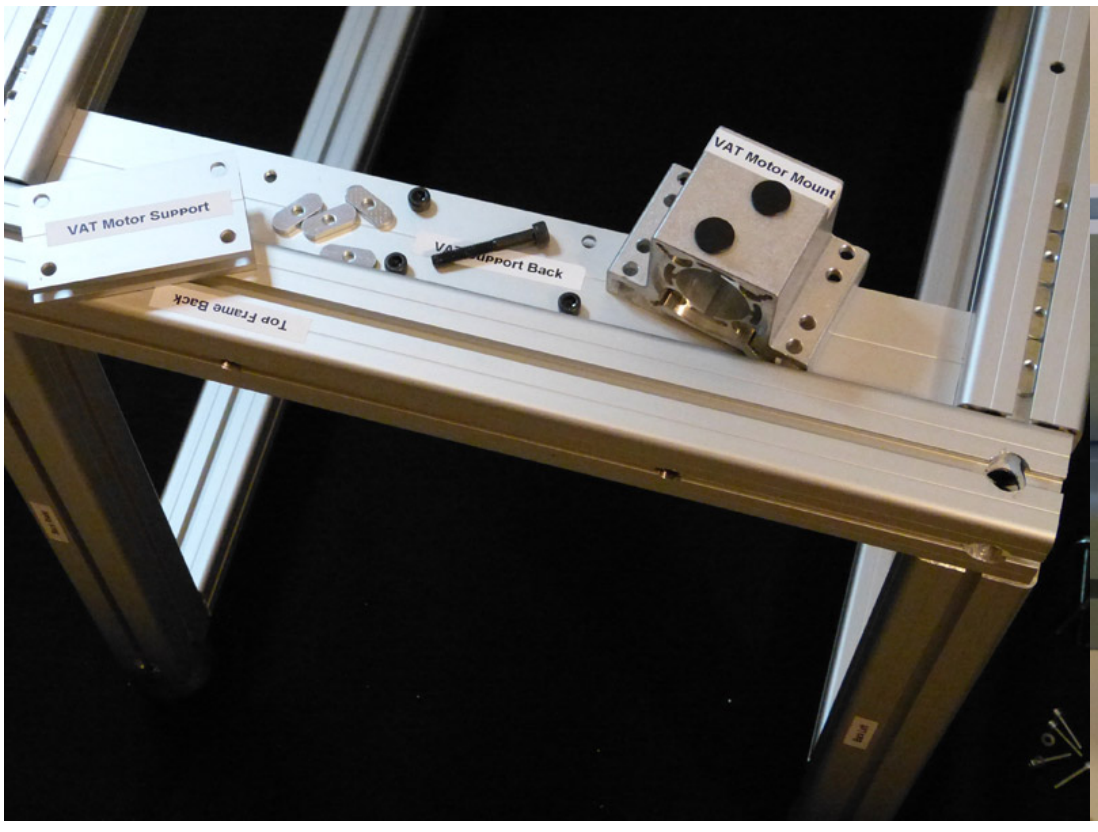
When finished, your assembly should look like on the picture above. Note the labels and their orientation.

