

Alisur E

quiet in new dimension
innovative - powerful - easy to operate



The Arcus E

The self launch capable **Arcus E** is the world's first two seat serial produced glider with an electric motor approved by **CS 22**. This '**High-End Sailplane**' is produced in cooperation with the company Lange Aviation in Zweibrücken, the world leading electrical motor developer. The propulsion components are now combined with the **Arcus** ideal and raise the level of today's motor technology and aerodynamic design.

The power plant

The motor is lightweight, high output and efficient with an external rotor design. We responded to the special requirements of a self launch capable glider right from the beginning of the design phase of the motor and the power electronics. The maximum torque of **220 Nm** is already possible at the very low rotation frequency of

Technical Data	Arcus E
Wing span	20.0 m
Wing area	15.6 m ² / 65.62 ft
Wing aspect ratio	25.7
Max. all up mass	810 kg / 1786 lb
Wing loading	44.0 - 51.9 kg/m ² 9.0- 10.6 lb/ft ²
Max. speed	280 km/h / 174 mph
Wing airfoils	Schempp-Hirth / Dr. Werner Würz
Best L/D	50
Noise emission	well below 48 dB(A)
Elektromotor	
Typ	EM42
Certification	CS 22 (currently the sole engineer with certification)
Voltage range	190 - 288 Volt
operating current	up to 160 Ampere
Max. engine power	42 kW
Max. torque	216 Nm
Battery	lithium ion batteries

50 rpm. (**220 Nm** of torque is comparable to the maxi. torque of a middle class passenger car).

Above 1600 rpm, the torque is continuously lowered. At 1700 rpm the motor no longer produces thrust, (the max. rpm limit).

Batteries

The string of batteries is made up of 12 modules each of which contains 3 single cells and is split symmetrically between the two wings. The battery current at **maximum output is approximately 160A**.

Battery lifetime

The battery output is reduced only slightly after approx. **1000 charging cycles**. The natural ageing of the batteries affects the chemical processes and in the course of years the performance is reduced. After approx. 10 years the output is reduced to 80% of the original and battery replacement is recommended at that point.

Control system

There are several different electric modules. The most important is the powerful main computer that assumes most of the controls and system management. Aside from that there are other control modules such as for the battery vents, hydraulics and motor bay doors.

Battery charger

The charging device is built into the sailplane and is distinguished by high efficiency. The charging process is **secured redundantly**.



Quiet power – stress free operation

With one handle operation, the first step activates the power electronics, the motor door opens and the motor is extended. Functions like the microphone switch, TE and Pitot switch are also activated. At that point all necessary functions for powered flight are activated.

Moving the handle forward, the idle position is reached. From then on the handle moves forward continuously without steps, until the maximum power output is reached. Regardless of the speed with which the control arm is pulled completely back, the progress of the single steps till the motor is retracted are completed logically and as quick as possible.

Clearly arranged information

The system monitor display informs the pilot of the current battery and motor conditions. The motor flight page displays information about all operating status necessary for the propulsion system as well as checklists, visual and audio warnings and other information concerning the operational comfort.



The **Arcus E** power plant is impressively easy to operate. The simple pilot inputs are interpreted and converted by the main computer so that the pilot can concentrate on the important tasks, like flying!

With the **Arcus E**, we have achieved all of our goals by being able to offer such an innovative, environment friendly and quiet propulsion system for one of the most modern sailplanes in the 20 m class.



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