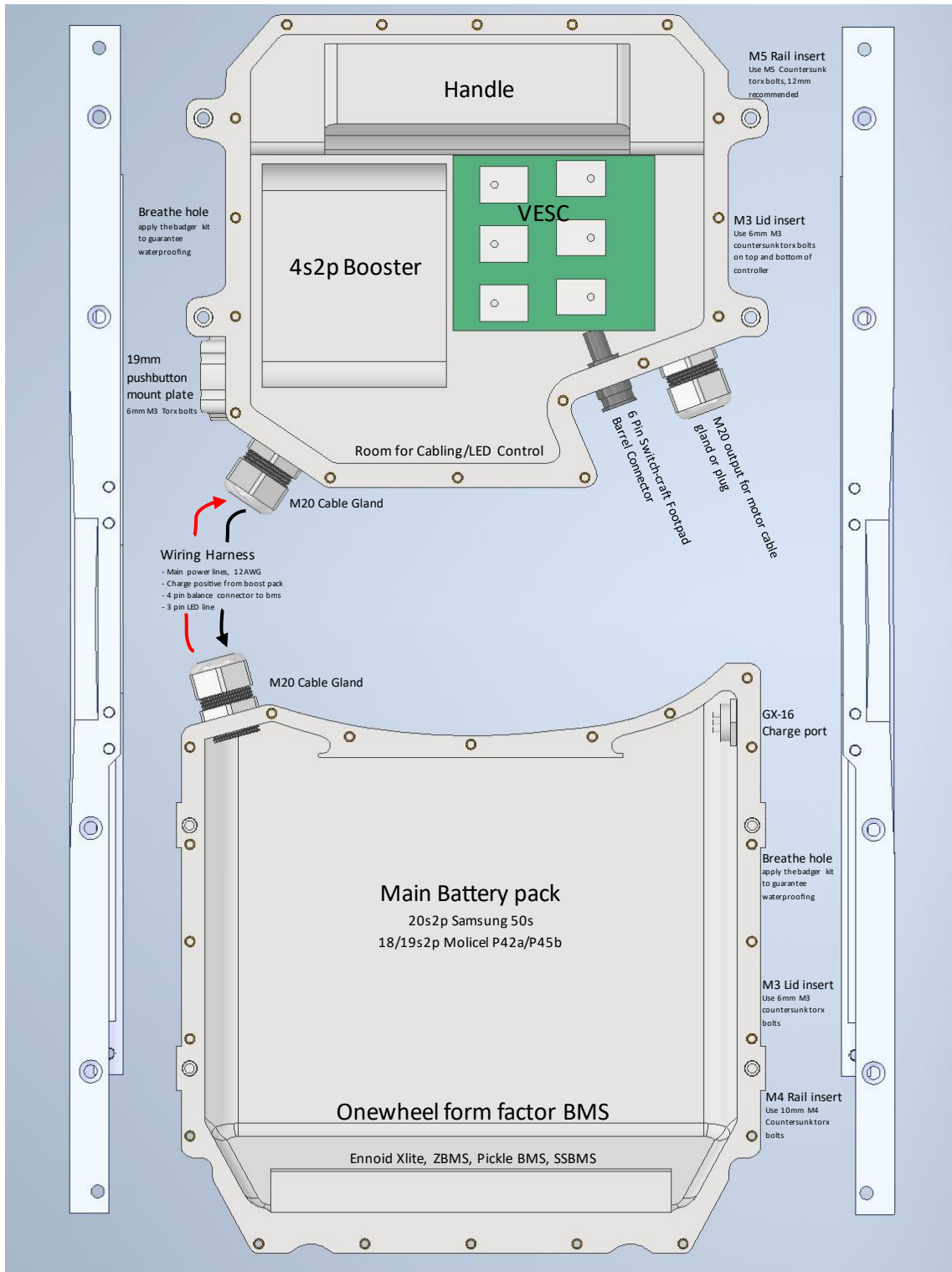




# THE VOW GT SYSTEM

## Guide intention:

To inform onewheel builders of the design and wiring for the entire VOW GT system.  
This system has various possible configurations that achieve different specifications.

