

S1 E2 Why the Axe is different

The Axe by Skyfly is unlike any other E-VTOL aircraft, and it differs in several important ways.

The Axe has been designed from the ground up as an **AIRCRAFT – not** as a financial proposition for commercial air taxi concepts with 4 or 6 seats, or more. Often these concepts rely purely on lift from **rotors**, without any lift coming from **wings**. EVTOL aircraft without wings, which only use their rotors to stay airborne, use much more energy to fly, meaning they have a smaller range and are less sustainable.

- 1) The Axe has been designed to generate most of its lift using its wings while in forward flight, and the wing area is large enough for the aircraft to be able to glide. The wings have a number of implications which will be explained later in the video



- 2) Our four-wing design is unique in the market and was proven first by extensive computational fluid dynamic analysis and modelling, followed by a prototype aircraft that was built and tested by our experienced team of aeronautical engineers.

- 3) The Axe has no rotating motors - which drastically saves on weight, cost and complexity, and eliminates risk of failures in the mechanism needed to rotate the



No rotating motors



- 4) The Axe is *not* different from the herd, in that it has the same additional safety redundancies, low noise signature and environmental benefits offered by having multiple electric motors.

Firstly, let's explain the distinctive and unique four wings on the Axe and the variety of benefits they provide.

- 1) **Safety** – the conventional aircraft wing layout with only two wings, stops producing lift if the aircraft is too slow, causing it to stall, and the aircraft to stop flying suddenly. Thanks to the unique *four* wing layout, the Axe **cannot stall**. Instead, it will automatically pitch the nose down, and keep flying. Thanks to these wings, in the unlikely event of a total power failure, the Axe can maintain a glide ratio of nine to one - comparable to market standard airplanes like the Cessna - and fly to safety.
- 2) **Licensing** – The wing design allows the axe to land and take-off BOTH as an airplane AND a helicopter. The Axe is unique in that it is both a fully functional conventional winged aircraft in all respects, AND it works like a helicopter with its vertical take-off and landing ability. Currently, there is no EVTOL pilot license, there are only licenses for conventional airplanes or helicopters. The Axe's ability to fly like an airplane means that, unlike other EVTOLs, pilots will be able to fly the Axe on an existing pilots license, rather than waiting for EVTOL pilot licenses to come into existence.

- 3) **Sustainability** – In forward flight, the wings are producing lift, drastically reducing energy consumption and giving a much lower kilowatt per passenger per mile than other EVTOL aircraft, as well as a much larger range. The Axe is more efficient than most other EVTOLs and more efficient at cruise speed than a Tesla electric car – but unlike the Tesla, it does not require environmentally-damaging asphalt or concrete roads.
- 4) **Trainer aircraft suitability** -- As the incoming generation of commercial EVTOL air taxis are not likely to be permitted to operate autonomously for at least the next decade, an estimated 60,000 EVTOL pilots will need to be trained to fly them. Thanks to its wings and conventional control systems in forward flight, the Axe is the **ideal trainer** to convert existing pilots. The side by side seating accommodates a pilot under training to sit next to an instructor. The low purchase price of 180,000 dollars and low operating costs make the Axe a cost-effective training aircraft to buy and operate, both when compared to polluting conventional piston-engine aircraft and larger EVTOL aircraft – and its simple, modular design and minimal maintenance requirements will ensure the Axe has much less down time than old-fashioned piston-engine airplanes.
- 4) The four wings give the Axe a much **smaller footprint** than most other EVTOL designs – especially those with two large, wide wings and rotating engines. This enables the Axe to fit in your garden or on your driveway, meaning owners can keep their Axe at home, without needing to pay for expensive hangarage at an airport.

We've looked at the wings, and the benefits they offer, but now let's analyse some of the other elements that set the Axe apart

1. The combination of our fixed-angle motors and unique four wing design allows the Axe to be much lighter, with a lower risk of failure due to the absence of the mechanisms to rotate the engines, providing greater safety.
2. All of this reduces cost, weight and complexity. Where many EVTOLs cost well over a million and a half, thanks to our design we are able to offer the Axe for sale at a tenth of that.
3. Our Certification Approach. Due to the Axe being a small, **private** aircraft, the certification process is much shorter and simpler than that of bigger, commercial air taxi EVTOLs. This certification path for small light aircraft, combined with our design, is a winning formula and why we are already backed by the leading light aircraft governing body in the UK.

Finally, the Axe has been designed over the past 3 years by a team of renowned aircraft designers and engineers who have degrees in aeronautical engineering and PhD's in composite structures. Between them, they have been designing and building aircraft for the past 30 years, having certified numerous new designs and built over 2,000 aircraft. Each of our team is passionate and driven, enthused to be working on a new era of private aviation and developing the unprecedented, ultimate luxury you thought you could never buy; time.

These are just some of the ways in which the Axe stands out from other EVTOLs. And, following testing on our proven prototype, we are now busy laying the groundwork for the series production of the Axe by Skyfly.

Less Time, More Joy, Amazing Views

Order your own private Axe EVTOL today for delivery in 2024.

Visit www.skyfly.aero or email aircraft@skyflytech.com for more information.