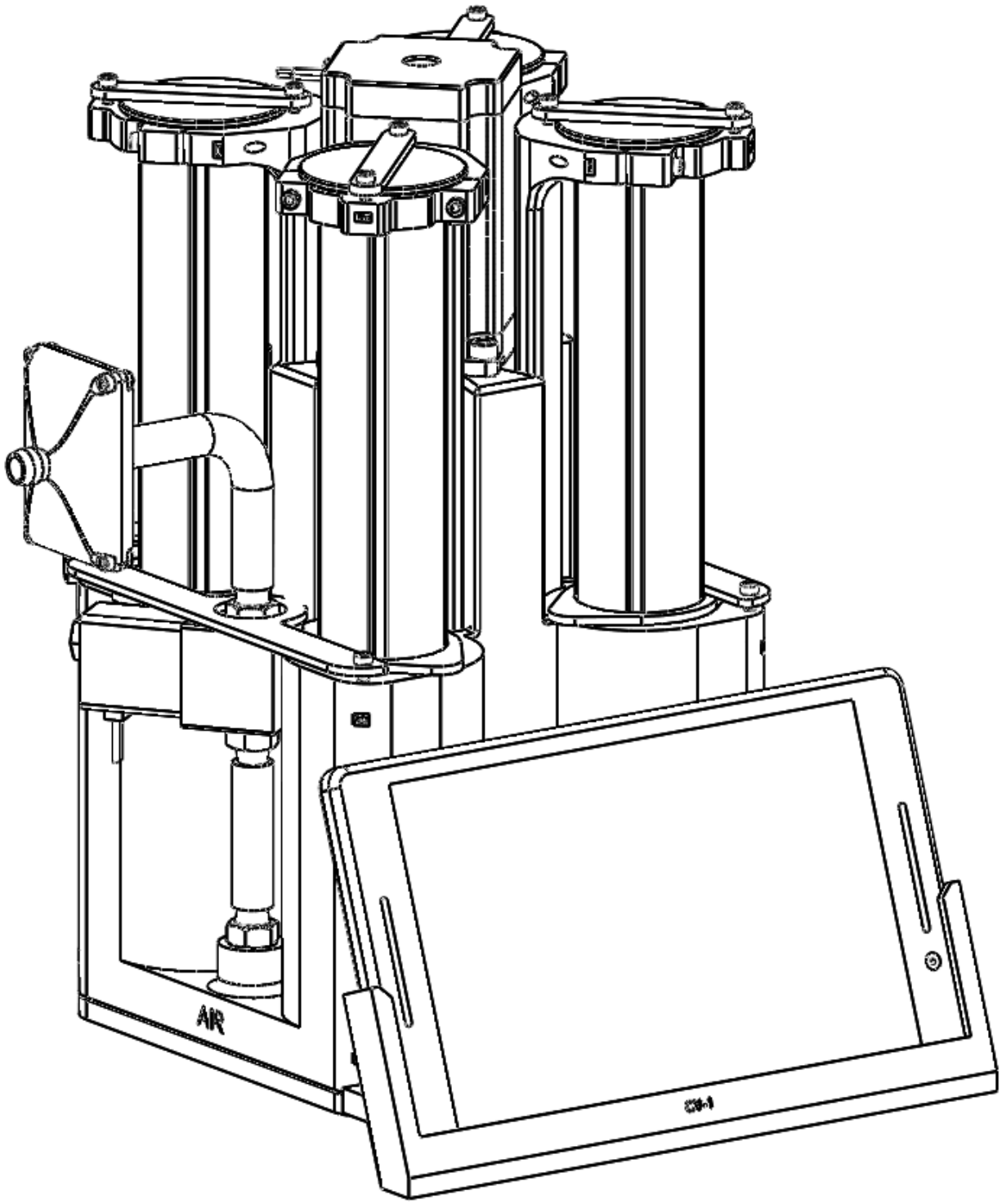
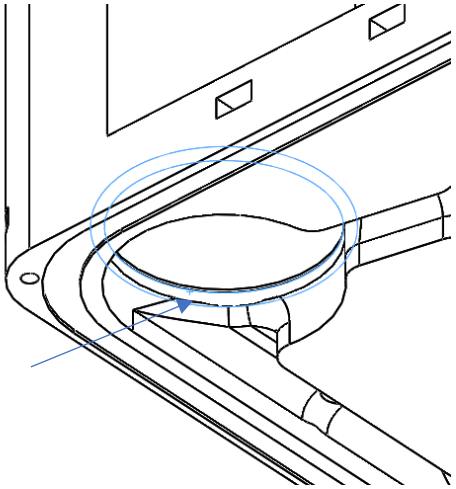
CV-1 Ventilator

