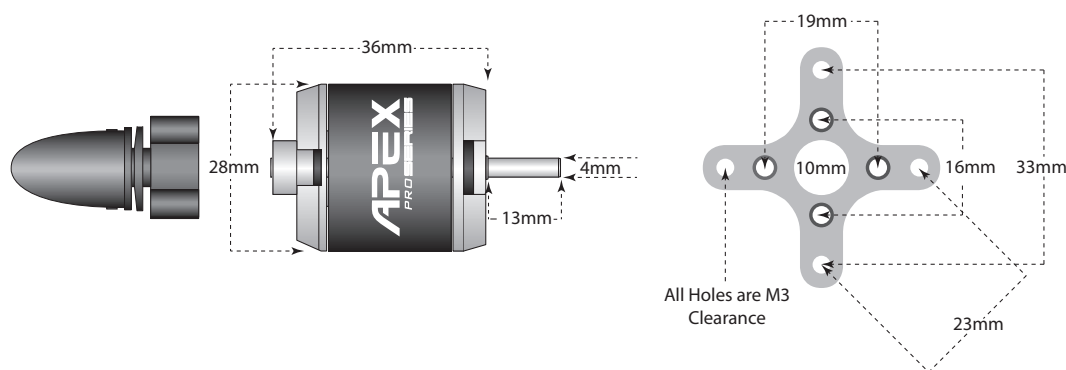


**Thank you for purchasing an Airtek Apex Pro Brushless Outrunner Motor. This has been manufactured to the highest standards, and when used within the specifications should provide a long and trouble free service life.**

- Always use the correct size propeller for the highest performance. Use of an incorrect size propeller may damage the motor.
- Do not run the motor for more than 60 seconds full power on the ground. The motor unloads and receives maximum cooling during flight.
- Always ensure adequate cooling for your motor, particularly with in cowl installations.
- Always make sure the surrounding area is clear of debris and spectators, and your model is adequately restrained when powering up. **ELECTRIC MOTORS CAN BE DANGEROUS** - always handle them with respect.
- The quality of your ESC has a great impact on the performance of your motor. If your motor makes unusual sounds try re-timing your ESC.
- Never guess your set-up - use a Watt Meter, they are relatively inexpensive and you can be sure your motor is running within limits.
- Always use an ESC of at least the minimum Amp rating that is specified for your motor See cahrt overleaf) . Where weight and space permit consider using an ESC of a higher rating.
- Never shorten the wires or cut off the connectors - de-solder them if required. Running the motor with shorter wires can result in damage.
- When connecting the 3 motor wires to the ESC check for correct rotation of the propeller. If the propeller rotates in the opposite direction to that desired, simply swap any two wires for correct rotation direction.



- Included with your Apex Pro Motor**
- 1 x Apex AX/2836 Brushless Outrunner Motor with Pre-Soldered 3.5mm Bullet Connectors.
  - 1 x Rear Cross Mount
  - 4 x M3 Countersunk Mount to Motor Screws
  - 1 x Front Prop Driver Assembly and screws

**Mounting Your Motor**

The Apex Pro series are can be either front firewall mounted or rear mounted or rear mounted vis the supplied cross mount.

**Rear Mounting**

Attach the supplied cross mount to the motor side with the shaft protruding with the supplied 4 x counter sunk cross head screws. Then on the other side of the motor attach the prop driver using the supplied socket screws. The prop is then attached to the threaded shaft followed by the washer and prop nut. If desired you may use a *small* amount of blue thread lock on the screws but take great care that no thread lock enters the internal of the motor. The motor can then be attached to the firewall of your model using nuts & bolts (not supplied). Please note that in rear mount applications the rearward facing shaft is redundant so a suitable hole will have to be drilled in the firewall to accommodate it. Take care it does not foul any other items such as batties in the model.

After attaching the prop there are 2 small locking grub screws on the spinner sides as an added safety measure. *Carefully* tighten these after the spinner is tightened. Do not overtighten as damage to the driver thread is possible.

**Front Mounting for slim fuselage applications (i.e. glider noses)**

The motor can be mounted directly to the front bulkhead by dispensing with the cross mount and mounting the motor directly using the 4 x holes in the front of the motor can. The supplied counter sunk cross screws can be used on bulkheads up to around 3mm (1/8). If your bulkhead is thicker than this you may have to substitute your own longer screws. Take care that your mounting screws do not protude inside the motor can where they can contact the windings or wiring. When front mounting in tight installations take care that the 3 motor wires do not come into contact with the rotating motor can and make sure you provide adequate cooling for the motor.

**Front Mounting using the cross mount for front firewall installation**

Attach the supplied cross mount to the motor side with the shaft protruding with the supplied 4 x counter sunk M3 cross screws. The motor can then be attached to the firewall of your model using nuts and bolts through the cross mount holes (not supplied). The shaft can then accept a prop adaptor or spinner hub (not supplied) for prop mounting.

