



XING 2806.5 1300KV

Brushless motor for FPV drones
User manual



Read the entire manual before mounting. Always remove the propellers when configuring and testing.

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1. Safety instructions

1.1 Before you start

The iFlight XING 2806.5 1300KV motor is a component intended for installation in a multicopter (FPV drone). Mounting, wiring and operation require basic knowledge of electronics, soldering and FPV drone building. Read the entire manual before installation and keep it for future reference.

- This product is not a toy. It is not intended for children; keep small parts (screws, nuts) out of the reach of children.
- Use the motor only for its intended purpose and within the limits given in the technical data.
- Do not modify the motor. Do not use a damaged motor (bent shaft, damaged bell, chafed wire insulation).

1.2 Rotating propellers and mechanical hazards

- Rotating propellers can cause serious injury. Whenever you configure, bench-test, solder or connect the battery, **always remove the propellers**.
- During operation keep a safe distance from people, animals and obstacles. Never reach into the propeller area while the battery is connected.
- Always tighten the propeller with the supplied M5 flange nut. A loose propeller may detach in flight.
- The bell contains strong neodymium magnets. Fingers or small metal objects (screws, filings) can be drawn into the gap between the bell and the stator. Magnets may affect pacemakers, magnetic cards and sensitive instruments.

1.3 Electrical and thermal hazards

- The motor may only be operated through an electronic speed controller (ESC) for brushless motors. Never connect it directly to a battery.
- A short circuit of the motor wires or the power lead can damage the ESC and the battery and cause a fire. Always insulate soldered joints (heat-shrink tubing).
- The motor heats up during operation. After a flight do not touch the bell or the stator until they have cooled down.
- Charge Li-Po and LiHV batteries only under supervision, on a non-flammable surface and with a suitable charger.

1.4 Operating environment

- Protect the motor from water, moisture, sand and fine metal debris. Metal filings stick to the magnets and damage the windings.
- After flying in a dusty or humid environment, inspect and clean the motor (chapter 6).

2. Product description

2.1 What the motor is for

The XING 2806.5 1300KV is an outrunner brushless motor for larger multicopters with 7-8" propellers powered by a 6S battery – typically long-range quads and cinelifters. Both the bell and the base are made of 7075 aluminium alloy, and the bell is a one-piece design (Unibell). The motor has a titanium alloy shaft, Japanese NSK bearings and curved N52H magnets; it is dynamically balanced and its wires are protected.

2.2 Package contents

1×	XING 2806.5 1300KV motor with wires
1×	M5 flange nut (for the propeller)
4×	M3 × 8 mm screw (for mounting the motor)

※ Propellers, electronic speed controller (ESC), battery and connectors are **not** included. The motor is sold individually.

2.3 Parts



XING 2806.5 motor - main parts

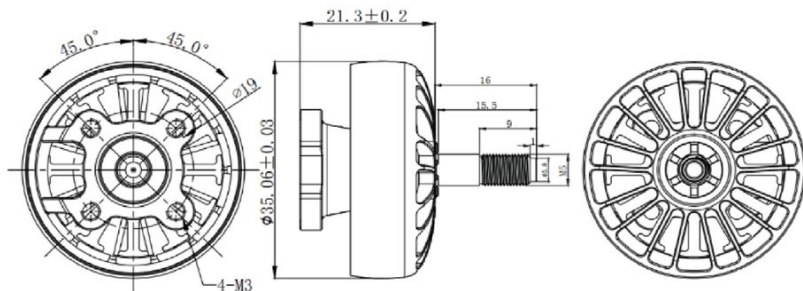
- ① Titanium alloy shaft, Ø 5 mm, with M5 thread for the propeller nut
- ② Unibell bell (rotor) made of 7075 aluminium alloy with N52H magnets
- ③ Stator with winding (12N14P configuration)
- ④ Base with four M3 mounting holes

2.4 Technical data

Parameter	Value
Designation	XING 2806.5 1300KV
Kv	1300 KV
Weight (incl. wires)	54.3 g
Dimensions	Ø 35.06 × 36.8 mm (body height 21.3 mm)
Interphase resistance	72.29 mΩ
Input voltage (per manufacturer)	24 V (6S battery)
Peak current *	48.33 A
Maximum power *	1132.9 W
Mounting holes	19 × 19 mm, 4 × M3
Rotor design	Unibell
Shaft diameter	5 mm
Shaft protruding length	15.5 mm
Wires	265 mm, 18AWG
Magnets	N52H, curved
Configuration	12N14P
Bearings	NSK, Ø 11 × Ø 5 × 5 mm
Winding	single-strand copper wire
Recommended propellers	7-8"

* Value measured by the manufacturer with an HQ 8×4×3 propeller at full throttle (see chapter 2.6).