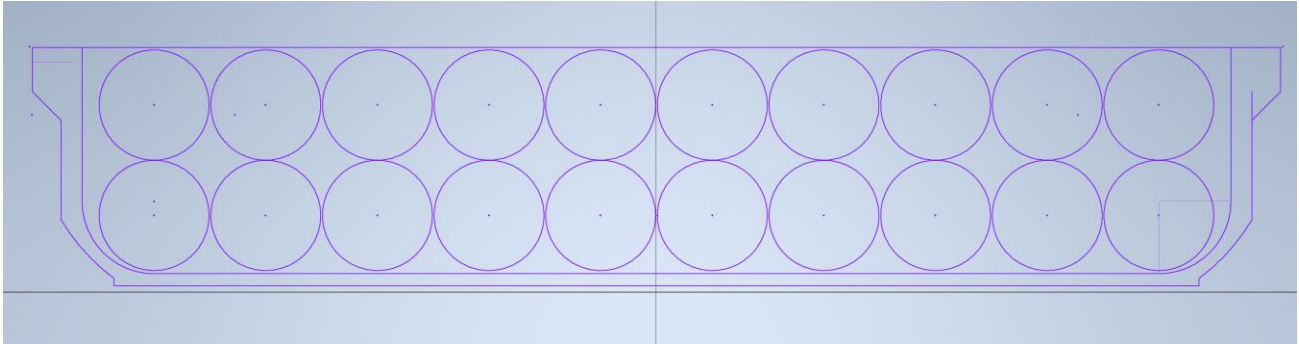


## Battery Casing Specifics:

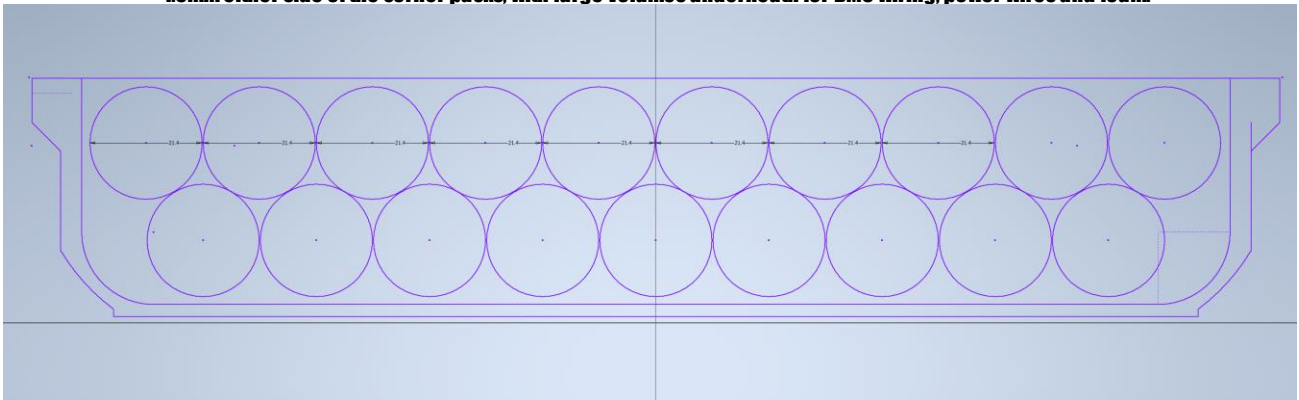
This casing can be constructed with lots of different battery configurations, but each pack needs the casings limitations kept in mind.

Due to the flat lid design, the casing has an internal height of 43mm, and allows for a maximum internal pack height of 42mm. Meaning that perfect 21700 cells like the Samsung 50s can be used in a stacked configuration, but slightly larger cells that are closer to 21.4mm in diameter such as the Molicel P42a or P45b require a staggered build instead. This concept can be seen in the following sketches:

**20s2p with stacked 21mm cells, Samsung 50s**  
0.5mm of foam space above and below the pack (use 1mm EVA/Neoprene sponge), 0.3mm space for fishpaper between each cell.  
4mm either side for BMS wiring, power wires and foam.

