

Introduction to Electric flight power Part 3.

How To Equate Brushless Motors To Glow I.C.

This is a transcript of an article by Pascal Dennoy in the M.R.A., the French equivalent of R.C.M. & E., which includes two ready reference tables. This information only pertains to propeller driven models not E.D.F. It is also confined to outrunners which comprise the bulk of the E.P. market.

Just looking at a brushless motor on power alone doesn't indicate how it compares to a two stroke glow motor. The principal points covered here will enable a correct choice to be made.

Relationship of motor weight to model recommended A.U.W.

The weight of a brushless motor relative to the model is seldom or ever taken into consideration in any E.P. conversion data. There is a simple formula to determine the weight of a motor for either a gentle sport/scale or high performance aerobatic model.

Weight of motor = weight of model (recommended A.U.W.) / 10 - sport/scale.

Weight of motor = weight of model (recommended A.U.W.) / 8 - high perf.

Examples. A Mustang weighing 3.0Kg. A.U.W. requires a motor weighing approx. 300g. i.e. 3000/10

A glider weighing in at 4.5kg. requires a motor weighing 450g. 4500/10.

An SBach weighing 2.5kg. requires a motor weighing approx.310g. i.e. 2500/8.

Relationship of motor power to model recommended A.U.W.

Whilst this has been covered previously in Watts/lb., herewith is the rule of thumb in Watts/Kg.

Slow flying and sport models 250W/kg.(A.U.W.) - High performance 450W/kg. (A.U.W.)

From these two parameters, all that is required by the user is to refer to the data provided by the motor supplier of choice.

Characteristics of Brushless Outrunners

2 stroke Glow I.C capacity(c.c.)	Electric Motor weight(g)	Electric Cage dia.(mm)	Electric Cage length.(mm)
0.5-0.8c	25	28	22
1.0-1.6	45	28	28
1.5-2.5	80	35	30
2.0-3.2	120	35	35
2.5-4.0	130	35	42
3.0-5.0	160	35	48
3.6-5.9	220	42	50
4.0-6.5	250	42	55

5.0-8.0	320	50	55
6.0-10.0	350	50	60

E.P to I.C Equivalent in Watts

2 stroke glow c.c.	E.P Sport Watts	E.P High Perf. Watts
0.5-0.8	75	100
1.0-1.6	150	200
1.5-2.5	225	300
2.0-3.2	300	400
2.5-4.0	375	500
3.0-5.0	450	600
3.6-5.9	540	720
4.0-6.5	600	800
4.6-7.5	690	920
5.0-8.0	750	1000
6.0-10.0	900	1200

From part 1 now to part 3 you have most if not all that you need to select the correct E.P set up.

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