Assembly Instructions

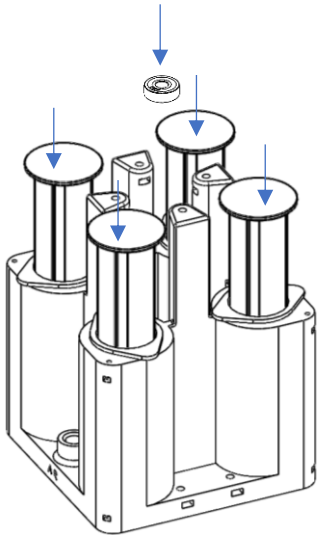


1



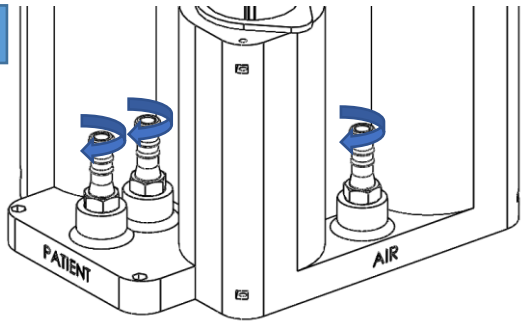
On the underside of the **manifold** pop the **O-rings** into the slots in the print (x4).

2



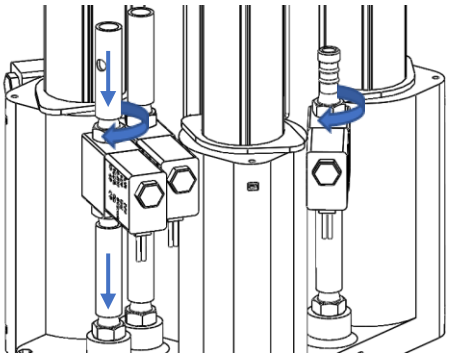
Push the 4 syringes into the **manifold** ensuring the **O-rings** make a tight seal with them. Then push the 608 bearing into the recess in the manifold.

3



Screw in **¼ NPT barbed fittings** to the tapered holes in the print.

4



Screw the **¼ NPT barbed fittings** to the **solenoid valves** and connect everything as shown with the **tubes**.

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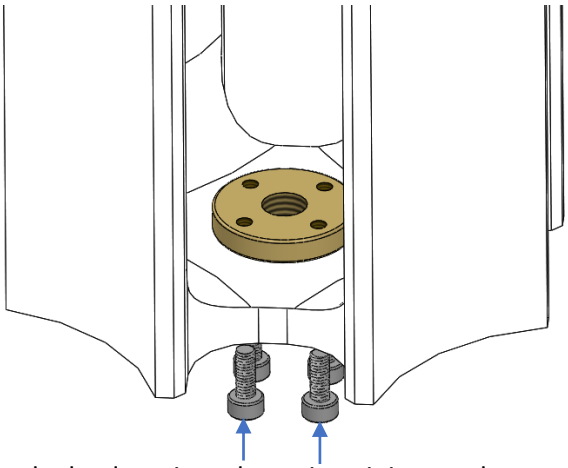

Insert the lead nut into the syringe joiner and screw it in with 4 M3 10mm bolts.