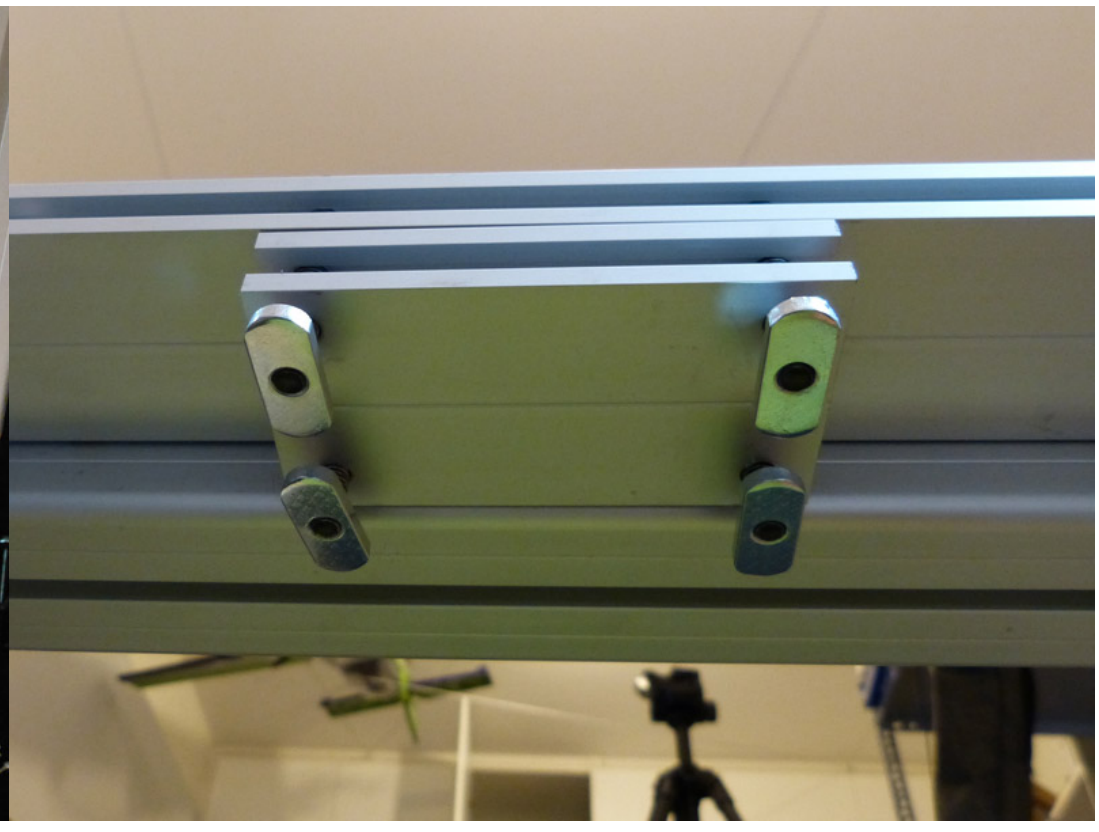
Don't forget to do the same process for the back side of the frame since the supports need to be located on both sides to hold the VAT in place.

