

History has Future



In August 1994, I thought the world ought to come to a standstill, though I soon found out that it continued to revolve merciless. And that was good, we needed to shape the future of our enterprise and preserve its legacy.

The support of our employees, my sons and of many friends gave me the essential assistance needed to continue the enterprise after the sad loss of my dear husband.

This year we celebrate the 75th anniversary; looking back at a time of tradition and power, closely connected to the names Wolf Hirth, Martin Schempp and Klaus Holighaus. And today, continuously striving towards new developments; a young team, led by my son Tilo, is successfully developing the ideals of the preceding two generations.

This gives me confidence, and I am grateful for the solidarity I experience again and again from our employees, our customers and especially from my family.

Brigitte Holighaus

75 years



...Carried by the wind and thermals





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How it all started



The „**Sportflugzeugbau Martin Schempp, Göppingen**“, was first located in the municipal construction facilities of Göppingen. With four employees, glider production started on the 4th of January, 1935. By the end of the year the number of employees had increased to 25, including two apprentices.

With a growing number of employees gliders like the Gö-1 „Wolf“, the two-seater Gö-2 and the famous „Minimoa“ were produced. The serial production rate had increased so much that in 1936 a „Wolf“ left the factory every two weeks.

At this time Martin Schempp realised that he needed to reduce costs by increasing production. Production of types such as the Gö-4 two-seater and the Gö-5 (H-17) began and the lack of workshop space soon led the decision to move the factory to Kirchheim/Teck. On the 15th of January, 1938, the already world famous gliding pioneer Wolf Hirth, who had before been involved with the factory as an adviser and

designer, joined the business and had a 50% share. Since then it has carried the name „Schempp-Hirth Flugzeugbau“.

The long lasting connection between Martin Schempp and Wolf Hirth became an excellent foundation for business which was accompanied by a life-long friendship.



From left to right:
Fritz Ackermann,
Wolf Hirth, Duke Jornigin,
Martin Schempp

Founded in 1935 by Martin Schempp in Göppingen, located in Kirchheim/Teck since 1938. During the year of moving, the world renowned gliding pioneer, Wolf Hirth, got a 50% share in the business.

Bruno Gantenbrink



Is there anything finer than being able to congratulate somebody who presents himself in such a youthful and fresh condition on his 75th birthday?

Especially if you, together with these congratulations, are able to expect that he has not yet seen his „best years“ and still expects to see many more of these in future.

I remember thankfully what Schempp-Hirth gave, not only to me, but to the whole of the gliding world.

For me personally, Schempp-Hirth gliders made several of my individual successes easier or maybe even possible. Schempp-Hirth „gave me wings“ and I know many pilots who think the same.

Germany is known all over the world as the „motherland of gliding“ as it is where most of the impulses that have carried our sport forwards have originated from. Impulses that have come from Germany, like Wolf Hirth's promotion, have allowed the gliding movement to spread world-wide. Ideas and gliders, like those designed and produced by Schempp-Hirth, have given the German gliding industry, with its handful of manufacturers, acknowledgement of its global leadership. „Made in Germany“ is a trademark standing for the very best quality and ingenious ideas. In the gliding community „made by Schempp-Hirth“ is a brand which marks the very top end of the ladder.

For most of us in Germany, the success of the German gliding industry appears to have been a matter of course. They are just there, „right on our doorstep“. The high admiration of our gliders and gliding movement is something I experienced when I was travelling through other countries around the world. It opened my eyes and showed me how lucky we are to live in a country that is the world leader in terms of the gliding movement.

Since the beginning 75 years ago, Schempp-Hirth and their gliders have given us pilots a lot of fun and success. Anybody that has flown or flies Schempp-Hirth gliders will happily confirm this statement. So, with my anniversary congratulations, I will simply say „thank you for all you have given to me and the whole of the gliding world“ to Schempp-Hirth and all of their former and current employees. I wish that they may always stay on their successful path, spreading the fun of our sport across the world.

A handwritten signature in blue ink, which appears to read 'Bruno Gantenbrink'. The signature is stylized and written in a cursive-like font.

Bruno Gantenbrink

Prime Minister Mappus

This year, Schempp-Hirth Flugzeugbau GmbH celebrates its 75th year of existence. I congratulate the management as well as the complete staff cordially on this special anniversary.

In 1935 Martin Schempp established the „Sportflugzeugbau Göppingen“ factory in the municipal construction facilities. Three years later Wolf Hirth, mainly responsible for design work, officially entered the factory as an associate. The factory was renamed „Sportflugzeugbau Schempp-Hirth“ and moved to its actual location of Kirchheim/Teck.

Since its start-up the factory has been a symbol for innovative and internationally sought after gliders, many of which were designed by Klaus Holighaus, who entered the Schempp-Hirth factory in 1965 and was killed in a tragic accident on the 9th of August 1994.

With its successful history, the Schempp-Hirth GmbH is representative of many enterprises in Baden-Württemberg, which, with their roots deep in our country, have become world-wide leaders due to their strategic foresight, flexibility and innovative abilities. Innovative and traditional enterprises, just like this one, have made Baden-Württemberg an important industrial region.