2.5 Dimensional drawing



Dimensions in mm. The 4 × M3 mounting holes lie on a Ø 19 mm circle; shaft thread M5.

2.6 Manufacturer's test data

The manufacturer tested the motor at a supply voltage of approximately 24 V with three types of propellers. The values are indicative; the actual current draw depends on the propeller, battery voltage, ESC and flying style.

Propeller	Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
HQ 7×4×3	50	23.95	8.42	872	201.7	4.323
	60	23.88	13.91	1147	332.2	3.452
	70	23.85	19.2	1438	457.9	3.141
	80	23.59	27.23	1797	642.4	2.797
	90	23.48	35.16	2078	825.6	2.517
	100	23.42	42.33	2319	991.4	2.339
HQ 8×4×3	50	23.91	10.42	1034	249.1	4.152
	60	23.88	17.19	1363	410.5	3.319
	70	23.84	23.38	1683	557.4	3.019
	80	23.59	31.1	2036	733.6	2.775
	90	23.48	40.48	2328	950.5	2.449
	100	23.44	48.33	2510	1132.9	2.215
Gemfan 7040	50	23.94	5.9	593	141.2	4.201
	60	23.69	9.48	856	224.6	3.811
	70	23.51	13.8	1159	324.4	3.573
	80	23.48	19.78	1451	464.4	3.124
	90	23.41	26.8	1747	627.4	2.785
	100	23.33	32.38	2058	755.4	2.725

Motor temperature during the test: 65 °C (HQ 7×4×3), 68 °C (HQ 8×4×3 and Gemfan 7040).

3. Choosing other components

3.1 Battery

The motor is intended for a **6S** battery; the manufacturer specifies an input voltage of 24 V. Before every flight, insert a **fully charged** battery. The following values apply to 6S batteries:

State	6S Li-Po	6S LiHV
fully charged	25.2 V (4.20 V/cell)	26.1 V (4.35 V/cell)
end the flight	21.0 V (3.5 V/cell)	21.0 V (3.5 V/cell)
storage	22.8 V (3.8 V/cell)	22.8 V (3.8 V/cell)

3.2 Electronic speed controller (ESC)

Use an ESC for brushless motors rated for 6S. The ESC must handle, with a margin, the current the motor draws with your propeller. According to the manufacturer's measurements, the current at full throttle reaches 32.38 A (Gemfan 7040), 42.33 A (HQ 7×4×3) and 48.33 A (HQ 8×4×3). Take into account the ESC manufacturer's data on continuous and burst current and on cooling.

3.3 Propellers

The motor is intended for 7-8" propellers with a 5 mm shaft hole. The manufacturer tested the motor with HQ 7×4×3, HQ 8×4×3 and Gemfan 7040 propellers. A larger or more aggressive propeller increases the current draw and the motor temperature - check the temperature after the first flights (chapter 5.3).

4. Mounting and wiring

4.1 Mounting the motor on the frame

- ① Check that the frame has mounting holes for the 19 × 19 mm pattern (4× M3) and a hole for the centre of the base.
- ② Place the motor on the frame arm so that the wires lead towards the ESC.
- ③ Fasten the motor with the four supplied M3 × 8 mm screws. Tighten the screws gradually in a cross pattern.
- ④ Before tightening, make sure that no screw **reaches into the stator winding**. If the frame arm is thinner or thicker than the 8 mm screw length allows for, use screws of a suitable length.
- ⑤ After tightening, turn the bell by hand – it must rotate freely, without rubbing and without noise.

A screw that is too long will pierce the winding insulation and cause a short circuit that destroys both the motor and the ESC.

