RIMFIRE™

22M-1000 Brushless Motor

INSTRUCTIONS

ElectriFly's™ RimFire™ 22M-1000 brushless motors are designed and produced with high quality, power, precision and efficiency in mind. Designed to be power upgrades for smaller 3D aerobats and flat-foamies, the "outrunner" design eliminates the need for an external gear drive for many applications. And, RimFire's prop-saver design eliminates the need for a prop adapter for many applications – simply strap the prop onto the motor with a rubber O-ring and that's it!

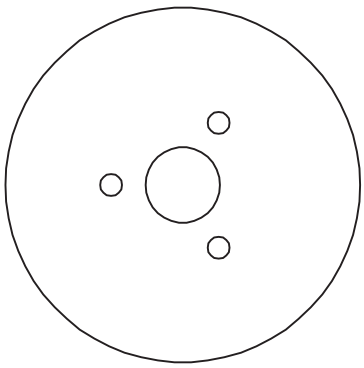
SPECIFICATIONS

Input Voltage:	7.2 – 12V DC
kV Rating:	1000 RPM/volt
Max. Constant Current:	11A
Max. Surge Current:	15A
No Load Current:	0.65A
Internal Resistance:	235 milli-ohms
Dimensions:	1.10 x 1.14 in. [28 x 29mm]
Weight:	1.48 oz. [42g]
Recommended Props:	10x3.8, 10x4.7, 11x3.8 for 2-cell Li-Po, 8x3.8, 8x6, 9x3.8 for 3-cell Li-Po

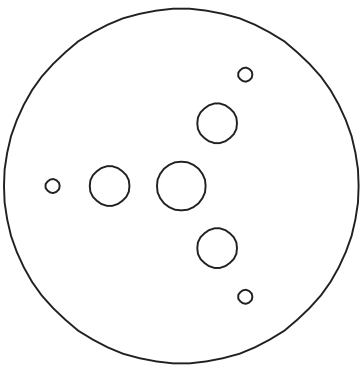
SPECIAL FEATURES

- Great for small high performance airplanes, from flat foams to built-up 3D's.
- RimFire's prop mounting system eliminates the need for a prop adapter for many applications.
- Outrunner design often eliminates the need for using external gear drives for many applications.
- Very reliable and virtually maintenance free. No brushes to wear out. Dual ball-bearings are shielded on both sides to keep out dirt and debris.
- Exceptionally high power to weight ratio.
- Very durable machined aluminum and iron can.
- Maximum rated efficiency of 77%.
- Extremely strong neodymium "rare earth" magnets for high output torque, with one of the highest temperature ratings in R/C at 150°C [302°F] which won't breakdown like lower quality magnets.
- Magnet wires with a maximum 160°C [320°F] temperature rating.
- Gold plated 2mm bullet connectors pre-installed (3 per motor).
- Each motor includes:
  - 3 x 5mm, standard thread, round head mounting bolts – 3 each.
  - 2.6 x 10mm, standard thread, flat head hex key bolts – 2 each.
  - Small #10 rubber O-rings – 6 each.
- Stainless steel output shaft diameter and length: 3 x 12mm.

MOTOR BEHIND THE FIREWALL TEMPLATE



MOTOR IN FRONT OF FIREWALL TEMPLATE



IMPORTANT PRECAUTIONS

- Do NOT apply an input voltage that exceeds the maximum voltage listed in the specifications above.
- Do NOT apply currents to the motor that exceed the maximum specifications above.
- Do NOT allow the input connectors to accidentally touch each other while power is applied to the motor. Make sure all input connections are insulated electrically.
- Do NOT allow water or moisture to enter the motor, as it can cause permanent damage to the motor and possibly short out the attached ESC.
- Allow the motor to adequately cool if it becomes hot during operation.
- The output shaft will rotate at very high RPMs. Do NOT attempt to touch the shaft while it is rotating. If setting up the motor/ESC on the workbench, make sure the motor is securely attached and that nothing is connected to the output shaft BEFORE applying power.
- Never attempt to use a damaged motor (having mechanical or electrical defects).

COMPATIBLE ESCs

RimFire brushless motors **must** be controlled with a brushless electronic speed control. And, RimFire motors are sensorless so the ESC must be of sensorless design as well. Do NOT attempt to use RimFire motors with ESCs that are designed for traditional brushed motors as permanent damage will result!

The BL-8 Brushless ESC from ElectriFly (GPMM2070) is a perfect match for the RimFire 22M-1000 brushless motor for small 3D flat-foam airplanes. ESCs with more power may be better suited when using the RimFire motor in slightly larger airplanes which require more current/torque. Check your local hobby retailer for details on different ESC options.

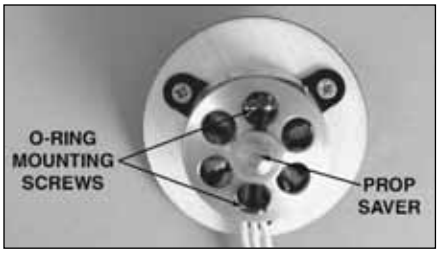
There are two options for mounting the RimFire motor to your airplane, either in-front or behind the firewall.

