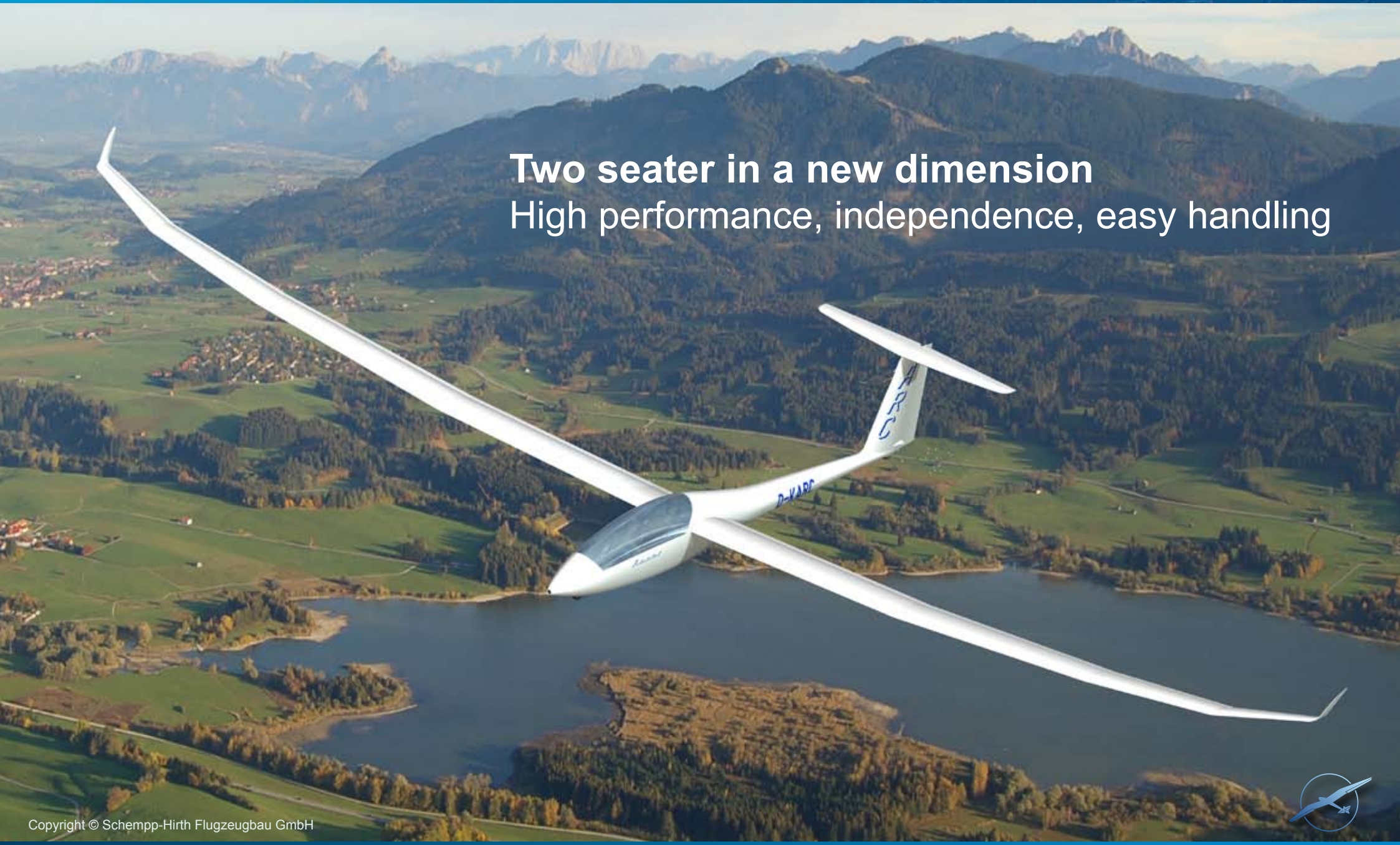
Arcus



feel the sky

ARCUS

Conception

For several years now we have been working on the idea of a completely new concept for a two-seat glider for the 20m-class.
Therefore, our goal was to develop a glider that would add significant new elements to the worldwide increasingly popular two-seat 20m-racing class and at the same time, give all those who enjoy flying a two-seater a high performance yet easy to handle alternative with all options of engines. Most important in all this always remaines the pure joy of soaring.

