

Instruction Manual

Thank you for purchasing the Tahmazo ER-2212K brushless motor kit. Our motor kits are equipped with top grade segment magnets for optimum performance and the ball bearings already prepressed onto the endbells.

Recommended speedcontroller:

Tahmazo M0910-3S, 6-10 Nicad/NiMh or 2-3 LiPo cells, with BEC and max. load 12A
 Tahmazo M1310-3S, 6-10 Nicad/NiMh or 2-3 LiPo cells, with BEC and max. load 12A

Package includes:

1. Motor casing lined with 14 top grade arc segment magnets
2. Motor core with 12 poles
3. Copper wire of 0.17mm thickness, 23m long
4. Aluminum endbell with ball bearings installed
5. Radial motor mount with screws
6. Gold connectors for motor and speedcontroller
7. Motor connecting wires
8. Wire sleeves (3 small, 3 medium, 1 large)
9. Self-locking propeller mounting x 1, helical ring x 1 and retaining circlip x 1



Kv	No. of strand	No. of turns	Length of wire(cm)	Propeller	RPM	Current (A)	No. of Li-po cells
1300	5	10	153	6 x 5.5	11000	5.9	2
980	4	13	191	6 x 5.5	8250	4.5	2
800	3	17	255	10 x 3.8SF	6750	6.7	3

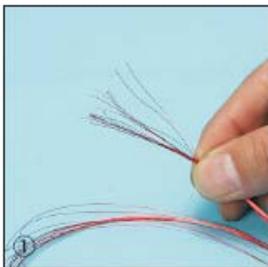
Specifications of ER2212K:

Battery: Li-po 2 - 3 cells
 Current drawn: 8 - 12 A (>75%)
 Dimension: 28 x 28 mm
 Shaft diameter: 3.17mm
 Weight: 55 to 60g (depending on the number of turns and wire size)
 Flying weight of model: 300 to 650g

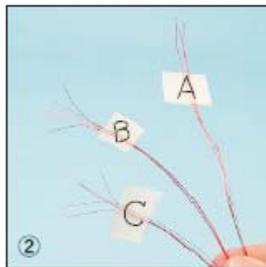
Before you proceed, here are some of the tools that you may require to wire this motor.

1. Dowel or rod of diameter 10mm, at least 100mm in length.
(Use to tighten each winding around the pole)
2. Tin Solder
3. Hobby knife.

Wiring the motor



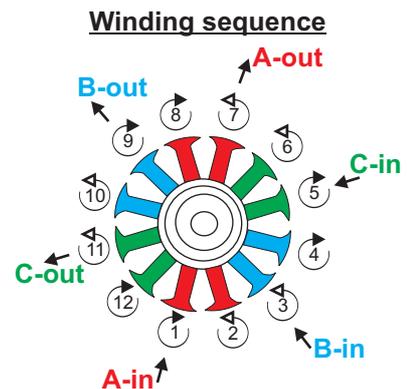
Step 1:
 Cut 15 strands of copper wires, approximate length 153cm for wiring a 10 turns motor (See Figure 1)



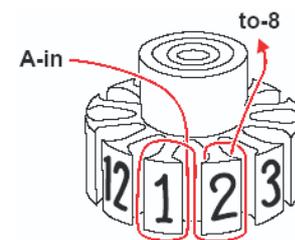
Step 2:
 Separate into groups of 5 strands and label them A, B, C. (See Figure 2)



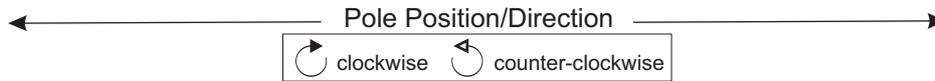
Step 3:
 Use a marker to label each pole (12 poles in total) in anti-clockwise sequence. (See Figure 3)



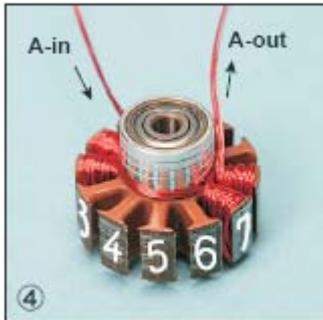
Before you proceed to wind the wires, Please see our suggested winding sequence and table.



Winding Sequence Table



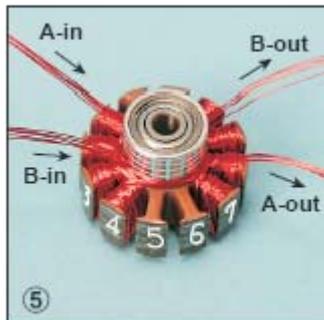
A-in	1 ↻	2 ↺	8 ↻	7 ↺	A-out
B-in	3 ↺	4 ↻	10 ↺	9 ↻	B-out
C-in	5 ↻	6 ↺	12 ↻	11 ↺	C-out



Step 4:
(See Figure 4)

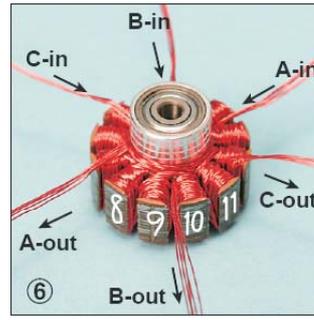
For Group A, wind wires around pole 1 in a clockwise direction with 10 turns, then continue to pole 2 and wind another 10 turns in a counter-clockwise direction. Wind to Pole 8 and finally Pole 7 in the direction given in the above Winding Sequence Table

Once completed, label the ends with tape to indicate Group A.