With their clear commitment to the region of Baden-Württemberg they are safeguarding important jobs and are helping our region to make progress.

I wish the Schempp-Hirth Flugzeugbau GmbH, the management and all of the staff members a pleasant anniversary celebration, the best of luck and a successful future.



A handwritten signature in blue ink, which appears to read 'Stefan Mappus'. The signature is stylized with a large, sweeping flourish at the end.

Stefan Mappus,
Prime Minister of the federal state Baden-Württemberg



Today, Schempp-Hirth produce about 100 gliders each year, making them one of the largest glider manufacturers in the world.

Mrs. Matt-Heidecker, Mayor of Kirchheim



Dear Holighaus family,
Dear staff members of the Schempp-Hirth factory,
Dear anniversary guests from near and far,

Kirchheim below Teck - Hahnweide airfield - elegant gliders in a blue sky with the Teck castle in the background - what a trademark for a town!

The town of Kirchheim below Teck is proud to carry the epithet „town of aviators“, and it is proud of an enterprise which, for 75 years now, has taken responsibility of jobs and apprenticeships in our town. A medium sized enterprise with world famous products. In the Krehenstrasse in Kirchheim below Teck, high performance gliders of a world-wide legendary fame are being produced. 30% of gliders flown in the world originate from the Schempp-Hirth factory; this enterprise has an important share in the world-wide dominance of German glider production.

During the 75th anniversary year of the Schempp-Hirth factory, the town Kirchheim below Teck celebrates the 1050th anniversary of the very first mentioning of its name in a document. Therefore, a glance back into our history is warranted. Industrialisation made this historic, Württembergian town grow into a prospering centre between the Alb plateau and the river Neckar. During the year that the Schempp-Hirth factory was established (1935), the town's population had increased to 13,500 due to the two neighbouring villages, Ötlingen and Lindorf, which had been integrated into the town. Motorway construction and economical rise marked the years after the Great Depression. However, this rise was taking place during the war preparations of Nazi-Germany. The entrepreneur, Martin Schempp, distinguished himself by never allowing himself to become corrupt or a party member of the „Third Reich“ despite the demands for people that were involved in aviation.

After the occupation of Kirchheim in 1945, he was appointed as an interim mayor and took over the responsibility for the town during what was a by god difficult time. Martin Schempp himself said „During this time, I was the buffer between the interests of the Kirchheim people and the sometimes strange demands of the Americans. In any case, this was the most versatile and difficult job I've ever done“.

Good co-operation between the town and its enterprises is very important. I have to thank the Holighaus family for this working out so well.

In the name of the town council and the administration, but also in my own name, I cordially congratulate you on your factory's 75th anniversary and I wish that the management, as well as all of the staff, always have the best ideas at the right time.

Yours, Angelika Matt-Heidecker

A handwritten signature in blue ink that reads "Angelika Matt-Heidecker". The signature is fluid and cursive, with a long horizontal stroke at the end.



The location of Kirchheim/Teck offers many advantages to a glider manufacturer, two of them being the ideal soaring conditions of the "Schwäbische Alb" region and the proximity to the airfield "Hahnweide".

75 years

The founders



Martin Schempp: In 1926, after an education in business, Martin Schempp, born in 1905, immigrated to the USA where he worked as a metallurgist. Charles Lindbergh's presentation about his first transatlantic flight filled Martin Schempp with enthusiasm, so much so that in 1928, when he returned to Germany, he applied himself to aviation. He started working as a trainee at the Raab-Katzenstein aircraft factory where he got into close contact with many pilots. He soon met Wolf Hirth who encouraged him to get his PPL at the Hans Klemm Flying School in Boeblingen.

In 1930, together with Gus Haller, he decided to go back to the USA to establish a flying school and build German glider types. In addition to building gliders at the newly founded „Haller-Hirth-Sailplane-Corporation“, Martin Schempp was also involved in all aspects of the young American gliding movement and therefore made a great contribution to the development of sports aviation in the USA. In 1934 he left the USA to accept Wolf Hirth's offer of working for him as a flying instructor at the Hornberg Gliding School, led by Hirth himself. In the following year he founded the „Sportflugzeugbau Goeppingen Martin Schempp“ factory, which in 1938 moved to Kirchheim. This was the same year that Wolf-Hirth became involved in the enterprise which was later renamed to „Schempp-Hirth Flugzeugbau“.

Owed to his Curriculum Vitae and human integrity, the American occupying forces appointed Martin Schempp as the provisional mayor of Kirchheim at the end of the Second World War. Following the death of Wolf Hirth in 1959, Martin Schempp, once again, focussed entirely on glider manufacturing. In 1965 he employed Klaus Holighaus, a young and talented engineer, who had

studied at the Darmstadt Technical University. In 1972 Holighaus was put in charge of the management of the company and in 1977 Martin Schempp handed the factory, in its entirety, to Klaus Holighaus. On the 9th of July, 1984, Martin Schempp died after long illness.

