

User manual Vortex 2021

Routines for safe operation

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Waterproofing/Vacuum testing

NB! Any component that has been opened has to be vacuum tested before it can be put back in water!

Components that require vacuum testing are:

- **Main Electrical Housing**
- **Pneumatic Valve Housing**
- **Battery Module**

All these components are vacuum tested in the same way.

Vacuum testing procedure

The relevant components have a red screw/nob fastened somewhere on it. Unscrew it and insert the tube from the vacuum pump into the hole. Pump until the manometer reads somewhere between **10-15 in hg** and let it stay for **15 minutes**. If the needle has dropped **less than 0.5 in hg** the part is considered waterproof. Also **REMEMBER TO REINSERT THE VALVE SCREWS**

O-rings

Whenever handling components with o-rings pay attention the following:

- Make sure not to scratch any of the surfaces the o-rings are pressed against. Even small scratches can compromise the waterproofing.
- O-rings should not be dry. If you find dry o-rings use silicon grease or equivalent to lubricate the o-ring before reassembling the part.

Fasteners

It is possible to break screws and their threads if the screws are tightened too much. Pay attention so you do not break any threads especially on the BlueRobotics cylinders.

Also be aware that the 3d-printed parts can break if the screws are tightened too much. Fasteners and brackets do not require more torque than enough to just hold it tight.

Also be aware of the risk of cross threading the screws. If the screw does not go in easily make sure you are in the right track. This is a common way of ruining good threads.

Look out for...

When working on the drone always have your eyes open for things that are out of place. **Look for loose lids, loose fasteners and brackets, slack in the frame etc.** It is always a good idea to double and triple check everything before the drone hits the water. When taking apart waterproof components make it a habit to check whether water has crept past the o-rings and sealings.