

Press Release

Electric Multicopter flies manned for the first time



World First from Technology Region Karlsruhe

"It goes up like a lift and stays still in the air": the e-volo multicopter is a high-flyer that is extremely easy to fly thanks to a very elaborate steering system – and what's more - even with an electric engine!

Without noise or exhaust fumes: innovative brains from Technology Region Karlsruhe managed to fly a multicopter, **manned** and with an eco-friendly electrical engine – a world first! With this simple way of flying Thomas Senkel, Stephan Wolf and Alexander Zosel have helped a dream come true for everybody!

The e-volo measures approximately five by five metres, has four jibs (with 4 propellers each), a basic weight of about 80 kg (including batteries). So it is an ultra light aircraft, which already as a prototype allows for a payload of about 80 kg. 16 propellers provide it with the necessary uplift and at the same time guarantee the required security, because beside the impressively easy construction without a complex mechanism the aircraft can be landed safely even with a malfunction of up to four engines.

The e-volo makes flying easy! A position sensor ensures the correct position in space and permanently balances position changes with rotary speed adjustment – and so the e-volo can stay still in the air! The specially developed steering and flight electronics make it as stable as necessary. Multicopters are already available as smaller models, but unmanned as toys. Amongst other applications they are used for spying purposes. They are controllable even with an iPhone – but now **for the first time ever** such an electrical powered aircraft has flown **manned**.

The electrical power is supplied by lithium batteries and enables a flight time of up to 20 minutes depending on payload.

Images

Attached to this mail you find an image selection in high resolution, printable and copyright free. See also www.e-volo.de/Press.html

Videos

Videos can be provided.

From Design and Development to First Flight

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This dream of flying brought these three innovative brains together. They initially met in corresponding internet forums. From there it was a small step to the design and development of the first model. "First of all we programmed for about half a year", explains Stephan Wolf. Elementary questions: How many propellers? Do they react to external influences quickly enough?

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"The existing standard engines were not ideal for the e-volo", says Thomas Senkel. They did not have the adequate performance parameters and an inferior power efficiency, so they were adapted to serial models. The propellers were similar, "as we have different specifications for such a hover flight", says Senkel.

In aviation electronic engineering does help, as in many areas of everyday life, such as parking assistant systems, ABS brake or even a "Segway". What the "segway" is on the ground, the e-volo is in the air: The stable position is permanently controlled automatically. A position sensor ensures the correct position in space and permanently balances position changes with rotary speed adjustment – and so the e-volo can stay still in the air! The specially developed steering and flight electronic makes it as stable as necessary, and made it possible that such an electrically powered aircraft flew manned for the first time ever (1:30).

In the beginning there was a smaller model, "which we then adapted and optimized in a bigger version for our manned prototype", says Wolf. A lot of fine tuning and many alignments were necessary. Numerous test flights followed: unmanned, unmanned with weight – and then successfully manned. "After the successful static load tests we knew that this would work as well under real conditions", says Alexander Zosel.

Controlling the e-volo is actually pretty easy. Just like "*Those Magnificent Men in their Flying Machines*": "I was optimistic even before take-off", smiles multicopter pilot Senkel: "I trusted in it, I was indeed nervous, but not as nervous as with some of the unmanned flights before!" There he consistently checked out the steering control. And it worked out perfectly. The e-volo took off, hovered lightly and quietly above the field, and was easy to control. A successful first flight for e-volo, a **world first** from Technology Region Karlsruhe! And how does it feel to fly e-volo? "It is almost easier to fly than the unmanned model, because it reacts more inertially due to the mass", the pilot explains with a smile. By the way, in the event of control malfunction, the e-volo lands automatically.

Future Prospect

One great advantage of e-volo: due to the exact control the aircraft can be virtually parked in the air. Easy: enter GPS data and the e-volo stops precisely at this position. It even can pilot itself alone – with or without weight. An ideal approach, for example, for rescue or fire-extinguishing needs.

With this simple way of flying a dream comes true for everybody. Within the next years the developers want to offer according aircrafts at an affordable price.

Good flight handling characteristics and consistently easy control, which makes flying possible for everybody, is the declared goal.

Team

Via corresponding internet forums the three passionate airmen got in touch. The common idea: this one but bigger, that would be it! Conclusion: The vision became reality, the e-volo flies manned!

Thomas Senkel, born in Berlin, qualified physicist with his own research business, amongst others in the field of electric drives, developed the concept as well as the entire mechanical and electrical construction of the multicopter. He is an enthusiastic paraglider and has a UL licence. "I already found flying thrilling as a child", in his early years with model making.

Stephan Wolf, from Karlsruhe, developed an entirely new software for the flight control of multicopter e-volo. He is director and owner of Syntern GmbH. Thereby he has 25 years of developing experience for kernel drivers and industrial embedded software. Even as a child he was fascinated by airplanes, but he got the initial spark for e-volo while flying model planes with his son: "This easy handling must be possible in reality!"

Alexander Zosel, from Karlsruhe, passionate paraglider and flying teacher, responsible for marketing, sales and public relations. In the past he developed several patents and utility models. Intention: "After the prototype, go further in eMobility step by step."