GTS V3 0702 29000Kv

RCinpower — brushless motor for 1S tinywhoops and toothpicks

User manual



Read this entire manual before installation and first use. Disconnect the battery when working on the drone and always test the motors without propellers.

Rotorama, s.r.o. · www.rotorama.com

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1. Product description

1.1 Intended use

The **RCinpower GTS V3 0702 29000Kv** is a small brushless motor designed for the smallest single-cell (1S) FPV drones — 65mm tinywhoops and toothpicks. A drone uses four motors; each drives one propeller and its speed is controlled by the electronic speed controller (ESC) on the flight controller (FC).

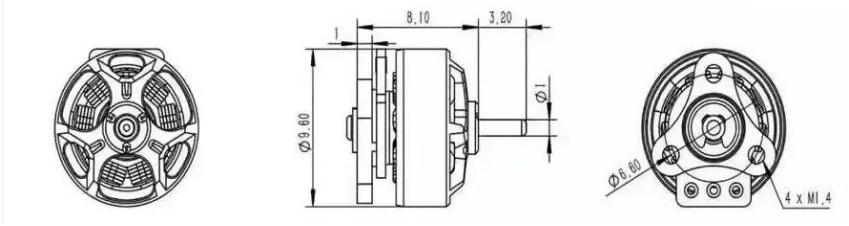
The motor has a **Unibell** bell for better durability and ball bearings for a longer service life. The cables end in a connector and are soldered to a small PCB on the underside of the motor. If a cable is torn out in a crash, the risk of damaging the windings is reduced — simply solder a new cable to the PCB.



GTS V3 0702 29000Kv motor (the colour may vary between production batches).

1.2 Specifications and package contents

Product designation	RCinpower GTS V3 0702 29000Kv
Manufacturer	RCinPower, China · www.rcinpower.com
Size (stator)	0702 — diameter 7 mm, height 2 mm
Kv	29000
Configuration	9N12P
Motor dimensions (diameter × length)	Ø 9.6 × 8.1 mm
Shaft	Ø 1 mm (1.5 mm inside the motor)
Mounting	M1.4 screws, hole circle Ø 6.6 mm
Weight	1.5 g (including connector)
Number of cells (Li-Po)	1S
Internal resistance	210 mΩ
Idle current (at 5 V)	0.25 A
Max. current	4.7 A
Max. continuous power	19.7 W
Max. efficiency current	1–2 A (efficiency > 82 %)
Cables	3 cm, with connector



Manufacturer's dimensional drawing (dimensions in mm).

▶ Package contents

- 1× RCinpower GTS V3 0702 29000Kv motor with cable and connector
- 1× set of mounting screws

▶ Not included

- propellers, frame, flight controller (FC) with ESC, battery and charger

※ The motor is sold individually; a drone needs four motors.

1.3 Manufacturer's performance data

The manufacturer states the following values measured at 4.2 V (fully charged 1S cell). They are a guide for choosing a propeller; actual values depend on the frame, battery and settings.

Propeller	Thr.	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)	Temp.*
GF1210, 2-blade	50 %	2.7	19	11.3	1.675	70 °C
	100 %	4.3	30	18.1	1.661	
GF1208, 3-blade	50 %	2.6	18	10.9	1.648	68 °C
	100 %	4.2	29	17.6	1.644	
GF1219, 3-blade	50 %	3	22	12.6	1.746	71 °C
	100 %	4.5	34	18.9	1.799	
GF35mm, 3-blade	50 %	2.9	24	12.2	1.970	73 °C
	100 %	4.7	32	19.7	1.621	

** Motor temperature after 3 s at full throttle. GF = Gemfan propeller; all measurements at 4.2 V.*

2. Use

2.1 Mounting the motor on the frame

① Disconnect the battery and remove the propellers. Place the motor on the frame arm so that the holes in the motor base (hole circle Ø 6.6 mm) line up with the holes in the frame. Route the cable towards the FC in the centre of the frame.

② Fasten the motor with the supplied M1.4 screws. Tighten them gently in a crosswise pattern — the thread in the small motor base strips easily.

③ If you use other screws, check their length: a screw must not pass through the base into the stator windings. A screw that is too long damages the windings and may cause a short.

④ After fastening, turn the bell by hand. It must rotate freely, without rubbing and without touching the frame or the cable.