Step 12

Phoca PDF

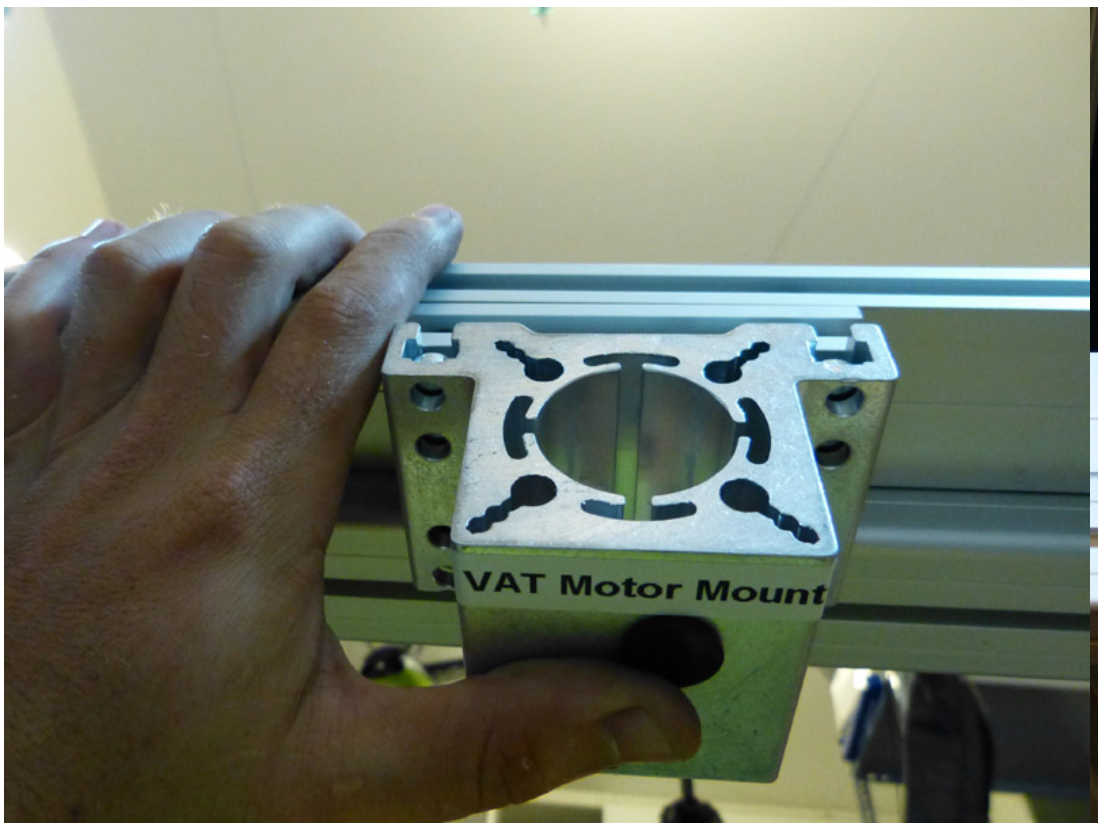
3 - VAT Assembly





We shall be attaching the VAT tilt motor mount to the frame. In the image above you can see the parts that you shall need.

When everything is in place, the assembly should look like on the picture. This view is from the bottom side of the Back VAT Support (the motor is located on the Back side of the machine) There are holes for the mount only on one side, so you shouldn't have problems finding it.



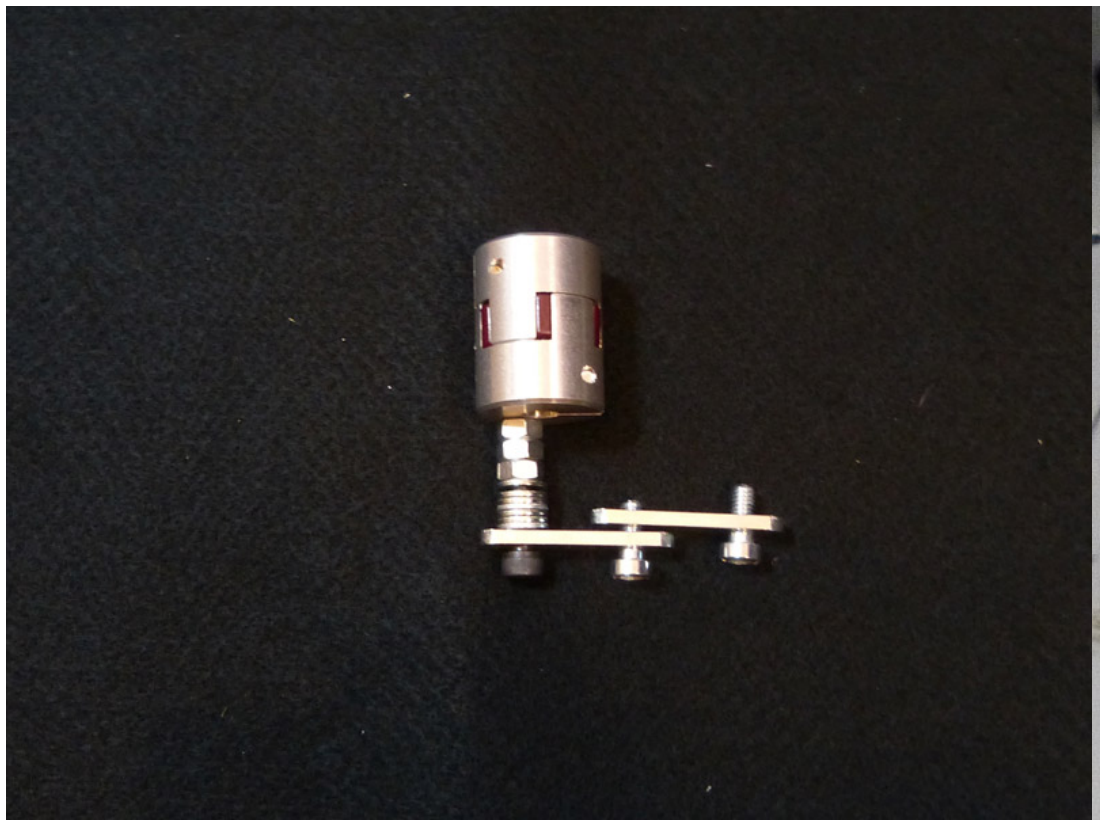
Slide the motor mount as shown. Make sure you note that the motor mount has a recessed side and a Flush side. The Flush side should be facing inside of the machine. The recessed side is for the motor to go in.