Wolf Hirth: Thanks to support from his father, Wolf Hirth was able to pursue his passion for both flying and riding motorcycles in his youth. He was born in 1900, passed his „Abitur“ exams in 1918 and taught himself to fly in 1922. Three years later he lost his leg in a motorcycle accident but this didn't stop him either flying or racing motorcycles. In 1928 he completed his studies at university and graduated as an engineer. In 1930/31 he left for the USA to promote gliding. His most spectacular achievement there was his famous flight in the upcurrents of the New York skyscrapers following a bungee launch. In 1931 he was (together with Robert Kronfeld) awarded the first ever „Silver C“ badge. Hanns Deutschmann and Wolf Hirth discovered the potential of lee-wave flying in the German Riesengebirge mountains. Further expeditions with Walter Georgii and others led him to South America and, in 1935, to Japan, where he was received by the Emperor Hirohito. In 1935 he patented the design for the first ever drive for a glider which had a fully retractable propeller pylon and in 1940/41 this project was completed. In 1950 he became one of the founding members of the German Aero-club (DAeC) and became its first ever president. He was permanently engaged in many areas of sports aviation and in 1958 the Fédération Aéronautique Internationale (FAI) awarded him with the Lillienthal Medal for his life-long dedication to flying activities. He died on the 25th of July, 1959 in an accident with a Lo 150 glider.

The American glider pilot license no. 23, issued to the pilot Martin Schempp, was personally signed by Orville Wright.



The Renovator



Klaus Holighaus was born on the 14th of July, 1940 in Eibelshausen/Dillkreis. Aviation had already attracted his attention early in his youth and at the age of 10 he started building his first flying models. In 1959 he set a new endurance flight record for radio controlled models with a flight time of 6 hours and 11 minutes at a ridge in Hirzenhain.

Klaus Holighaus studied at the TH Darmstadt University and joined the University Academic Flying Group (Akaflieg). This is where, together with Gerhard Waibel, Wolf Lemke and Heiko Friess, he designed the famous D-36 glider. His thesis, commissioned by Martin Schempp, was to redesign the „Standard Austria SH1“ to become SHK. In 1965, motivated by his contacts, Klaus Holighaus applied for a job as a design engineer at Schempp-Hirth; the same year he used his knowledge and experience in building GRP gliders to create the highly successful Cirrus.

Although there were lots of everyday tasks to do in production Klaus Holighaus had a lot of energy for designing new glider types. In quick succession the „one-of-a-kind“ Nimbus-1, Standard Cirrus and Nimbus-2 had been created. His ability transfer his enthusiasm and energy to other people allowed him to further progress to a point where he had talented engineers supporting him and his work.

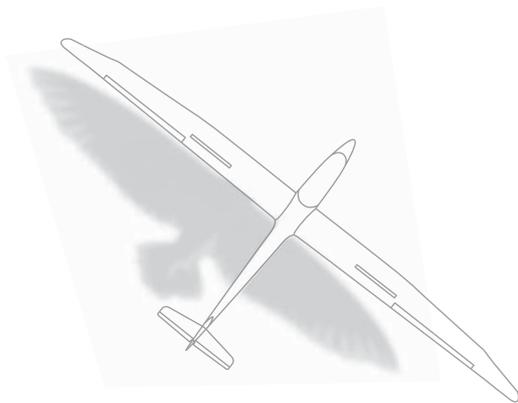
First was Dipl.-Ing. Joachim Laude, later Dipl.-Ing. Helmut Treiber, and then Dipl.-Ing Eberhard Schott. They all brought their knowledge, dedication and enthusiasm into the Schempp-Hirth factory and were fantastic supporters of Klaus Holighaus' permanent zest for action. This strong team enabled him to make his ambitious project to create a high-performance two-seater,

the Janus, a reality. This was a courageous decision which, even today, continues to yield fruit. Despite the fact he was very successful with all of his gliders, he was still obsessed with improving things further. In 1978, together with Helmut Treiber, he introduced the use of carbon fibre to Schempp-Hirth's production.

Klaus Holighaus also had enthusiasm for the business side of Schempp-Hirth. In 1969 he had already taken over the management of the workshop, in 1972 the management of the whole company and in 1977 he became the sole owner of Schempp-Hirth.

The subsequent Schempp-Hirth glider types such as the Ventus, Nimbus-3, Discus, Duo Discus, Ventus-2 and Nimbus-4 are a display of the incredible engineering team that was led by Klaus Holighaus and the roots of our success. Klaus Holighaus' ideas originated from his love of gliding. His abilities as a designer, competition pilot and businessman were perfectly united in his personality. Top pilots like Harro Wödel, George Moffat, Göran Ax, George Lee, Ingo Renner, Kees Musters, Leo Brigadori, Bruno Gantenbrink, Eric Napoleon, Reinhard Schramme and Werner Meuser all won a vast number of championships flying his glider designs.

Klaus Holighaus himself won the German Championships four times and his international success was just as impressive. He was four times European champion, vice-world champion and held several world records. He was one of the most successful glider pilots of his time. He died in a tragic gliding accident in the Swiss Alps on the 9th of August, 1994.