2.2 Connecting to the flight controller (FC)

The motor plugs into a motor socket on a flight controller (FC) with an integrated ESC. Check beforehand that the motor connector matches the sockets on your FC.

- Insert the connector straight and without force. Leave a little slack in the cable so it is not torn out in a crash.
- Route the cable along the arm away from the propeller; secure it with tape or a drop of glue if needed.
- If your flight controller does not use connectors, the cable can be cut and the wires soldered directly to the ESC motor pads.

2.3 Checking the direction of rotation

Each of the four motors must spin in the direction that matches its position on the frame and the flight controller (FC) settings.

① Remove all propellers, connect the battery and in the configurator (e.g. Betaflight, *Motors* tab) spin each motor at a low value. Check their order and direction of rotation.

② If a motor spins the wrong way, reverse it in the ESC software (ESC configurator). Alternatively, swap any two of the three phase wires.

2.4 Fitting the propeller

- The motor has a **1 mm** shaft. Use a propeller with a 1 mm shaft hole designed for 1S tinywhoops and toothpicks (see Chapter 1.3).
- Fit the propellers only after checking the direction of rotation, according to the frame layout (clockwise / counter-clockwise).
- Push the propeller on straight all the way; support the motor bell when fitting and removing it. Always replace a damaged or loose propeller.

3. Safety and operation

3.1 Safety instructions

- Spinning propellers can cause injury. Disconnect the battery whenever you work on the drone and remove the propellers before testing the motors.
- Keep the drone out of reach of children and animals. The motor and screws are small parts that children could swallow.
- The motor contains strong magnets — protect it from metal filings and small metal objects.
- Under full load the motor gets very hot (according to the manufacturer's measurements, around 70 °C after just 3 s). Do not touch it after flight until it has cooled down.
- Do not use a damaged motor — with a bent shaft, cracked bell, or damaged windings or cable insulation.
- Operate a drone fitted with this motor in accordance with the regulations. Regulation (EU) 2019/947 applies throughout the EU, but national rules differ — **the law of the country in which the product is operated always prevails**.

3.2 Power supply and load

- The motor is designed for a **single-cell (1S)** Li-Po supply. Do not use it with a higher cell count.
- A fully charged Li-Po cell has 4.20 V, a LiHV cell 4.35 V. End the flight no later than when the voltage drops to 3.5 V per cell; for storage, charge or discharge the battery to 3.8 V.
- Do not exceed the maximum current of 4.7 A or the maximum continuous power of 19.7 W. A propeller that is too large or too heavy overloads and overheats the motor.
- If the motor is very hot after a short flight, use a smaller propeller, shorten the flight and check that the bell turns freely.

4. Maintenance and troubleshooting

4.1 Motor care

- After every flight, check that the bell turns freely without rubbing, that the shaft is not bent and that the screws are tight.
- Remove dust, hair, grass and dirt from the motor — ideally with compressed air or a soft brush. Hair wound up under the propeller can block the motor.
- Do not wash the motor with water and protect it from moisture. After flying in damp conditions, let it dry thoroughly.
- A motor that turns roughly or has noisy bearings is worn or damaged — replace it.

4.2 Replacing the cable

The motor cable is soldered to a small PCB on the underside of the motor. If the cable is damaged or torn out in a crash, a new cable can be soldered to the PCB pads.

- Solder quickly and with a small amount of solder so that neither the motor nor the PCB overheats.
- Make sure that adjacent pads are not bridged with solder.
- After replacing the cable, check the direction of rotation again (Chapter 2.3).

4.3 Troubleshooting

Problem	Possible cause and solution
Motor does not spin	Connector not plugged in or cable damaged — check the connection. Bell blocked by dirt or a screw — clean the motor and check the screw length.
Motor spins the wrong way	Reverse the direction in the ESC software or swap two phase wires (Chapter 2.3).
Motor stutters or vibrates	Damaged propeller, bent shaft, loose motor or poor cable contact. Replace the propeller, tighten the screws, check the cable.
Motor is very hot	Propeller too large, dirt in the motor or long flight at full throttle. See Chapter 3.2.
Motor rubs or is noisy	Dirt in the motor or worn bearings. Clean the motor; if that does not help, replace it.

5. Information for the EU and Czech Market

5.1 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

5.2 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.

6. 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 5.1.
- 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.