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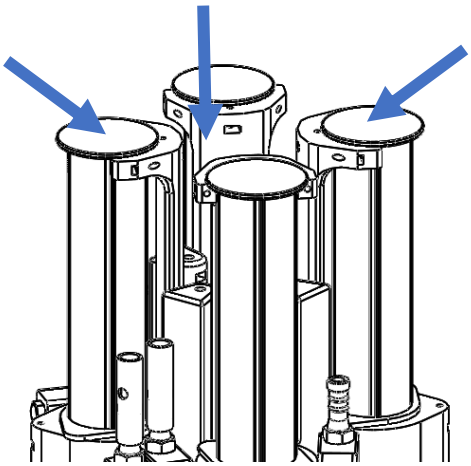

Push the **syringe joiner** into the **manifold**, with the syringes all the way up they can flex over the **syringe joiner** and slot into its arm sections.

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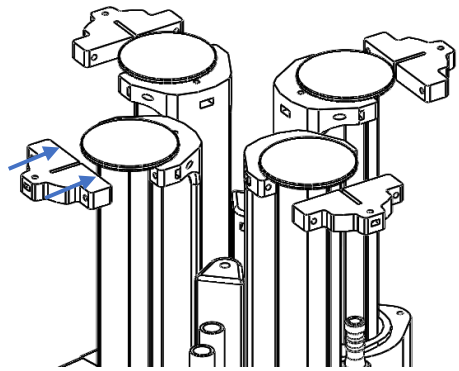

Slide the **syringe clamps** onto the **syringe plungers** so that the holes line up (x4).

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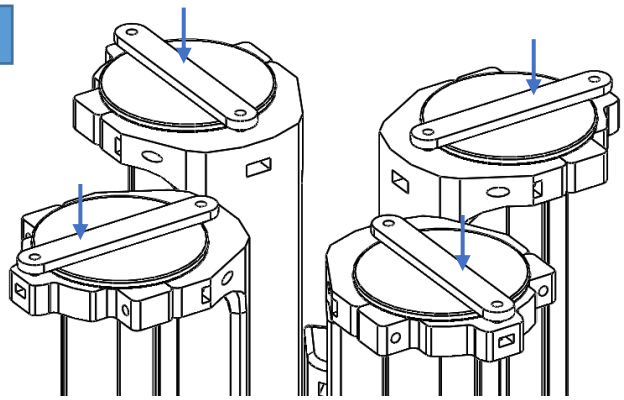

Align the **clamp top bar** with the holes on both the **syringe joiner** and the **syringe clamps** (x4).

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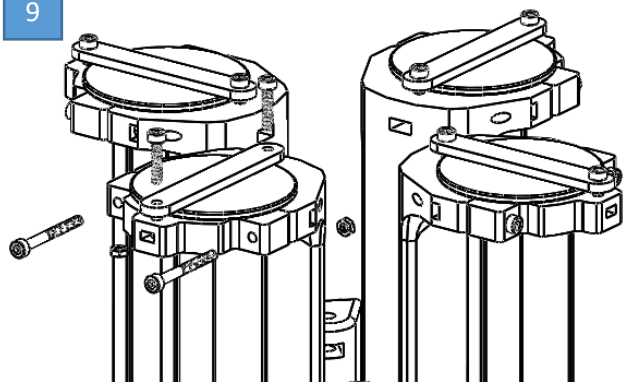

Use 4 M3 30mm fasteners and 4 M3 nuts to secure the **syringe plungers** (x4).

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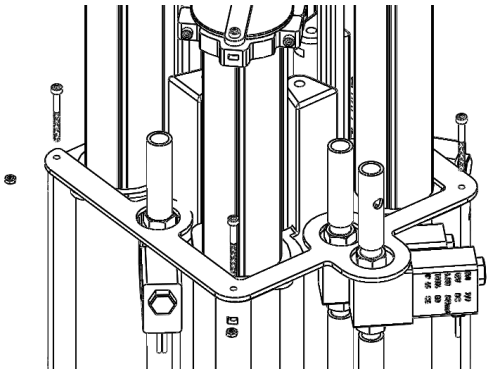

Push the **syringe hold down** part over all the **syringes** and **valves**. Then secure it with 4 M3 30mm bolts and nuts.