Schempp-Hirth, 1935 – 2010

For the ever-calm looking entrepreneur, Martin Schempp, establishing his company was a risky venture which required a lot of courage and commitment.

His determination and close support from his friend Wolf Hirth, who had been involved in the company from the start, helped to pave the way towards success.

Martin Schempp and Wolf Hirth established a successful tradition from the very beginning: They employed young, talented and inventive engineers who together formed an innovative team. Early on in the company's life these engineers were:

Reinhold Seeger, Peter Theyer, Wolfgang Hütter, Ulrich Hütter, Alfred Vogt and Paul Schenkel.

Klaus Holighaus, who began his career as an employee at Schempp-Hirth, continued with the tradition and had a keen eye for recruiting genius engineers, the majority of which came from the Idaflieg (Association of the German Academic Flying Groups/ Akaflieds).



Founded on the 4th of January, 1935, by Martin Schempp.

Construction of the Gö-1 „Wolf“ training single seater.

Gö-3 „Minimoa“ prototypes.

Serial production of the Gö-3 „Minimoa“ with 17m span and water ballast begins.

Factory moves to Kirchheim/Teck. During wartime more than 300 people were employed.

Governmental orders to build parts for the Messerschmitt Bf-109, the troop carrying glider Me 323 „Gigant“ and other aircraft were placed by the RLM (German Ministry of Aviation).

During the first post-war years up until 1955 orders for wood processing came in, as did others to produce sandwich composite aircraft mock-ups for the US Air Force.

The experience gained from building the sandwich composite aircraft mock-ups was used to build the large tailplanes of the Goodyear „Trumpf“ airship.

Klaus Holighaus (graduate from TH Darmstadt University) develops the 17m SHK based on the Standard Austria SH as his diploma thesis.

1935

1936

1938

1941

1945

...

1955

1964



Klaus himself got his initial experience from the Akaflieg Darmstadt, where he was involved in the design, construction and test flying of the Darmstadt D-36 glider. He employed: Jürgen Laude †, Helmut Treiber, Eberhard Schott and Frieder Schuon.

The latest Schempp-Hirth designs show that Tilo Holighaus has continued with this rewarding principle, ensuring the continuity of the successful Schempp-Hirth design teams:

Joachim Krauter, Malte Schüler †, Christoph Wannemacher, Swen Lehner and Andreas Lutz have been employed under his leadership. They compliment the renowned team perfectly and lead Schempp-Hirth into the future.



Introduction of glass fibre composites and construction of the single seater „Cirrus“ with a 17.6m span and V-tail.

Maiden flight of the series produced version of the Cirrus with a 17.74m span and cruciform tail.

Maiden flight of the Open Class Nimbus-1 with 22m span.

Maiden flight of the Standard Cirrus with 15m span.

Klaus Holighaus enters Schempp-Hirth.

Maiden flight of the Janus, the first series built two-seater made from fibre composites.

Together with Dipl.-Ing. Helmut Treiber, Klaus Holighaus introduces the use of carbon fibre technology with the Nimbus-2C.

Schempp-Hirth's experience with advanced carbon fibre technology led them to receive an order to build the rotor blade shells for the world's largest wind turbine, with a rotor blade diameter of 100m (designed by M.A.N.), for the German Ministry of Research and Technology.

January: Maiden flight of the Nimbus-3.

Summer: Maiden flight of the FAI 15m-Class glider Ventus. With more than 1000 built it becomes one of the most successful Schempp-Hirth types.

Schempp-Hirth gliders win all three competition classes during the world championships at Hobbs (USA).

1965 1967 1969 1974 1977 1979 1981 1983



Licensing.

The excellent performance, flying characteristics and competition success of Schempp-Hirth gliders caused temporary periods of extremely high demand. In order to relieve their own production the decision was taken to allow gliders to be

manufactured externally under licence. In 1938, „Wolf” production was handed over to „Schwarzwald Flugzeugbau“ and Naumburg (without a licence). During the 1970s, Schempp-Hirth gliders were produced under licence by Jastreb in former Yugoslavia, by Peter Bamberg and Lanaverre in France and by Grob in

Germany. Additionally, the Discus CS, the DuoDiscus and several different metal and composite parts were produced at the first dependent, then independent subsidiary company, Orlican in Czechoslovakia (now Czech Republic), which is a relationship that has continued to work successfully to this day.



Maiden flight of the Discus.

The Discus wins the 1984 Standard Class World Championships and continues to do so for the following six World Championships. In all, the Discus wins 10 world champion titles.

Professor Claus Oehler develops a simple, reliable sustainer drive. This new optional "Turbo" drive concept establishes itself on the market.

Maiden flight of the Ventus C with a 17.6 m span.

Ingo Renner wins the World Championships at Rieti with the Nimbus-3.

Maiden flight of the Nimbus-4T with a sustainer engine. Soon afterwards it wins the motorglider world championships in France.

Maiden flight of the Duo Discus. With more than 600 built to date it becomes the most successful 20m fibre composite two seater built and almost has the 20m Two-Seater class to itself.