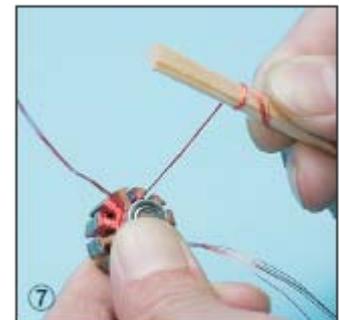
Step 5:

(See Figure 5)
For Group B, continue winding from Pole 3, 4, 10 and ends with Pole 9 in the direction according to the Winding Sequence Table.



Step 6:

(See Figure 6)
For Group C, continue winding from Pole 5, 6, 12 and ends with Pole 11 in the direction according to the Winding Sequence Table.

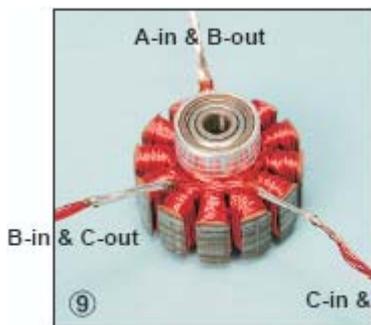


Step 7:

Ensure each wind is tight while not to overstretch the wires. It is suggested to use a piece of wooden stick to assist winding. (See Figure 7)

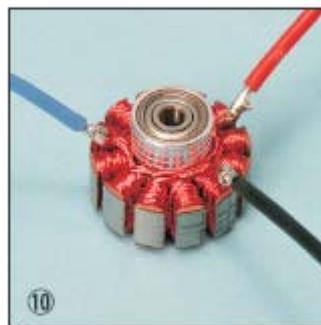
TIP:

While you want the wire to lie in the stator neatly, there is no need to pull the wires too tightly. Instead rotate the stator in the opposite direction to the direction of winding.



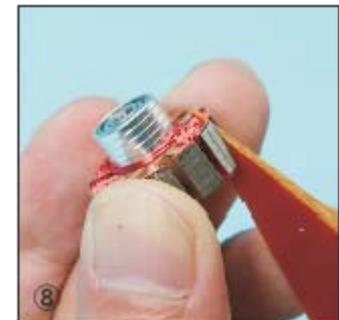
Step 9:

After complete winding all 3 groups into the poles, pull together. A-in & B-out, B-in & C-out, C-in & A-out



Step 10:

Position group wires at a suitable location and remove protective coating with a hobby knife to allow soldering at that point.
Solder the group wires in 3 sets:
1. A-in & B-out
2. B-in & C-out
3. C-in & A-out



Step 8:

After every wind over the pole, ensure all the wires are within the pole using a small piece of plastic or wooden apparatus. (See Figure 8)



Step 11:
Solder the wires onto exposed copper wires and use heat shrink sleeves provided to protect the wires.



Step 12:
Clean surfaces of motor core and internal diameter of aluminium endbell. Trial fit the endbell into the stator.



Step 13:
Apply thin layer of epoxy over motor core. Then fit the motor core and connecting wires onto the aluminium endbell. Ensure motor core is seated completely into endbell. (See Figure 13)



Step 15:
Place helical washer and circlip over the shaft. This is to secure motor and shaft.

You now have a brushless motor according to your requirement. A Tahmazo label is provided for you to indicate the KV or other specifications of the motor.



Step 14:
Ensure that the wires around poles are not protruding above bearings. (See Figure 14)

Apply light grease over bearings before inserting the motor case.

WARNING:
Take extra care when inserting the stator into the motor shaft as the pre-installed magnet are very strong.

Troubleshooting:

Motor stutters, Motor doesn't start or gets to half throttle and stutters

- You have a poor solder joint on your terminators.
- You have over-propped your motor
- You have a short, eg. your terminations are touching some metal.

Safety:

- Install only undamaged and balanced propellers.
- Never touch, or allow any object to come into contact with the rotating propeller.
- For their safety, keep all onlooker well away when preparing your model or connecting your batteries.
- Switch on your transmitter first, check the position of the throttle stick (usually at the minimum position for safety), then connect your battery pack to the speedcontroller.
- A stopped propeller could result in damage to your controller and motor.

Warranty

This instruction sheet is subject to change without notice. Manufacturer, guarantees the product to be free from defects in materials or workmanship. This guarantee does not cover periodic maintenance and repair or replacement of parts due to normal wear and tear, any adaption or changes to upgrade the product from its normal purpose, transport costs and all risk of transport relating directly or indirectly to the guarantee of the product; damage resulting from the misuse including installation or use of the product; repair undertaken by unauthorised personnel or customer, accidents, lightning, water, fire, improper installation or any cause beyond the control of the manufacturer; defect of the model into which the motor is installed.