



# Emax Tiny Hawk Review | High Performance Brushless Whoop

Emax is an FPV company that need no introduction. Since dominating races in 2016 with their original Red Bottom motors they have moved on to design some incredible BNF quads such as the [Hawk 5](#) and Babyhawk models. The Tinyhawk is Emax's take on the TinyWhoop where they have literally turned the idea upside down and created something from from the ground up.

Let's get into Tinyhawk Review and Flight Test:

## WHAT'S IN THE BOX



Model	Store Options			Rate
Emax Tinyhawk	<a href="#">Amazon</a>	<a href="#">Banggood</a>	<a href="#">GearBest</a>	★★★★★

The tinyhawk is was listed in our [fpv micro quadcopter](#) guide back in the day.

Let's start with the box itself. The [Tinyhawk](#) is supplied in a small hard case with foam cut outs for everything you need. I absolutely

love this as you can just throw the box in your bag without worrying about damage or loosing things. It's a really nice bonus that's worth mentioning. Inside you will find:

- 1x Tinyhawk
- 1x 450 Mah 1s HV Lipo
- 1x USB Charger
- 1x Spares pack (Pigtail, grommets, screws & screwdriver)
- 1 x Small Screwdriver
- 1x Instruction Manual
- 1x Emax Sticker Sheet

The kit is great however I would like to see some more lipos included and a better charger. Let's be honest here everyone who flies this will want at least four batteries to use with it.

Bearing in mind the difficulty of finding and shipping lipos I would rather Emax charge a little more and supplied more packs especially when they don't really specify many details on the lipo required.

FYI the packs are 1s HV (4.35V) 450mah with a JST PH2.0 connector on a short lead. Competitors such as the [Mobula 7](#) do ship with more Lipos and a charger that runs off an XT60 as opposed to USB.

I do however like that Emax included lots of spare screws, lipo connectors and even a little screwdriver for field repairs. This has been surprisingly useful to have on hand. I've noticed some reviewers complaining about the lack of spare props. I haven't yet needed any but could see how a few spares couldn't hurt.

Get the [Emax Tinyhawk on Banggood](#), it's currently on discount.

## FEATURES & SPECIFICATIONS

Model	TinyHawk
Motor	08025 15000kv
Prop Diameter	40mm
Weight	29g
FC Firmware	Betaflight
Built in RX	FrSky
VTX	25mW
OSD	Yes
Smart Audio	Yes
Buzzer	Yes
Battery Connector	PH2.0

## THE QUAD ITSELF

Looking at the Tinyhawk you can see that it has been really well designed and really well thought out. Unlike your traditional quad the motors face downwards with the props underneath the quad, the body and camera then rest on top in a sleek white plastic frame. The frame itself feels durable and has a little give in it to protect from hard crashes.

The components themselves look high quality with a custom designed high kv motor and prop combo. The motors are brushless giving them a large amount of power along with a considerably longer lifespan than their brushed counterparts. The special props are designed to push fit on to the motors and use the ducts efficiently.

The ESC, FC and RX are integrated in a custom board that fits the quads profile. On top sits the camera and VTX components. All antennas stay protected within the main canopy. Technically the Tinyhawk is up to the standard of modern mini quads with an F4

processor, an OSD and remote channel changing through smart audio.

Little details such as a cut out to access the USB port/vtx button or plugs allowing you easily replace motors show how much thought Emax's design team have put in to this product. Everything is easy to access and work on if required.

### **Specs:**

- 1s brushless ball bearing 8×2.5mm 15000kv motors
- 76mm
- 29g dry / 42g with 450mAh battery
- custom 40mm tri blade props
- F4 flight controller with BetaFlightOSD
- 3A 4in1 ESC running BLHeli-s
- Built in FrSky rx in D8 mode
- 25mw 37 channel VTX with smart audio
- 600TVL CMOS camera

### **GETTING STARTED**

Setting up the Tinyhawk for flight was easy, I simply had to bind it to my Taranis using D8 mode and configure my modes in Betaflight.

If you are running the EU LBT firmware on your radio you may have to re flash it to enable D8 mode as [described by Airjacker here](#).

It's worth noting that non FrSky users will have to add their own receiver. There is a spare UART provided but not much space to put one. In all honesty unless you are an expert I would recommend this for FrSky users only.