**For Technical Specs and the correct ESC/Battery/Prop to use with your motor please refer to the motor you have purchased on the chart printed overleaf**

We wish you many enjoyable hours of service from your Airtek Apex Motor. For a full range of products to compliment your motor please visit [www.airtekhobbies.com](http://www.airtekhobbies.com)

## Brushless Outrunner Motor Comparison/Specification Chart

Please use this chart in conjunction with the notes above the columns

| Model        | Max Watts (W) | kv (rpm/v) | Max Current (60secs) | Continuous Current | Rec ESC | Resistance m(Ω) | Idle Current | Cells Lipo | Cells Nixxx | Weight (grams) | Recommended Prop Range | Model Weight Light Trainers/Gliders | Model Weight Sport Aerobatic | Model Weight 3D/Extreme Aerobatics | I.C. Ekv (cu.in.)2st | Shaft Dia.mm |
|--------------|---------------|------------|----------------------|--------------------|---------|-----------------|--------------|------------|-------------|----------------|------------------------|-------------------------------------|------------------------------|------------------------------------|----------------------|--------------|
|              |               |            |                      |                    |         |                 |              |            |             |                |                        |                                     |                              |                                    |                      |              |
| AX/2822/1100 | 100           | 1100       | 9.9A                 | 6.7A               | 20A     | 0.192           | 0.4A         | 2-3        | 6-9         | 39g            | 9x5/7x5                | <550g                               | <400g                        | <250g                              | .06-.09              | 3.175        |
| AX/2822/1450 | 160           | 1450       | 14.7A                | 11.6A              | 20A     | 0.112           | 0.5A         | 2-3        | 6-9         | 39g            | 8x6/7x4                | <850g                               | <580g                        | <330g                              | .06-.09              | 3.175        |
| AX/2822/1800 | 200           | 1800       | 16.5A                | 12.5A              | 20A     | 0.112           | 0.5A         | 2-3        | 6-9         | 39g            | 8x4/7x3                | <900g                               | <630g                        | <370g                              | .06-.09              | 3.175        |
| AX/2826/1000 | 150           | 1000       | 13.8A                | 10.8A              | 20A     | 0.127           | 0.5A         | 2-3        | 6-9         | 54g            | 11x7/10.5              | <800g                               | <550g                        | <310g                              | .09-.15              | 3.175        |
| AX/2826/2200 | 340           | 2200       | 31.5A                | 26.0A              | 30A     | 0.033           | 1.8A         | 2-3        | 6-9         | 54g            | 7x4/7x3                | <1200g                              | <850g                        | <450g                              | .09-.15              | 3.175        |
| AX/2836/880  | 240           | 880        | 16.8A                | 14.8A              | 30A     | 0.107           | 0.8A         | 2-4        | 6-12        | 70g            | 12x6/9x6               | <1400g                              | <1000g                       | <600g                              | .19-.25              | 4.0          |
| AX/2836/1000 | 305           | 1000       | 22.1A                | 17.9A              | 30A     | 0.090           | 1.4A         | 2-4        | 6-12        | 70g            | 11x6/9x5               | <1580g                              | <1080g                       | <620g                              | .19-.25              | 4.0          |
| AX/2836/1500 | 360           | 1500       | 25.4A                | 24.5A              | 30A     | 0.048           | 1.7A         | 2-4        | 6-12        | 70g            | 9x6/7x4                | <1750g                              | <1250g                       | <650g                              | .19-.25              | 4.0          |
| AX/3536/1250 | 540           | 1250       | 32.4A                | 38.2A              | 50A     | 0.036           | 1.6A         | 2-4        | 6-12        | 102g           | 10x6/11x5              | <2600g                              | <1950g                       | <1100g                             | .25-.32              | 5.0          |
| AX/3536/1450 | 650           | 1450       | 45.2A                | 42.7A              | 50A     | 0.023           | 2.0A         | 2-4        | 6-12        | 102g           | 8x5/9x6                | <2900g                              | <2350g                       | <1200g                             | .25-.32              | 5.0          |
| AX3542/1000  | 540           | 1000       | 47.5A                | 43A                | 60A     | 0.039           | 1.8A         | 2-4        | 6-12        | 136g           | 12x5/11x7              | <2700g                              | <1900g                       | <1050g                             | .32-.36              | 5.0          |
| AX3542/1250  | 660           | 1250       | 46A                  | 42A                | 60A     | 0.021           | 2.0A         | 2-4        | 6-12        | 136g           | 10x6/11x5              | <3250                               | <2300                        | <1250                              | .32-.36              | 5.0          |
| AX3542/1450  | 690           | 1450       | 38A                  | 35A                | 60A     | 0.019           | 2.1A         | 2-4        | 6-12        | 136g           | 8x7/9x6                | <3400                               | <2400                        | <1350                              | .32-.36              | 5.0          |
| AX3548/790   | 720           | 790        | 39.5A                | 35A                | 60A     | 0.040           | 1.2A         | 3-5        | 9-14        | 152g           | 13x8/12x7              | <3550                               | <2550                        | <1400g                             | .36-.40              | 5.0          |
| AX3548/900   | 770           | 900        | 42.5A                | 40.0A              | 60A     | 0.036           | 1.5A         | 3-5        | 9-14        | 152g           | 13x7/12x7              | <3800g                              | <2700g                       | <1500g                             | .36-.40              | 5.0          |
| AX3548/1100  | 910           | 1100       | 50.3A                | 46.0A              | 60A     | 0.024           | 2.2A         | 3-5        | 9-14        | 152g           | 12x6/11x8              | <4400g                              | <3100g                       | <1700g                             | .36-.40              | 5.0          |