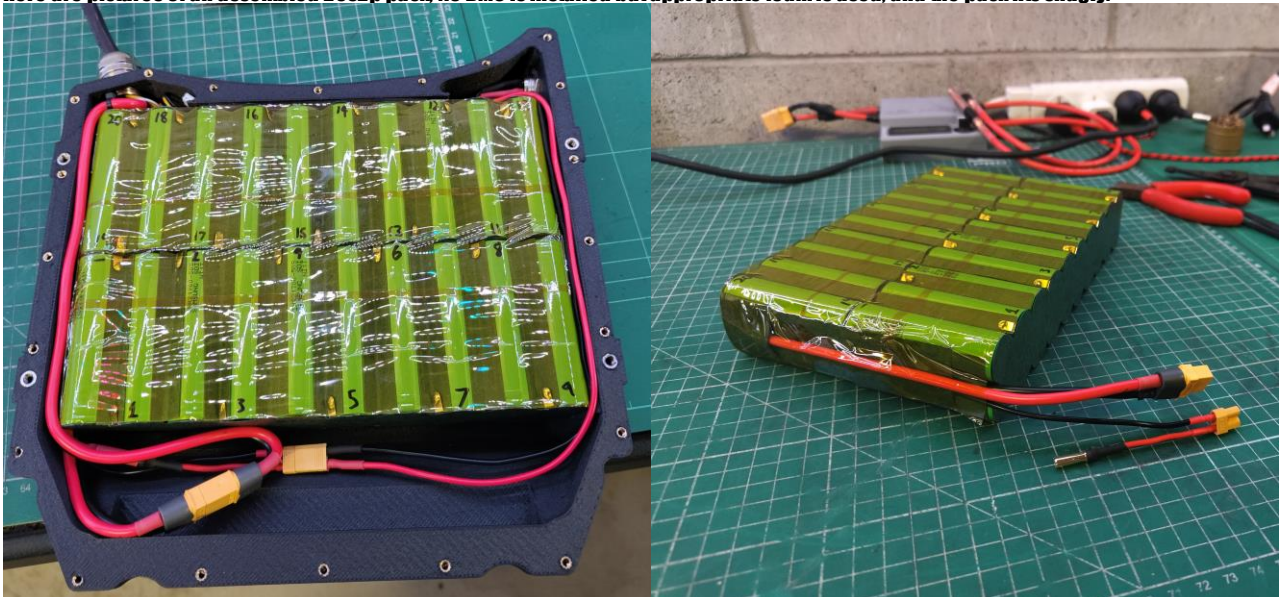


**19s2p with staggered 21.4mm cells, Molicel P42a/P45b**  
1.5mm of foam space above and below the pack (use 2mm EVA/Neoprene sponge), 0.3mm space for fishpaper between each cell.  
1.5mm either side of the corner packs, with large volumes underneath for BMS wiring, power wires and foam.



As can be seen with the 20s2p build, there is very little space above the pack for BMS wiring. The wiring must run through the troughs between cells and mustn't run over the tops of any of the cells as this will make the pack thicker and impart lots of pressure on the BMS wires.

Here are pictures of an assembled 20s2p pack, No BMS is installed but appropriate foam is used, and the pack fits snugly.



Once the 3mm Aluminium Lid is bolted to the casing, use a set of calipers to measure the overall height of the casing from the edges. You should aim for a height of 48.3mm, slight deviations are acceptable, but no higher than 49mm.

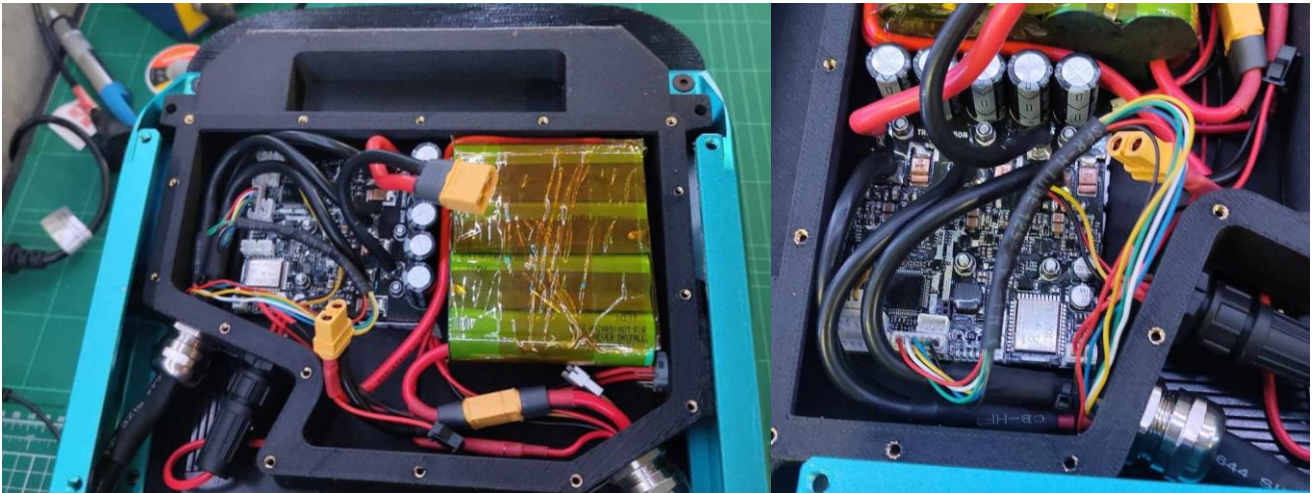
This is done to make sure your casing will fit the rail and bumper, but also so that bolt tightness can be appropriately assessed.

If the battery pack is higher than the target thickness, you may need to shave away the slim hex pattern on your tail bumper to allow for extra height.



## Controller Casing Specifics:

This Controller can be constructed with any VESC and with lots of boost pack configurations, but its primarily aimed towards a Lil Focer V3/Tronic 250R footprint and a 4s2p booster.



Here are some images of my bare bones build that only has a 4s2p booster and Tronic 250R.

LED system and BMS were yet to be installed, however the wire harness had a 4pin JST Ready for balance wires from the boost pack and 3pin JST ready for the tail light input.

I also modified my Tronic 250R to use an XT-60 male input as the stock QS-8 is vastly unnecessary for our powerband.

The boost pack is a 4s2p staggered configuration with 50s cells, matching the tail pack of course. The sizing for the boost pack is quite relaxed so the 0.4mm size differences between the Samsung and Molicel cells isn't particularly relevant. In order to use the full 4s2p booster though, the extended version of the underside lid needs to be used and the front bumper modified.

As can be seen in the image, the side of the bumper that matches the notch on the controller needs its grid/hex pattern removed down to the flat plate at the base. This modification is best done with the straight cutting blade on an oscillating multitool, and then cleaned up with a safety knife.

A 2s2p booster can be built instead that doesn't require the need of the extended lid or a modified bumper, but it will require approximately 1cm of extra foam to hold it in place.

