A journey through the history of electric aircraft – It is almost half a century since the first manned, electrically propelled flight

Seventy years after the first motorised flight, the Austrian Brditschka family successfully made a manned flight powered with an electric motor. The first flight in 1973 was unmatched for ten years, and was entered into the Guinness Book of World Records. But for a long time now the family firm of HB Brditschka has not been alone in the market - in my blog article you can learn what milestones have been achieved by the electric plane, among others, since 1973 and what was extraordinary about what the expert Heino Brditschka achieved then.
Electric aircraft - background to the first flight with the MB-1E

In the autumn of 1973, on 21 October, 23-year-old aircraft manufacturer Heino Brditschka flew about 300 metres above the ground at the airfield in Wels, near Linz with a modified glider - using an electric plane, a modified version of the HB-3 power glider. The experts are not agreed about the duration of the flight - according to Guinness Book entries at the time it varies between 9.05 minutes and 14 minutes. This feat of flying with an electric engine was only possible thanks to the conceptual groundwork by Brditschka and the ideas provided by Fred Militky, a school friend of Brditschka and a German model aircraft designer.

By the 70s, Brditschka believed that electrical engineering would be advanced enough to be used in manned aircraft. His first electric aircraft is known as the MB-E1 (Militky- Brditschka-Elektro-1). Apart from its application, the MB-E1 was equivalent to the HB-3 power glider. The plane had a twelve metre wingspan and a fuselage length of seven metres, and was built between 1967 and 1969. It is considered to be a development of the Motorkrähe, a cantilever shoulder wing monoplane constructed from wood.

The electric drive of the MB-E1 was at the time revolutionary, yet extremely simple: the battery technology, consisting of four 24-hour charged nickel-cadmium Varta brand batteries, collectively generated 100 volts, enabling continuous operation for eight minutes. The challenge for Militky and Brditschka was to produce triple capacity from a Bosch DC motor, which had been taken from a forklift. The two succeeded, and ultimately the motor transmitted the necessary power to the thrust propeller by means of a belt. Incidentally, the propeller had been mounted on the earlier HB-3 model. The new energy storage system increased the flight weight by 60 kilograms, to a total weight of 440 kilograms. At that time, the first major petrol crisis, this flight using electric power attracted a great deal of public interest.
The family business of HB Brditschka is still represented on the market today under the name of HB-Flugtechnik GmbH, and they develop, manufacture and service lightweight aircraft in Austria. The electric aircraft constructed by HB Flugtechnik, incidentally, can now fly for several hours and cover a range of up to 500 kilometres.

E-mobility today: Electric aircraft in series production

Forty-four years after the first electric flight, there are now electric aircraft such as the Airbus E-Fan in series production. Over a period of 18 months, a team of about 18 engineers produced the two-seater E-Fan ready for flight. The E-Fan 2.0, which is constructed entirely of carbon-fibre-reinforced plastic, weighs 500 kg. It has two ducted fan engines at the rear. The engine power is 30 kW and the landing gear has supplementary power in order to relieve the engines on the way to the runway. Lithium-ion batteries mounted on the wings supply power to the engines. In total, the energy storage system allows a flight time of around one hour with a reserve of 30 minutes. According to Airbus 100, the all-electric E-Fan is due to roll off the production line at the end of 2017. But Airbus are not resting on their laurels over this success - the aircraft manufacturer is already planning the E-Fan 4.0, which will be able to stay in the air for three hours and carry up to four people.
Slovenian aircraft manufacturer Pipistrel have been developing the ultralight class Pipistrel Taurus Electro electric power glider since 2006, and this took off for the first time in December 2007. The Taurus Electro G2 was the first electronically powered two-seater aircraft to enter the market in series production. The current Pipistrel Taurus G4 model, which is assembled from two Pipistrel Taurus Electro G2s, won the CAFE Foundation Green Flight Challenge (GFC) in the speed and fuel economy categories in September 2011. The integrated 145 kW electric motor is considered the largest ever used in an aircraft engine and drives a two-bladed propeller with a diameter of two metres. In addition, Pipistrel lithium polymer batteries weighing more than 200 kg provide the power supply.

This is only a small sample of current developments. The evolution of electronic flight is in full swing and new records follow year after year. The battery and solar-powered Solar Impulse 2 only flew round the world for the first time in 2016, and Siemens achieved a new world record for speed with their Extra 330LE electric aircraft - it covered 3000 metres in just four minutes and 22 seconds. That is more than a minute faster than the previous record holder.

There is every indication that the first electrically driven passenger planes will be on the market in 2030. Not just large but also small companies are working flat out to make electric mobility in the air a possibility for everyone soon.
Thanks to the development of the MB-1E AHEAD

The MB-E1 paved the way for aircraft with electric motors today and in the future, and revolutionised aviation. Only the courage of Militky and Brditschka to put battery-powered flight into practice with the MB-E1 set benchmarks and enables us to make flight more efficient and environmentally friendly today. We dedicate this blog post to their creativity and achievements, and say thank you.


Marketing Manager

Melanie Balfanz is a marketing manager at ARTS. She is the point of contact for the marketing strategy and content management at ARTS.

melanie.balfanz@arts.eu +49 (0)351 / 759 808 42