The specifications above are supplied in good faith. As with all electric systems there are multiple combinations of Motor/ESC/Props and Batteries available, the change and variation of any of these (even the same size/specification from different manufacturers) will have an effect on the parameters/performance you can expect. We STRONGLY recommend the use of a wattmeter. These relatively inexpensive devices will not only bring some science into your hobby, allowing you to optimise your set up for better performance and duration, but will check if you are running within the limits of your equipment. Your first fired motor or burnt ESC will pay for a wattmeter! If you don't use a wattmeter always check the temperature of your Motor/ESC after a run. Warm is OK - hot is NOT!

**Note 1:** These are the MAXIMUM Watts the motor is capable of attaining and not what you will normally get in a real life situation. The cell count and C rating of the battery will both have an effect on the Watts attainable. An average sport lipo can lose around 1 volt per cell under load and this must be factored in when calculating the realistic maximum watts you can attain. The calculation for Watts is Volts x Amps. Let us take the AX/2836/1500 as an example when run with a 3 cell lipo is 11.1v. However if we take the rule of thumb of a loss under load of 1v per cell that would make a voltage of 8.1v for our calculation (11.1v - 1.0v - 1.0v = 8.1v). Looking along the table the recommended CONTINUOUS Current is 24.5A. Therefore our calculation would be 8.1(v) x 22.0(a) = 19.8Watts (rounded) on 3 cell. To calculate the Watts on 4 cell it would be 10.8(v) x 25.5A = 27.5W (rounded). If you use a higher C rate battery that loses less voltage under load then these figures can be improved on. Lets take the 3 cell figure again but assume there is no voltage loss under load then the calculation would be 11.1(v) x 24.5a = 27.2 Watts (rounded). In truth most set ups will fall somewhere between these figures, and will of course be greatly affected by propeller choice. You must not however exceed the Maximum Watts in this column.

**Note 2:** Current figures are determined by the manufacturer and are really self explanatory. The maximum current figure can be used for a MAXIMUM of 60 seconds. The continuous current figure is the maximum safe continuous current.

**Note 3:** This is the recommended ESC for the motor on all voltages. Where space and weight permit consider using an ESC with a higher rating than recommended (i.e. where a 30A is shown fit a 40A) to give plenty of leeway.

**Note 4:** Props are shown as a guidance/starting point. The prop is the single most important variable on your brushless system. The loading on your motor, and parameters such as AMP draw are (in broad terms) determined by the prop. A higher Kv motor will spin a smaller prop at higher revs, and a lower Kv motor will spin a larger (and generally more efficient) prop at lower revs. Props from different manufacturers with the same size can give very different readings (which can easily be determined by the use of a wattmeter), so experiment to find the best combination for your model. As a very general rule of thumb where the specified prop is, for instance, an 11x5 and you wish to swing a 10" diameter but want to retain the approximate same load on your motor you would compensate for the loss of diameter with an increase in pitch, so from 11" to 10", and 5" to 6" i.e. your 11x5" would be substituted by a 10" x 6". With folding props allow for the diameter of spinner used. An increase in spinner diameter effectively means an increase in prop diameter which must be factored in when choosing a prop size. **Always remember, less cells = larger prop, more cells = smaller prop.**

**Note 5:** A very common question asked about brushless motors is what weight of model they will power. Again, there are so many variables with model design that a definitive answer can't always be given. We have provided 3 broad categories of models and quoted an approximate average weight of model the motor, when propped correctly, will fly well. However, these are mathematical calculations and do not take into account the type of model and the motor that would be most efficient. For instance you may have a glider weighing 1200g so looking at the chart the AX/2826/2200 would seem a good choice. The sums are correct but this is totally the most unsuitable motor for this type of model because it is a High kv motor which spins a small prop at high RPM which is exactly what you don't want for this type of model. So do use this as a guide but bear in mind you need to select a motor that is suited to the type of model it is intended for.

**Note 5:** Electric motors and i.c. engines are two completely different forms of propulsion and as such direct comparisons are often not the most appropriate way of selecting a motor. However we appreciate that brushless motor sizes are very confusing for those coming over from i.c. powered models so have included this information to give you a general approximation. Electric motors are much more flexible than i.c. engines, being able to utilise a broader range of props. It is possible to choose a motor that turns a same size prop at the same revs as an i.c. engine, but you will get a much better performance if you utilise the flexibility of brushless motors correctly.