SE0802 19000Kv

Brushless motor for 1S tiny whoops and toothpicks
User manual



Read this manual before installation and first use and keep it for future reference.

Rotorama, s.r.o. · www.rotorama.com · info@rotorama.cz

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1. Product description

1.1 Purpose

The Happymodel SE0802 19000Kv is a miniature 0802 brushless motor (stator 8 mm in diameter and 2 mm high) for the smallest FPV drones – 1S tiny whoops and toothpicks. The manufacturer specifies it for the Mobula6 drone (Regular edition); it is also suitable as a spare or replacement motor for other aircraft of the same class.

The motor connects to an electronic speed controller (ESC), which on small drones is usually integrated in an all-in-one flight controller (FC). The motor cannot work on its own without an ESC. The motor bell is secured by a double E-clip that prevents it from coming off in flight.



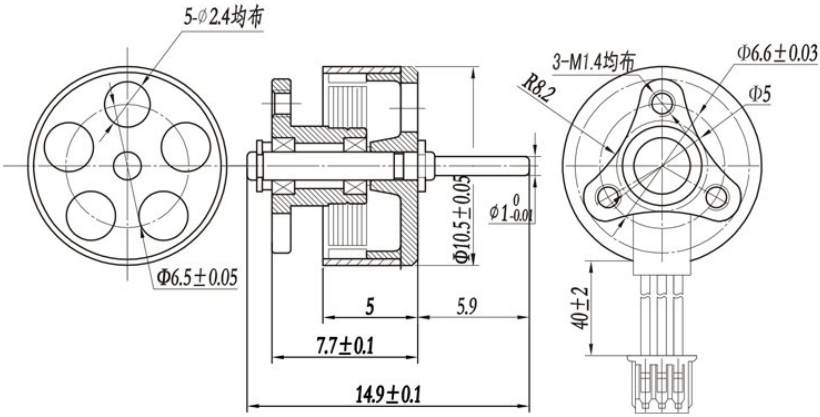
SE0802 motor with lead and JST 1.25 mm connector

1.2 Specifications and package contents

Product designation	Happymodel SE0802 19000Kv
Manufacturer	Happymodel (www.happymodel.cn, info@happymodel.cn)
Stator size	0802 – 8 mm diameter, 2 mm height
Kv	19000 Kv
Cell count (Li-Po)	1–2S
Configuration	9N12P
Shaft diameter	1.0 mm
Dimensions (diameter × length)	Φ10.5 × 14.9 mm
Lead length (incl. connector)	30 mm
Connector	JST 1.25 mm (3 wires)
Weight	1.9 g
Package contents	1× motor, 1× screw set
Not included	propellers, ESC / flight controller (FC), frame, battery, tools

1.3 Dimensions and manufacturer test data

Manufacturer's dimensional drawing (dimensions in mm). In the drawing, **3-M1.4** means three evenly spaced M1.4 mounting threads in the motor base and **5-Φ2.4** means five 2.4 mm holes in the motor bell.



Dimensional drawing of the SE0802 motor (source: Happymodel). The drawing is common to the whole SE0802 series; the lead length of the 19000Kv version is 30 mm.

The manufacturer gives the following test results for the 19000Kv version. The values are for guidance when choosing a propeller; actual values depend on the ESC, battery and motor condition.

▶ 55 mm 2-blade propeller (no load: 0.24 A, 28620 RPM at 1.5 V)

Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
3.80	1.05	11.90	3.990	2.982
3.80	2.08	20.50	7.904	2.594
3.80	3.05	27.10	11.590	2.338
3.80	4.11	32.30	15.618	2.068
3.70	4.25	33.90	15.725	2.156

▶ 31 mm 4-blade propeller (no load: 0.3 A, 26460 RPM at 1.5 V)

Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
4.20	1.18	11.40	4.956	2.300
4.20	1.97	16.70	8.274	2.018
4.20	3.15	23.90	13.230	1.807
4.20	3.42	24.60	14.364	1.713

2. Use

2.1 Mounting the motor

① Disconnect the drone battery. When replacing a motor, unplug the old motor's connector from the flight controller (FC) and remove its screws.