MOUNTING THE MOTOR IN FRONT OF THE FIREWALL

The entire motor can be mounted in front of the firewall. This is the most common method for mounting a motor to a flat-foam airplane (refer to the airplane's instruction manual for details). To mount the motor to the front of the firewall:

❑ 1. Secure the mounting plate to the motor with the three included 3 x 5mm machine screws.

❑ 2. Use the printed template shown at left to mark the locations of the mounting holes in the firewall.



❑ 3. Drill four 5.5mm holes to clear the three machine screws and motor shaft through the firewall, and drill three pilot holes for mounting the motor to the firewall with wood screws as shown here.

❑ 4. The prop will be installed on the motor's built-in prop-saver on the rotating section of the can. It will not be necessary to use the included prop-adapter for this application. Install the two included 2.6 x 10mm machine screws into the two holes on the side of the motor's built-in prop-saver. Make sure the screws are tight, but do not overtighten the screws as they could strip the threads inside the prop-saver!

❑ 5. The prop-saver is designed for use with APC Slo-Flyer props. Press the larger of the two adapter rings included with the propeller into the ACP Slo-Flyer prop hub and press the prop onto the prop-saver.

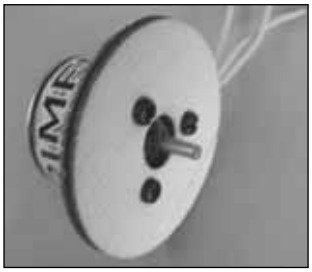
❑ 6. Use one of the included rubber O-rings to secure the propeller to the screws on the prop saver. For high-power applications, use two O-rings for a stronger mount.

MOUNTING THE MOTOR BEHIND THE FIREWALL

The motor can be installed behind a firewall. To do so:

❑ 1. Use the printed template shown on the reverse page to mark the mounting holes on the firewall.

❑ 2. Following the template, drill three 3mm holes (for the mounting screws) and one 10mm hole (for the output shaft) through the firewall.



❑ 3. Secure the motor to the firewall using the three included 3 x 5mm machine screws. If the firewall is very thick it may be necessary to use longer screws (not provided). Here, the long end of the motor's shaft will protrude forward through the firewall.

❑ 4. The included prop adapter will need to be installed onto the motor's long shaft as it protrudes through the firewall. There is no need to install the 2.6 x 10mm machine screws into the two holes on the side of the motor's built-in prop-saver for these installations.

❑ 5. Remove the prop nut and prop washer from the prop adapter and slip the prop adapter onto the shaft. Install the propeller on the prop adapter. Re-install the prop washer and prop nut. Tighten the prop nut. This will cause the collet to tighten down and grip the motor's shaft.

MOTOR CONNECTIONS

IMPORTANT! Always make sure the motor is mounted firmly to the aircraft to prevent it from accidentally coming loose when power is applied to the system!

When all motor/ESC connections are complete, make sure the motor connections are not touching each other while power is applied, as permanent damage to the motor/ESC could result. Make sure all input connections are insulated electrically. Installing heat-shrink tubing over each connection is recommended. Do not attempt to cut or remove any of the input wires from the motor as it will likely damage the motor beyond feasible repair.

RimFire motors have three input connectors, each with 2mm male bullet connectors pre-installed. Connect all three of the motor's input wires to the output wires on the ESC. It is **not necessary** to match up the colors of the wires on the ESC to the wires on the motor. If the motor operates in the opposite direction as required, switch **any two** of the wires from the ESC to the motor to reverse the motor's rotation.

MAINTENANCE

RimFire brushless motors require virtually no maintenance. There aren't any brushes to wear out and replace. The ball-bearings have a very long service life and should maintain good operating condition for a very long period of time. Blowing pressurized air into the motor can help to remove dirt and debris, and improve overall efficiency. The output wires should not require replacement. If used with a gear drive, the gear drive itself might require addition of lubricating grease after a certain period of time. See the instructions which came with your gear drive for detailed information.

*1-YEAR LIMITED WARRANTY – *U.S.A. AND CANADA ONLY*

Great Planes® warrants this product to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. During that period, Great Planes will, at its option, repair or replace without service charge any product deemed defective due to those causes. You will be required to provide proof of purchase (invoice or receipt). This warranty does not cover damage caused by abuse, misuse, alteration or accident. If there is damage stemming from these causes within the stated warranty period, Great Planes will, at its option, repair or replace it for a service charge not greater than 50% of its then current retail list price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty gives you specific rights. You may also have other rights, which vary from state to state.

For service on your Great Planes product, warranty or non-warranty, send it post-paid and insured to:

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3002 N. Apollo Drive, Suite 1
Champaign, IL 61822
(217) 398-0007
E-mail: *hobbyservices@hobbico.com*

*For warranty and service information if purchased outside the USA or Canada, see the additional warranty information insert (if applicable) or ask your retailer for more information.

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