

Glow 2 Electric Motor Selection Using Drive Calculator Worksheet

Items Required:

Drive Calculator program

<http://www.drivecalc.de>

Ken's database for Drive Calculator

<http://www.theampeer.org/G2E2/DCbaseMyers.dcd>

Place Ken's database for Drive Calculator in the Drive Calculator Folder

Drive Calculator Spreadsheet

<http://www.theampeer.org/G2E2/G2E2.xls>

Drive Calculator Worksheet

<http://www.theampeer.org/G2E2/G2E2-worksheet.pdf>

pen or pencil

calculator

If you do not have Microsoft Office you might want to download the Free Open Office suite

<https://www.openoffice.org/>

Measurements:

Ready to fly (RTF) weight:

Only one of the lines will be completed depending on how the ready to fly (RTF) weight is measured or calculated.

RTF weight in ounces: _____ oz.

or

Airframe + radio weight x 1.2 _____ oz.

or

Airframe only weight x 1.6 _____ oz.

Prop Selection:

Measurement with plane setting level on its wheels when measured from a flat surface to center of prop shaft. _____ in.

1. Open the spreadsheet

A. Input RTF weight in ounces (cell B4)

B. Input distance measurement taken with the plane setting level on its wheels when measured from a flat surface to center of prop shaft. (cell B5)

Cell B10 Shows the recommended largest prop diameter for flying off of grass

Cell B11 Shows the recommended largest prop diameter for flying off of pavement

Cell B15 shows the lowest pitch prop to try & Cell D15 the largest pitch to consider for the flying off of grass diameter.

Cell B16 shows the lowest pitch prop to try & Cell D16 the largest pitch to consider for the flying off of pavement diameter.

Only APC thin electric (E) props should be used.

Open the APC prop link on the spreadsheet by click on it.
If it doesn't open in your browser, copy and paste the link.

Inputs for the propeller

Not all four of the prop inputs are required.

If you fly only off of grass find only the diameter and pitches recommended for flying off of grass can be used.

If you fly only off of pavement find only the diameter and pitches recommended for flying off of pavement can be used.

Minimum Motor Weight

Note the output in cell B25

Look at the chart on the spreadsheet and select a weight that is just greater than the weight noted in cell B25.

Input that motor weight into cell B27

2. Open Drive Calculator

It can be opened by double clicking on Ken's database (DCbaseMyers.dcd)

Follow the procedure, shown on the spreadsheet, for the inputs for Drive Calculator.

The graphics shown on the spreadsheet with values in them are examples and the actual inputs will vary from what is seen.

Use the Spreadsheet to complete the following to select a brushless outrunner motor:

The motor weight will always be the same. Motor weight: _____ g

Kv Ranges:

2S _____ to _____

3S _____ to _____

4S _____ to _____

5S _____ to _____

6S _____ to _____

I highly recommend looking at Cobra motors first.
<http://innov8tivedesigns.com/parts/brushless-motors?cat=51>

Look for any brand of motor that weighs about the motor weight and falls into the Kv range for the desired cell count.

A Google search using brushless motor followed by the desired Kv will yield results.
Kv values are in even units, so round as necessary.
ie. 1066 to 1050
or
1134 to 1100

Sometimes the weight is noted in the Google search and sometimes the link will have be clicked to find the weight.

ESC amp ratings:

2S _____ A

3S _____ A

4S _____ A

5S _____ A

6S _____ A

LiPo milliamp hour rating (mAh)

2S _____ mAh

3S _____ mAh

4S _____ mAh

5S _____ mAh

6S _____ mAh

How Do You Know Which System to Choose?

You will probably get more than one “Good Choice” recommendation from the spreadsheet.

Note the recommended battery for each “Good Choice”. The mAh size may have to be rounded up or down to find a real LiPo battery in the configuration and mAh size you are looking for.

I recommend the Hyperion G5 series from RC Dude.
<https://rcdude.com/products.html?cat=14>

You can also ask a buddy that flies electric what he/she uses.

For the Falcon 56 Mk II, the recommended battery for 3S is 3740mAh. DON'T WORRY ABOUT the C RATING!

For 3S, the Hyperion G5 has a 3S 3300mAh and a 3S 4000mAh. Choose the lower mAh.

G5 3S 3300mAh: weight: 266g, dimensions: 25 x 47 x 137mm or 0.98” x 1.85” x 5.39”
<https://rcdude.com/hyperion-g5-50c-max-3300mah-3s-lipo.html>

The recommended battery for 4S is 4S 2830mAh.

For 4S, the Hyperion G5 has a 4S 2500mAh and a 4S 3000mAh. Choose the lower mAh.

G5 4S 2500mAh: weight: 205g, dimensions: 105.5 x 34.1 x 26.8mm or 4.13” x 1.34” x 1.06”
<https://rcdude.com/hyperion-g5-50c-max-2500mah-3s-lipo.html>

You could choose between the two by weight, with the 4S being lighter.

It is a good idea to choose by dimension, that way you'll know that the battery will actually fit in the plane where you want it to go.

Make a foam, or cardboard, ‘box’ and actually fit it in the plane where the battery would go.

Whatever works best for you is the best way to do it.