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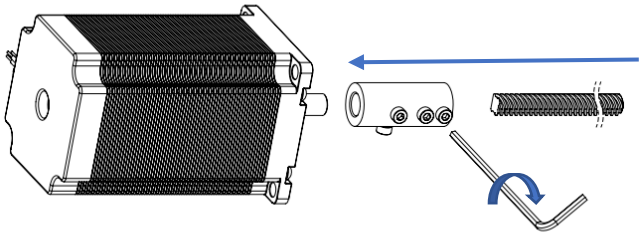

Assemble the **powered subassembly** by pressing the **coupler** onto the **Nema 23**, pressing the **lead screw** into that and then tightening the M3 bolts on the coupler.

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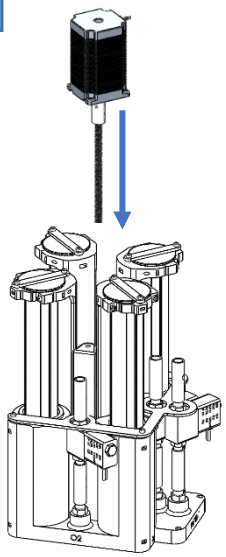

Slide the **powered subassembly** into the **syringe joiner** and thread the **lead screw** into the **lead nut** by turning it 3 rotations. Then slide the **syringe joiner** (with the syringes) and the motor down until it seats into the **608 bearing** in the **manifold**.

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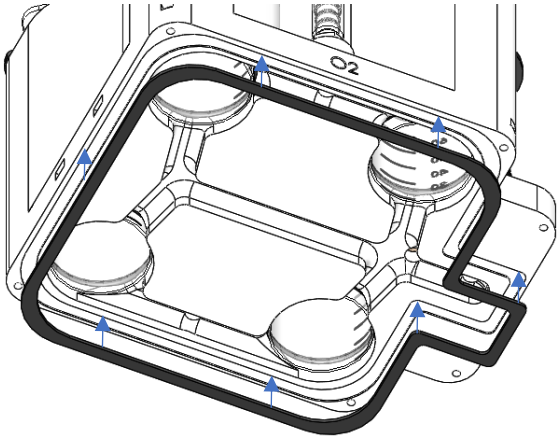

Pop the **gasket** into the pocket in the manifold making sure it makes a flat seal.

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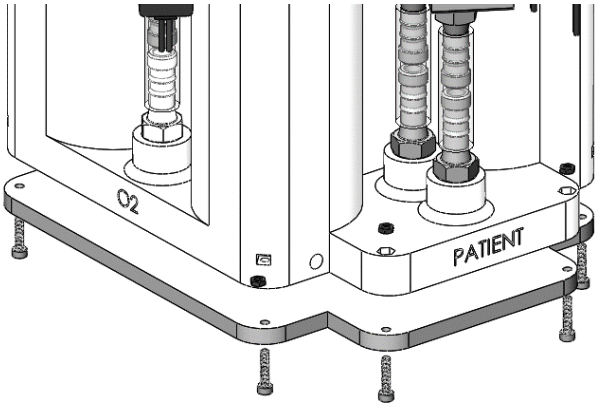

Use 6 M3 20mm bolts and nuts to screw the **bottom plate** over the **gasket** and compress it evenly. (tighten the bolts in a star pattern like a car wheel).

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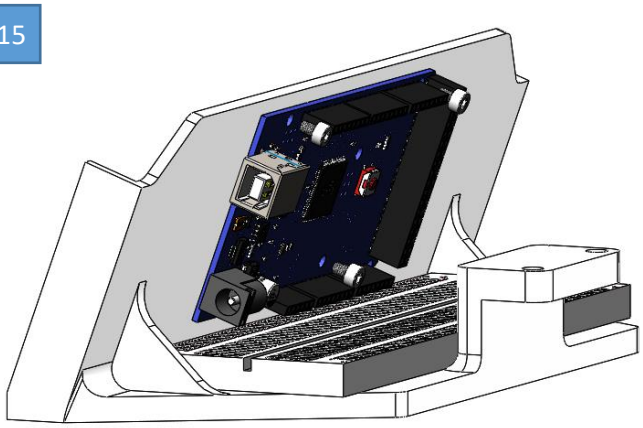

Mount the **Arduino Mega** with 3 M3 8mm screws and the **breadboard** with the adhesive backing to the **tablet mount**.

