Himax Brushless

HG 2015 / 2025 Power Pack

Himax Brushless Power Packs make setting up a model a simple project. Just choose the appropriate power system to match the model or replace an engine. The packs listed below will fly 3D models weighing 14oz to leisurely models weighing 38oz. The packages are chosen toward 3D models to provide lively performance.

The power systems as shipped will be suitable for light 3D models, sport, and leisurely models. Please use caution when experimenting with other propellers and/or battery packs. Be sure to measure current draw to prevent failure of the speed control and or motor due to excessive current. Please read the motor manual for more information.

	Combo-049	Combo-070
Motor	HG2015-4166	HG5025-4266
Glow Equiv.	.049	.070
Weight Max, oz.		
3D	14	20
Aerobatic	20	30
Leisure	25	38
Prop	12x6E	12x8E
ESC	20A	20A
Current, Amps	10	15
Watts, Approx.	100	155
Thrust, oz.	22	35
Pitch Speed	31	45
System Weight, oz.	4.7	7.5
Suggested Battery	3S830	3S1550

Minimum Battery Size, mAh

	C rating					
Amps	5C	8C	10C	12C	15C	20C
5A	1000	630	500	420	330	250
10A	2000	1250	1000	830	670	500
15A	3000	1880	1500	1250	1000	750
20A	4000	2500	2000	1670	1330	1000
25A	5000	3130	2500	2080	1670	1250
30A	6000	3750	3000	2500	2000	1500
40A	8000	5000	4000	3330	2670	2000
50A	10000	6250	5000	4170	3330	2500
60A	12000	7500	6000	5000	4000	3000

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Himax Brushless
HG2015/HG025
Combo Power Pack

		Combo-049		Combo-070
		☐		☑
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ESC		20A		20A
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EZ Electric Conversion

Electric motors for Glow people

by Greg Kamysz

Electric motors provide a clean and reliable power source for models. Selecting a motor is not much different than selecting an engine when you look at the fundamental requirements. The basic principles that make aircraft fly should be used to select a power plant for the performance desired. Power to weight ratio and flight speed envelope make up the aircraft's performance. This translates to thrust to weight ratio and pitch speed. Considering power and propeller choosing an electric motor doesn't have to be a challenge.

The power loading is the first parameter to consider. Power to weight ratio for electric models is generally quoted in watts per pound (W/Lb). This is basically a performance gauge. More power available per pound results better the aircraft performance. Power loading holds true for models all the way up to full scale. Some examples are listed below. 1 Horsepower (HP) = 746 Watts (W)

Piper Cub	65HP	1220Lb	40W/Lb
B-17	4800HP	65000Lb	55W/Lb
Pitts Special	260HP	1626Lb	120W/Lb
Spitfire IV	1440HP	5000Lb	215W/Lb

The chart shows that high performance requires a high power loading. The Cub flies sedately at 40W/Lb and so will a model with this power loading. Follow the chart below for model aircraft.

Mild ROG Performance	50W/Lb
Mild Aerobatics	75W/Lb
Aggressive Aerobatics	100W/Lb
3D or High speed	125-150W/Lb
Competition	300+W/Lb

There are many aircraft designed for internal combustion or glow engines. We can also approximate the required power based on engine displacement. A survey of available engines resulted in the chart below in terms of watt per cubic inch displacement(W/ci)

Sport 2 or 4 Cycle	1250W/ci
BB 2 Cycle	1500W/ci
High Perf. 2C/4C	1800W/ci
Racing, Ducted Fan	4000W/ci

Multiply the displacement of the recommended engine by the W/ci rating to find the amount of power required of the electric motor system. For example; a .40 plain bearing engine will make .40ci x 1250W/ci = 500W of power. Consider that many .40 size trainer models weigh 6Lb, the power loading works out to 83W/Lb.

Once the required power is known we can look at the motor and battery. Look at the motor specifications for power rating. Choosing a motor with a power rating equal to the requirement is safe. Erring on the safe side one would choose a motor capable of slightly more than is required. The motor must be able to handle the required power and the torque to turn a propeller appropriate for the model. A high-speed model will work best with a small prop at high RPM, while a slower model will work better with a larger prop at lower RPM. Power is a product of RPM and torque. For a given amount of power one can have a lot of torque and low RPM, or high RPM and low torque. Getting a lot of both requires more power. RPM and torque is related to the flight speed of the model. Take a look at the list of Himax motors. Find the ones that meet the power requirements. Now look again at the prop size. Choose a motor that uses a prop size suitable for the model. Assume that the smaller props work best with models designed to fly fast. On test flights it is best to try several props in the suggested range which draws an acceptable amount of current to see what works best. A difference of an inch in diameter or a couple inches in pitch can change the way a model flies drastically. If prop size doesn't narrow the selection to one motor consider gearboxes or the simplicity of an outrunner motor direct drive. Also consider the voltage required to see what kind of battery is needed. The battery must be able to support the current requirement of the motor with the chosen prop. Check the current rating of the battery to make sure it will not be overworked. The ESC must also be sized to handle the voltage and current requirements.