Maiden flight of the Ventus-2.

Maiden flight of the Ventus-2C.

Maiden flight of the Discus-2 (April).

First delivery of a glider equipped with the ballistic glider rescue system, developed by Streifeneder and winner of the OSTIV-Prize.

Delivery of the 1000th Discus and the 1000th Ventus.

German aviation magazine „aerokurier” readers appoint the Duo Discus as „glider of the year” for the second time.

1984

1985

1986

1990

1993

1994

1995

1998

1999

2002

Disastrous fire in the Schempp-Hirth factory (main building and control installation unit)

On the 9th of August 1994, Klaus Holighaus died in a crash at the Rheinwaldhorn in Switzerland

Project „GOWIAN“

In the mid-70's Klaus Holighaus and Helmut Treiber became the first to implement carbon fibre technology into serial glider production with the Nimbus-2C. This technological advantage enabled Schempp-Hirth, in 1979, to get a contract with the M.A.N. factory to construct the rotor blade shells for what was, at the time, the largest experimental wind turbine: „GROWIAN“ (100m rotor diameter). The rotor blades were finally not built as planned using carbon fibre but from a glass fibre composite with a steel spar. The special airfoils seen on the rotor blades were developed by Professor Dr. Franz Xaver Wortmann (Stuttgart University).



January 23rd, Klaus Ohlmann, with the Nimbus-4DM, covers the greatest distance ever flown in a glider. He flew 3008km around three turn points.

The Ventus-2cxT was presented at the Aero 2003, immediately after its maiden flight.

Schempp-Hirth gliders win the FAI 18m-Class, Open Class and Standard Class at the World Championships in Poland.

Delivery of the 500th Duo Discus.

Maiden flight of the Discus-2c (September).

Klaus Ohlmann manages to fly an average speed of 306 km/h over a 500 km out-and-return course: a new world best performance.

Maiden flight of the Ventus-2cxa with a new, smaller fuselage.

Presentation of the new fuselage mock-up for the Duo Discus XL.

Test of the Draline AMT turbine sustainer drive on the Ventus-2cxa.

September 2010: World premiere! Maiden flight of the Arcus E – the first serial built two seater glider with electric motor.

Juli 2010: Maiden flight of the Arcus M with injection motor.

Maiden flight of the new flapped 20m two seater: The Arcus T.

Cooperation with Lange Aviation to equip the Arcus E with an electric self-launcher drive.

Christof Geissler and Christoph Wannemacher win the 20m Two-Seater Class at the German Championships with the Arcus T prototype.

Schempp-Hirth look back at 75 years of factory history.

2003

2004

2005

2007

2008

2009

2010

Production numbers (until 2009)
 Wooden gliders until 1967: 448
 Fibre composite gliders from 1967: 5112

The art of engineering

Long before a glider is designed and built, the conceptual engineering has to be done. There are many questions and requirements that have to be defined, pros and cons to be evaluated in addition to the wishes of pilots and trends that need to be recognised. Additionally, certification requirements and the conditions of competition class have to be considered. Through this, a catalogue of requirements is created. This then influences the choice of airfoils, layout, and much more. It may take years for all of these considerations to be summed up to become a design base. From the very beginning, our network of experts, consisting of highly qualified scientific and technical people, is integrated into this process.

Today, the design itself is done using modern 3D CAD systems, offering a lot of opportunities to refine and check the shaping of components in the overall plan. The design is constantly checked for practicality and is rectified where necessary. The experience in design and practical use, gained over decades, finds its way into the product, making it the typical Schempp-Hirth aircraft that so many pilots appreciate. A prerequisite for finding the best concept and design is not only know-how, but also the personal commitment of all the people involved. A boss being one of the best pilots in the world is another trump card in this structure. You could also say that, besides knowledge, heart and soul is required to design great aircraft! This is how we design our aircraft, which offer performance, quality and safety. In spite of the fast moving markets of this world, this philosophy makes them keep their value long-term.



Pict 1: Hand-drawn sketch (times ago)

Pict 2: 3D CAD-design (today)

Pict 3: Mold construction, manual work

Glider manufacturing always starts with an idea. The basic data and goals are defined, sketches and plans designed, corrected, changed, abandoned, renewed and optimized. The process of generating an aircraft is sophisticated and powered by the inspiration and know-how of its makers.





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WIR GRATULIEREN

Gaugler & Lutz oHG

Habsburger Straße 12

73432 Aalen-Ebnat

Telefon +49 73 67/96 66-0

Telefax +49 73 67/96 66-60

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info@sdi-variometer.de
www.sdi-variometer.de

75 Jahre Schempp-Hirth Flugzeugbau GmbH

Wir halten zusammen

Seit 30 Jahren sorgen wir mit unseren Klebharz- und Binder-Innovationen für sichere, leichte und stabile Lösungen für die Luftfahrt. Schempp-Hirth setzte bereits früh auf unser Know How – und dafür sagen wir Danke!