4.2 Connecting to the ESC

- The motor has three 18AWG wires, 265 mm long. Shorten them to the required length so that they are not under tension and cannot touch the propeller.
- Solder the wires to the phase pads of the ESC. The order of the wires only determines the direction of rotation; it cannot damage the motor.
- Insulate the finished joints and secure the wires to the frame arm (cable tie, tubing) so that they cannot chafe against the edges of the frame.

4.3 Direction of rotation

The direction of rotation of each motor must match the motor layout in the flight controller (FC) configuration, e.g. in Betaflight. If the direction does not match, you have two options:

- swap any two of the three motor wires, or
- reverse the direction in software in the ESC configuration (ESC configurator) or in the flight controller software.

4.4 Mounting the propeller

- ① Fit the propeller only after completing all checks without propellers (chapter 5).
- ② Check that the propeller type (clockwise / counter-clockwise) matches the direction of rotation of that motor.
- ③ Tighten the propeller with the supplied M5 flange nut; while tightening, hold the motor bell, not the propeller blades. Check the nut before every flight.

5. Commissioning

5.1 Check without propellers

- Before connecting the battery for the first time, check with a multimeter that the ESC power lead is not short-circuited.
- For the first power-up we recommend a current-limiting protector (smoke stopper).
- In the flight controller software (*Motors* tab), spin up each motor in turn at low speed. The motor must run smoothly, without stuttering or unusual noise.

5.2 Direction check and Arm

Check the direction of rotation of all motors (chapter 4.3). Only then fit the propellers. Test Arm (motors on) and Disarm (motors off) first without propellers and make sure that all motors stop immediately after Disarm.

5.3 First flights and temperature check

- Before the flight, insert a fully charged battery and check the fastening of the motors and the propeller nuts.
- After the first short flights, check the temperature of the motors. A motor that is noticeably warmer than the others may have a damaged bearing or winding or an unsuitable propeller.
- End the flight at the latest when the battery voltage drops to 3.5 V/cell (21.0 V for 6S).

6. Maintenance

6.1 After every flight

- Disconnect the battery and let the motors cool down.
- Turn the bell by hand – it must rotate freely. Rubbing or grinding indicates dirt or a damaged bearing.
- Check that the shaft is not bent and that the bell has no play or dents.
- Remove grass, sand and metal debris from the gap between the bell and the stator (compressed air, soft brush).
- Check the wire insulation and the soldered joints.

6.2 Bearings and bell

The motor uses NSK bearings measuring $\varnothing 11 \times \varnothing 5 \times 5$ mm. Worn bearings show up as noise, vibration and a higher motor temperature. The shaft is secured in the bell by a hex socket set screw. A damaged bell can be replaced with the original XING 2806.5 replacement bell. Leave the replacement of bearings and the bell to an experienced person; an incorrect procedure can damage the magnets or the winding.

6.3 Storage

Store the motor in a dry place and protect it from dust and metal objects that could stick to the magnets. Store batteries at 3.8 V/cell (22.8 V for 6S).

7. Troubleshooting

Problem	Possible cause and solution
Motor does not spin, only beeps or stutters	Cold or broken solder joint, damaged wire or faulty ESC channel. Check all three joints.
Motor spins in the wrong direction	Swap two wires or reverse the direction in the ESC configuration (chapter 4.3).
Bell rubs or turns stiffly	Dirt in the gap between the bell and the stator, a mounting screw that is too long, or a damaged bearing. Clean the motor and check the screws and bearings.
Motor is very hot after the flight	Propeller too large or too aggressive, faulty bearing, damaged winding or unsuitable ESC settings. Check the propeller and the motor, compare the temperature with the other motors.
Vibration and noise	Damaged or unbalanced propeller, bent shaft, worn bearings, loose motor screws. Replace the faulty part and tighten the screws.
Burning smell, smoke	Disconnect the battery immediately. Probably a short circuit in the winding or the ESC. Do not use the motor any further.

8. Information for the EU and Czech Market

8.1 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@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.com

8.2 Product conformity



- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorاما.cz.
- **Product identification:** the type designation (XING 2806.5 1300KV) is marked on the motor bell.

8.3 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>.

9. Warranty and rights arising from defective performance

Rights of the buyer under Czech law

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 8.1.
- 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.