To achieve this, the ARCUS will have a completely new flapped wing. In choosing the profile, both the wing's geometrical design and method of construction were approached in a completely new way. New calculation and simulation programs were combined with tested data and trusted empirical knowledge. Thus, we were able to use a vast body of state of the art optimization knowledge that was unavailable before.

The result was a beautifully shaped, rather thin and above all, prominently arched wing surface – first angled forward, then arched back. This shape called for the appropriate name ARCUS (lat. = the Arc)

Design and profildesign

Besides flight performance we gave special attention to the flight characteristics of the design. With the use of well proportioned control surfaces and harmonized aerodynamics, we tried to achieve the best possible handling and climb results even under high wingloading. The flaps play an important role in this. Especially in the configuration of self-launcher, the flaps will provide the additional lift necessary for a smooth take-off performance. Furthermore, the integrated full span flaperons will provide impressive maneuverability.
In close co-operation with Dr. Werner Würz we made fundamental revisions to the original profile-design which then incorporated our various requirements.
At the same time we worked on optimizing the original wing planform in co-operation with Jan Himisch and Professor Dr. Karl-Heinz Horstman from DLR Braunschweig. To fulfill the specific aerodynamic requirements across the entire span of the wing, we used 6 different wing profiles. As a result of this fruitful co-operation between Werner Würz - the DLR Departments in Braunschweig and Goettingen - Professor Mark Maughmer (winglets) and Schempp-Hirth the Arcus wing meets the challenges and requirements in a very effective and outstanding way.

Fuselage

For the fuselage we used the new 'L'-cockpit, that was already used in the new NIMBUS-4DLM and DUO DISCUS-xL. The feedback from our customers regarding its ergonomics, safety and roominess is overwhelmingly positive so we see little need for alteration here.
To complete a comfortable ride, we will install the sprung gear used on the DUO DISCUS-xL with its light and effective braking Beringer wheel.

Performance

It is too early to make claims regarding glide performance. The design parameters and the first rough calculations however are very promising.

The variants

The ARCUS will be available of course as a pure glider and as well with various engine configurations.

Turbo

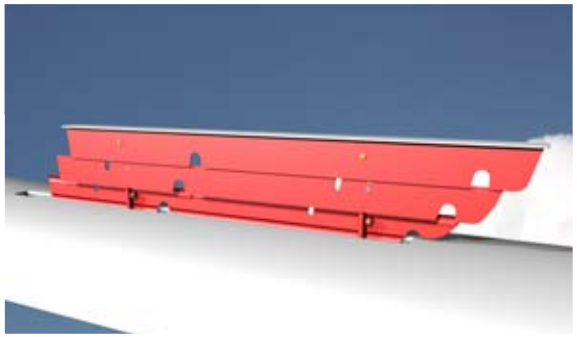
The reliable Oehler-Turbo system with the Solo 2350-engine and its automatic ILEC engine control unit.

Selflaunch: combustion engine

Using the certified NIMBUS-4DM Binder system with the Solo 2625-2 engine we expect an above average take-off performance and climb rate.

Selflaunch: electrical engine

As a unique alternative, we also planing to offer an electrical version. That is going to be possible through our co-operation with Lange Aviation in Zweibrücken. This engine option will be installed and serviced there.



Technical data	Arcus	Arcus T	Arcus M
Span	20.0 m / 65.62 ft	20.0 m / 65.62 ft	20.0 m / 65.62 ft
Wing area	167.92 ft²	167.92 ft²	167.92 ft²
Aspect ratio	25.7	25.7	25.7
Empty weight approx.	926 lb	1036 lb	1103 lb
Maximum all-up mass	1654 lb	1764 lb	1764 lb
Wing loading	6.4 - 9.9 lb/ft²	7.1 - 10.5 lb/ft²	7.6 - 10.5 lb/ft²
Maximum permitted speed	148 kt / 171 mph	148 kt / 171 mph	148 kt / 171 mph

SCHEMPP-HIRTH
Flugzeug-Vertriebs GmbH
Krebenstrasse 25
73230 Kirchheim/Teck, Germany
Tel. +49 7021 7298 - 0
Fax +49 7021 7298 - 199
E-mail: info@schempp-hirth.com
www.schempp-hirth.com