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Motorisation concepts

Self launcher

Wolf Hirth had always wanted a powered high-performance glider. He had already begun to develop the Hi 20 MoSe in the late 1930's at what was his second factory in Nabern. Its maiden flight took place in 1941. This high-performance glider was the first of its kind to be fitted with a propeller pylon that could be completely retracted into the fuselage whilst not in use. In 1974, Schempp-Hirth looked at this concept once again; Jürgen Laude, together with the pioneers of modern motor gliding, Willibald Collée and Alois Obermaier, developed a retractable drive for the Nimbus-2M. Walter Binder developed this concept resulting in the development of the motorised version of the Janus. This development of the Janus CM and Nimbus-3MR led to today's Binder system: driven by a water-cooled two-stroke engine installed in the fuselage, it is available for the available for the Nimbus-4M, Nimbus-4DLM, the Ventus-2cxM and the Arcus M. With the new SOLO 2625-03, a 625cc engine with computer controlled fuel injection, this system marks the very top of „state of the art“ technology.

Sustainer „Turbo“

Being an active performance and competition pilot, Klaus Holighaus watched the growing trend of equipping gliders with engines quite sceptically. The technical complexity and increased minimum wingloading of engine-equipped gliders appeared to him as being a disadvantage. Claus Oehler, a technically very talented Professor at the TH Berlin University, presented him an innovative drive concept. His sustainer drive, called

the „Turbo“, was a very simple and compact system that was also lightweight, cheap and most definitely achievable. This system won Klaus Holighaus and his engineers over and Schempp-Hirth became the first manufacturer to market the Oehler system.

Even today the advantages are convincing. The sustainer drive allows many pilots to avoid the inconveniences of field landings by allowing them to fly home and land without problems. Despite the fact that the „Turbo“ does not have the required power for self-launching, it still becomes increasingly popular. It is actually the best selling drive method for gliders to date. Its simplicity, functionality, reliability and low maintenance requirements make it virtually unmatched. The pioneering role and associated risk paid off for Schempp-Hirth.

Jet Turbine

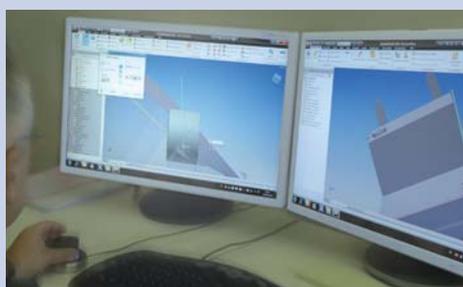
Principally jet turbines are not particularly suitable for self-launching gliders; their fuel consumption is high, their thrust and efficiency at low speeds is poor and they are quite noisy. Because of this very few jet gliders have been built, the majority of which have been one-off projects which have often been abandoned after early tests. However, forgoing the ability to self-launch, small turbines like those used by aeromodellers, show some advantages. They are light, require very little in terms of installation space in the fuselage and they produce very little drag while extended in a non-running state. If the engine does not start „as desired“, field landings would be no more difficult or risky than in a „normal glider“. Their lower „safe decision height“ for starting the engine increases the „pure gliding“ range. Schempp-Hirth are currently

pre-series testing a small retractable turbine drive (the Käppeler system) on the Ventus-2cx, of which a conventional drive would be extremely difficult to install due to its slim fuselage. The jet turbine appears to be a sustainer solution with a great future for completion pilots.

Electric drive

An „inaudible“ environmentally friendly launch method, without the need of numerous helpers, is a dream for many glider pilots. Lange Aviation in Zweibrücken have developed the first self-launcher drive system for gliders that is suitable for „everyday use“. In co-operation with Lange Aviation, the new Arcus E has become the first high performance two-seater to be equipped with such a drive. Its maiden flight took place on the 17th of September, 2010. This is another Schempp-Hirth development that shows the direction that gliding may be taking in the future.

The very first Arcus E has been delivered to Willy Balz, head of the firm „Windreich“, that produces wind farms. He now has a drive concept that is consistent with his company's philosophy.



Engineers and technicians bring the idea to life, structures and technical solutions are generated, making use of the most modern technologies.

From the Gö-1 „Wolf“ to the Arcus



Wolf

Martin Schempp started his career as an aircraft manufacturer with Wolf Hirth's design, the Gö-1 „Wolf“. Being a robust trainer and a good club glider, suitable for aerobatics, the Wolf found many friends around the world. Its special features included ailerons which increased the wing chord at the inner side of the aileron. This ensured the glider had an excellent roll rate without producing high levels of adverse yaw. The Wolf had a main wheel which made launching and ground handling much easier; it also proved to be much stronger than the skids that had been used up until that time.



Minimoa

From Wolf Hirth's experience with the „Moazagot!“ came the Gö-3 Minimoa, which was the world's first high performance glider to be produced in large numbers. Over 100 examples were built with the distinctive gull-wing that was designed to have the best performance and optimal stability in flight, thus increasing safety when cloud flying. It was the first glider, in serial production, to be able to carry water ballast to improve performance at higher speeds.