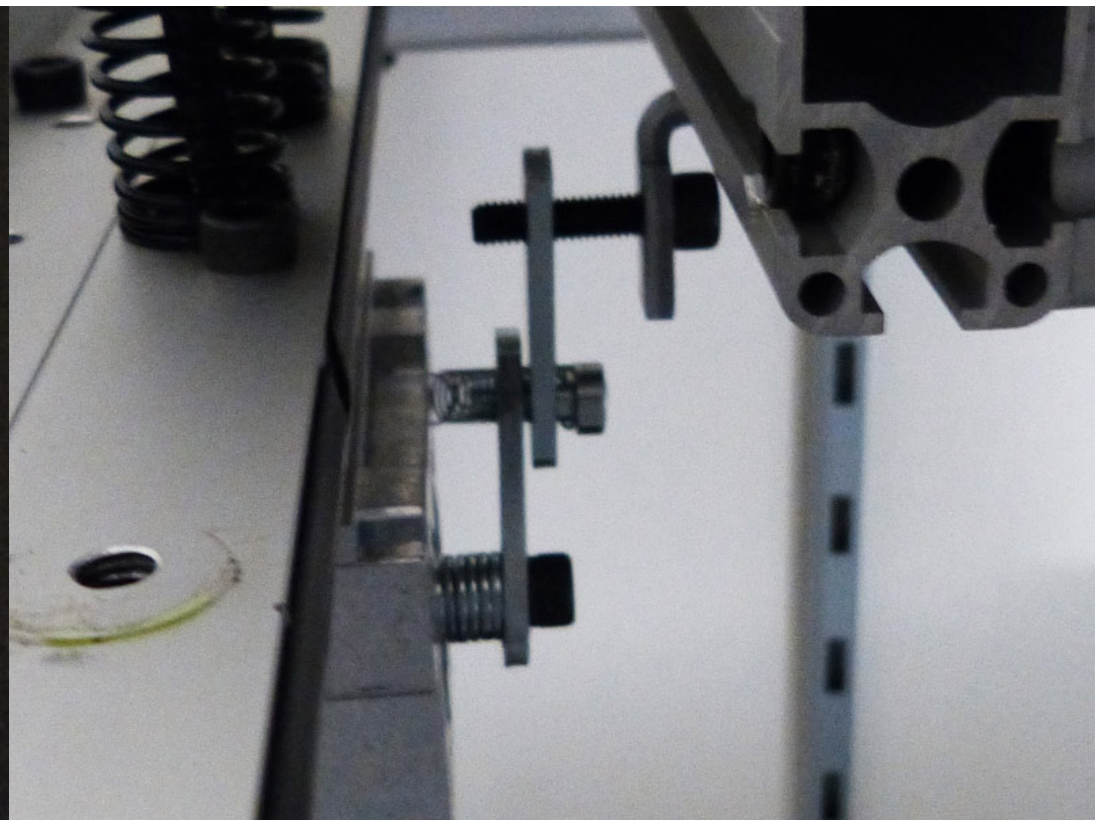
Once the motor mount is bolted firmly, use the longest 4 bolts remaining and the 4 springs, for the VAT. Don't attach the VAT just yet. It has glass and should go in last, when everything is assembled. There are some spring options included so that you can choose the best tension when needed.

Step 13

Phoca PDF

3 - VAT Assembly





In the Motor Coupling Bag you shall find all the components for the assembly of the Coupling tilt motion. Assemble these components as shown on the image above. This assembly shall be required for us to tilt the VAT later on.

Finally, the VAT part is done. Was a bit of a hustle but it is all worth it. You now have a solid platform on which the model shall be built.

The above image demonstrates the side view of the V
note that the image above was taken from the Smal
default VAT assembly should have a shorter bolt, wh
bracket, since the default VAT is

Phoca PDF