② Place the motor base on the frame so that the mounting holes line up and the lead points towards the centre of the frame.

③ Fasten the motor with the supplied screws. Tighten the screws gently and alternately – the M1.4 threads are very small and strip easily.

④ Use only screws of the correct length. A screw that is too long can reach the motor windings and damage them.

⑤ Route the lead so that it cannot touch the propeller or get pinched between the frame and other parts.

2.2 Connection and direction of rotation

The motor has a three-wire lead terminated with a JST 1.25 mm connector. Plug the connector into the corresponding motor socket on the flight controller (FC) or ESC. Always hold the connector body when plugging and unplugging; never pull on the wires.

- Make sure the motor is connected to the correct position (motor 1–4) according to your flight controller's diagram and the Betaflight configuration.
- The direction of rotation of a motor with a connector is not changed by rewiring, but in software in the ESC configuration, e.g. in the BLHeli / Bluejay configurator or with the motor direction reversal function in Betaflight.
- After replacing a motor, always check the direction of rotation against your drone's diagram (*Motors* tab in Betaflight) – **with the propellers removed**.

2.3 Propellers and pre-flight check

The propeller is pressed onto the 1.0 mm shaft. The manufacturer tested the motor with a 55 mm 2-blade propeller and a 31 mm 4-blade propeller (see Chapter 1.3). Use propellers designed for a 1.0 mm shaft and the size of your frame.

- Fit the propeller straight and without force, supporting the shaft so that it does not bend.
- Make sure the propeller orientation (CW / CCW) matches the motor's direction of rotation.
- Before the first flight, check that the motor connected to the ESC spins smoothly without rubbing, and only then fit the propellers.
- Always fly with a fully charged battery (Li-Po 4.20 V/cell, LiHV 4.35 V/cell; for 2S 8.40 V or 8.70 V respectively) and land at the latest at 3.5 V/cell (for 2S 7.0 V).

3. Safety and maintenance

3.1 Safety instructions

- A motor with a propeller fitted is dangerous. Before any work on the drone (installation, configuration, checking the direction of rotation), disconnect the battery or remove the propellers.
- Do not exceed the manufacturer's supply range of 1–2S Li-Po.
- A blocked motor (snagged propeller, crash, hair or grass on the shaft) overheats quickly and the windings or the ESC may be damaged. After a crash, Disarm (stop the motors) immediately.
- The motor may be hot after flight. Let it cool down before touching it.
- The motor contains strong neodymium magnets – keep it away from magnetic data carriers and pacemakers and protect it from small metal particles.
- Keep small parts out of the reach of children – risk of swallowing. When flying a drone, comply with the regulations of the country in which you fly.

3.2 Maintenance

- After every flight, check that no hair, fibres or grass have wound around the shaft under the propeller and remove them if necessary.
- Turn the bell by hand to check that the motor spins freely without rubbing. A rough or noisy motor may have a damaged bearing.
- Check that the bell and the E-clips are seated firmly, that the screws are tight and that the lead is intact where it exits the motor.
- A bent shaft causes vibrations – replace such a motor. Do not clean the motor with water or solvents; use only a dry brush or compressed air.

3.3 Troubleshooting

Problem	Possible cause and solution
Motor does not spin	Loose connector or motor connected to a different position than the configuration expects – check the connection and Betaflight.
Motor spins the wrong way	Set the direction of rotation in the ESC configuration or in Betaflight (Chapter 2.2).
Motor stutters or only twitches	Damaged wire, foreign object in the bell or damaged winding – inspect the motor and replace it if necessary.
Strong vibrations, noise	Bent shaft, damaged propeller or worn bearing. Replace the propeller or the motor.
Motor is very hot after flight	Propeller too large, blocked motor or debris wound around the shaft. Remove the cause and use a suitable propeller.

4. Information for the EU and Czech Market

4.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

4.2 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

5. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 4.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.