Cirrus

The Cirrus V1, by Klaus Holighaus, was designed to be 'the ultimate Open Class glider' and was based on his experience with the Akaflieg Darmstadt D-36. The Cirrus had an unflapped airfoil and was the first Schempp-Hirth glider to be built from glass fibre composite. The great success of the production model, with a cruciform tail, and of its smaller brother, the „Standard Cirrus“, made Schempp-Hirth known worldwide as a manufacturer of winning aircraft.

Manufacturing of the basic components such as wings or fuselages has not changed much visibly. It was and continues to require a lot of manual work, carried out by skilled specialists.





Nimbus-1

At the end of the 1960s, new flapped airfoils, designed by Franz Xaver Wortmann, made it possible to design wings with a higher aspect ratio and even better performance. With a 22m, three-part flapped wing, Klaus Holighaus built himself a new ultimate glider: The Nimbus-1. With a glide ratio of more than 50, the Nimbus-1 marked the top end of glider design at the time. The Nimbus-1 is the ancestor to the Nimbus Open Class glider series, which even today, is at the „top of the ladder“.



Janus

The Janus was the first two-seater to be series produced using GRP in the world. With Schempp-Hirth's production of this glider came a revival in two-seater performance flying. The Janus was initially built with an 18.2m span but it was later produced with a 20m span. Both the Janus and dual cross country flying became so popular that soon a new competition category was created: the 20m Two-Seater Class. The introduction of weight-saving carbon fibre to construction (Janus C) made this glider even more nimble and attractive. The Janus kept the lead in its class until the (unflapped) DuoDiscus was introduced.



Discus

Klaus Holighaus set new standards in the Standard Class with the Discus. New airfoils (Horstmann/Quast/Althaus) and a new wing geometry, with a back-swept leading edge, gave the Discus an unique look and made it a real winner. Its successor, the Discus-2, which can be flown in a 15m or 18m configuration, proved to be a superior competition glider. Thanks to the robust design and gentle flying characteristics, both Discus models also became much loved club gliders

Looking closer, it can be seen that the materials and procedures have become more and more sophisticated and efficient. High-tech metals and fibre composite has replaced fabric and wood.



„State of the Art“ in modern glider design



Nimbus-4

With a 4-part wing and 20.3m span, the Nimbus-2 became the series produced version of the Nimbus-1. It was first built from GRP and later, lighter and stiffer carbon fibre (CRP) was used (Nimbus-2c). The introduction of CRP technology permitted a further increase of the span and the use of thinner airfoils which had an even better performance (Nimbus-3). The successor and production model, the Nimbus-4, has a wingspan of up to 26.4m. The Nimbus-4 is one of the best gliders in the world and displays state of the art glider design.



Nimbus-4D

The success of the Janus and the increasing popularity of high performance flying in two-seaters persuaded Klaus Holighaus to combine his successful Nimbus-3 wing with the Janus fuselage. The Nimbus-3D created a base for modern two-seater record and competition flying. Further improvements, which were originally developed for the Nimbus-4 single seater and the Duo Discus, were implemented into the design of today's Nimbus-4DL. Competition results show that this glider's design appears to have the perfect balance between improving performance with span and keeping its good, nimble flying characteristics.



Ventus-2

After Schempp-Hirth introduced the Mini-Nimbus, a successful glider in the (then new) 15m-Class, its successor, the Ventus, available with tip extensions for a 16.6m and later 17.6m span, was introduced. Its successor and the production model, the Ventus-2, had a completely new wing geometry and is offered with a 4-part wing which allows it to be flown in either a 15m or 18m configuration. Today the Ventus-2 dominates competitions in both the 15m and 18m Classes.



Inside today's Schempp-Hirth gliders you can find parts and technology that require the highest level of precision, reliability and quality throughout the manufacturing process.



Duo Discus XL

Despite having an unflapped wing, the Duo Discus proved to be far superior in performance than its flapped predecessor, the Janus. Its performance, combined with nimble and gentle flying characteristics made it not only the dominating glider in the 20m Two-Seater Class, but also a much loved club glider. Continuous refinement of its design has led to today's Duo Discus-XL. With its trailing edge flaps, which compensate for the loss of lift caused by the airbrakes, and its new roomier and more comfortable cockpit, the Duo Discus-XL has become the most popular all-round two seater.



Arcus (E)

75 years after the presentation of the Minimoa, which had an uncommon yet highly successful wing shape, Schempp-Hirth have completed the circle showing that once again that the best things may look different with the brand-new flapped two-seater: The Arcus.

The Arcus is equipped with the latest airfoil developments and its arched wing is swept forward at the inner section and backwards

at the outer section. Not only does it set new standards in the 20m Two-Seater Class concerning performance and flying characteristics, it also offers a choice of three different drive installations.

Possible options include the Arcus T, which has a 'Turbo' sustainer drive, the Arcus M, a self-launcher and the Arcus E, the first electric self-launching, high performance two-seater glider in the world.

Games with Numbers

5560 aircraft have been built and handed to pilots all over the world by Schempp-Hirth up until the end of 2009, 5112 of which had been made from fibre composites.