## **HOW DOES IT FLY**

Tiny Whoops are something very special and have a whimsical charm to them. They are the kind of quad you can fly round a room, cause a bit of mischief and leave with everyone smiling. Any increases in size, weight or performance risks loosing the Tiny Whoop magic that makes them so addictive yet harmless to fly.

Check out this [video from the Tiny Whoop](#) Youtube Channel to see what I mean!

The problem with this is that a Tiny Whoop doesn't fly in the same way as a regular 5" quadcopter. They are docile little things that feel closer to toys in their own little category. The Tinyhawk was designed to feel more like a 5" quad in a smaller size whilst retaining its whoop level of fun.

I'm really pleased to say that for the most part the Tinyhawk solves this. I was able to fly it at good speeds both indoors and outdoors whilst still retaining a good level of control along with the fun factor.

It was perhaps not as easy to fly indoors as the TinyWhoop but was not far off even in acro mode. Outside or in larger spaces it was fantastic and held up against a little bit of wind.

Acro wise you can do rolls, dives and power loop manoeuvres but I wouldn't call them comparable to a 5". I found that the Tinyhawk lacks the power to catch itself compared to the 2s micro quads. It's fun to fly in acro mode and a great trainer but I would recommend it for more a cruise or race style of flight.

In terms of feel, I would say that it felt more like a 5" as long as you keep it the right way up. The inverted design of this quad puts the centre of gravity above the prop line which allows it to roll and bank on corners with ease as opposed to the pendulum effect you get on a Tinywhoop where the weight acts against your movements righting the quad.

Tune wise the F4 does an excellent job running an 8k PID and gyro loop meaning that the Tinyhawk always flies smooth. The stock tune



worked great but I found even better results when using the Project Mockingbird tune:

<https://docs.google.com/document/d/13PU6WVnge-DjZcVcWFTGLNG8H0DaMGs7dPpxZoy-iCU/edit?usp=sharing>

The stock camera and VTX worked well through walls around the house and the picture quality was good but not great. Some users have been upgrading these however I didn't feel that was necessary.

Battery life was ok at about 3 minutes but not anything to shout about. Toward the end of the packs you can feel the quad loosing power.

Check out this video of me flying the Tinyhawk in as many situations as possible around the house.

### Emax Tinyhawk - Causing Havoc Over Xmas



## PROBLEMS

Sadly no quad is perfect and the Tinyhawk does have a few problems I will cover briefly. None of these are a deal breaker but are good to be aware of in advance.

No Anti Turtle mode. Anti turtle mode is a clever little feature that allow an upside down quad to right itself by spinning the propellers in the opposite direction to normal which rolls it back over. You can enable this mode on the Tinyhawk but sadly it is not powerful enough to flip itself back over.

Emax say that they are releasing a four bladed propeller to fix this issue in the future but for now we will have to walk to flip our upside down quads.

Battery Availability. I can only speak in regards to the UK on this but for us the battery availability has been poor. Many retailers who sell the Tinyhawk do not stock lipos for it and ones that do charge far more than they are worth.

I know a few people with Tinyhawks who were disappointed not to be able to fly them over Xmas and proposed events had to be cancelled in light of this.

Banggood are now shipping lipos by air however they can take up to one month to arrive. This is slowly starting to improve and may of only been an issue at the time of writing. (Jan 2019)

Fixed camera angle. To be honest I haven't minded this and have had no problems with the camera or it's FOV for close quarters flying. However I have heard of some users wanting an adjustable camera option without having to resort to DIY mods.

## **WHO IS IT FOR?**

I would recommend the Tinyhawk primarily to beginners due to it's ease of setup and durability. It is easy to fly but still has good performance as you progress.

Seasoned pilots will enjoy using it as long as they don't intend on doing big acro manoeuvres. The Tinyhawk makes a great trainer over the Winter for the times when it's just too harsh to fly outside.

## PROS & CONS

- ⊕ Flies great Indoors and outdoors
- ⊕ Durable
- ⊕ Easy to setup
- ⊕ Fun to fly
  
- ⊖ No turtle mode
- ⊖ Batteries hard to find (initially)
- ⊖ Acro performance limited by power



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