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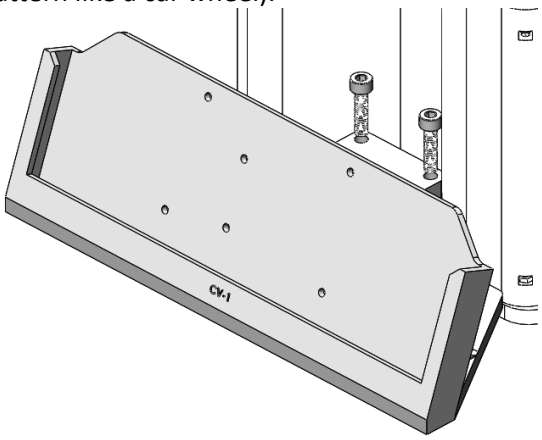

Mount the **tablet mount** using 2 M5 20mm screws to the **manifold**.

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Slide the tablet into the **tablet mount**, and plug it in using the custom micro USB cable.

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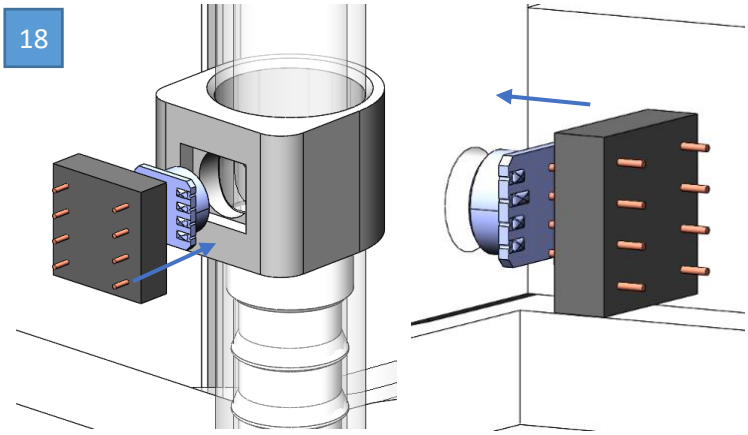

Solder the **pressure sensor holder** to the **pressure sensor** and press the round part of the sensor into the **sensor mount** and **manifold** chamber hole respectively. The sensor mount slides tightly onto the patient tube over the hole.

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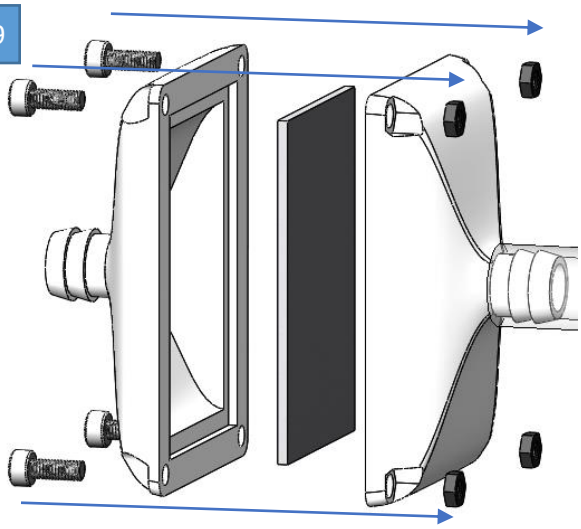

Compress the HEPA filter with the two HEPA enclosures and secure with 4 M3 8mm bolts and nuts. It connects to the air inlet side of the manifold through a tube.

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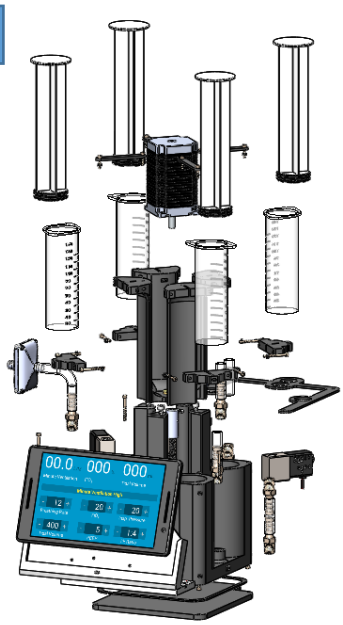

You are now done the assembly; the next step is to move onto the software installation guide.