# Tools

Below are the tools listed that will be used during this test.

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| Testing tools | Demand |
| Computer | **Windows 10 compatible** |
| Excel | **Newest version.** |
| Keyboard | **No limit.** |
| Mouse | **No limit.** |
| Torque meter | **Waterproof & High temperature resistance** |
| Rotation speed meter |
| Thermometer |
| Flow meter |

# Method

This section consists of actions that need to be performed during the test to conclude a result. The conditions of the constants stated in chapter “2. Variables” have to be met before executing the simulation. To execute the simulation, follow the steps stated in “4.1. Steps”.

To validate our design, we first simulate the current propulsion system and measure the real values of the prototyping setup. We then compare the measured values to the simulation outputs and improve the simulation so that the calculated values are within an error margin of the measured values. When this is the case for all the measurements, we can state that the calculation chain is validated.

In case the boat is not available for testing, we will perform the same steps and calculations, only the simulation will not be validated yet.

## Steps

1. Use excel to build a calculation chain and simulate the present propulsion system.
2. Perform a simulation for every input value and get corresponding results.
3. Measure corresponding values on the present solar boat.
4. Compare measure results with simulate result to validate calculation chain.
5. After validation. Perform simulations repeatedly and modify the value of every different single input.
6. Compare the results of simulations before and after the modification to figure out their effects on propulsion system.
7. Choose property modification values which are benefit for the propulsion system improvement.
8. Design the new propulsion system with chosen values.
9. Simulate new propulsion system in excel.