On the 31st of March 2010, we delivered the 600th Duo Discus to the LSV Bad Segeberg GC. 600 gliders of a single series – remarkable. This 20m two-seater has undergone continuous improvements since its maiden flight. For example, the Duo Discus X got a newly-developed suspended undercarriage, Maughmer winglets and better airbrakes.

The latest version, the Duo Discus XL, with a larger, safer and more comfortable cockpit, has been offered since 2009.

Masterpieces of precise engineering

Gliders are one of the most elegant things you can see in the sky. Their modern aerodynamic design is united with an aesthetic shape. With such a perfect appearance, it can be easy to forget that most components are hand-made.

Looking closely at one of the lightweight and extremely strong carbon fibre composite or welded metal parts you will see that each is a small work of art. The whole glider

consists of many of these precisely fitting parts, which are made and composed elaborately with love by well trained and dedicated people, to finally become a perfect product.

This makes each Schempp-Hirth glider an exclusive handmade aircraft, with its own individual character, manufactured to the customers' requirements.



You'll always be back.



Innovations and safety on the gliding scene

Schempp-Hirth gliders are renowned for their high performance and nimble control responses which represent „fun flight“. At the same time their designers have always managed to combine top-end performance with gentle and good natured flying characteristics. Such characteristics are ideal for both exciting and relaxing flights as it allows the pilots concentration to be preserved and maintained for the duration of even a long flight. This is something that should not be underestimated in terms of flight safety.



Despite the fact that the flying characteristics and performance of Schempp-Hirth gliders have always marked the „top of the ladder“ for their time, the dedicated engineering team has never become tired of taking further steps forward. Consequently, Schempp-Hirth have often developed or integrated many new ideas into their gliders making them safer, simpler and better in performance. For example, in the 1930s, the highly successful, easy to operate and effective Schempp-Hirth airbrakes had been

developed. The „Turbo“ sustainer drive, with a quiet, 5-blade propeller, cockpit crash tests completed with TÜV Rheinland, followed by the consequent development of the safety cockpit, and the development of the airbrake loss-of-lift compensation system, that works by using interconnected flaps, are a few of the most important examples of such ideas and developments.

Schempp-Hirth were the first manufacturer to offer the aircraft rescue system, developed by Hans-Jörg Streifeneder, in a series built glider – the most logical step to increase gliding safety.

New ideas lead to massive improvements for pilots but also require an increased investment on the manufacture's side. Who'd have thought that gliders would one day be driven by jet engines?



The manufacturing process of a glider is always finished with thorough controlling, functionality checks and is finally approved by certified inspectors.

The Team

A series produced glider is no mass produced item. The production process consists of a large amount of highly qualified manual work.

Our customers expect a superior product that will win competitions and fly records. At the same time they also expect that their purchase will keep its value long term.

To do so the flying characteristics and quality of craftsmanship needs to be to a level so that in years to come, long after new generations of gliders take over on the competition scene, they are still safe and attractive to all pilots. Such aircraft can only be developed and built by a strong team. Every one of our staff members knows that his own, personal commitment has a direct influence on the quality of the product. Not only do these people fully support the factory and its products but they also enjoy "using" the things that they produce.

From the very beginning of Schempp-Hirth, its bosses and design engineers have also been top pilots that have been able to demonstrate the performance of their designs perfectly. A large proportion of the workforce, from the young apprentice right up to the senior sales manager „Biggo“ Berger (renowned for giving competent advice and help to our world-wide customers), are active and enthusiastic glider pilots.

A large, cohesive family of dedicated people who all make sure that their products continue to be renowned trademarks of „the highest quality and craftsmanship“, „fun flying“ and „success“.



Evolution instead of Revolution

Thoughts of Gerhard Marzinzik, vice chief editor of aerokurier magazine

Have we already reached the top end of glider development? Early in 2003, Klaus Ohlmann recorded the longest distance ever flown in a glider, covering a total of 3009km (free distance around three turn points) in a Nimbus-4DM.

At the end of 2006, again in the Nimbus-4DM, the wave flying expert set the speed record of 306.8km/h over a 500km out-and-return distance. The performance reached in smaller gliders isn't far behind what has been seen in these exceptional flights: In the category of gliders with less than a 15m span, Dieter Memmert flew a Ventus-2cM 1391km around the largest pre-declared FAI triangle. Such outstanding performance is not just limited to record flights; average speeds exceeding 100km/h are common in today's competitions.

Have the limits of gliding been reached and everything possible achieved? Is there any potential left for further improvements to be made? Although it may be difficult to imagine, the answer is „yes“.

A new technology; boundary layer suction, offers what could be an „explosion“ in performance. Using this „aerodynamic trick“ would, in average European weather, enable a nimble 15m glider to outperform today's Open Class gliders. It's wonderful to imagine: large, fast flights, that are only now possible in „far and exotic places of the world“, could become possible for everybody, even from our home bases at the weekend.

Glider using this technology won't be available tomorrow; the research process is still far from practical implementation. Like many other new developments, the increase of performance using boundary layer suction will appear „step by step“.



Today we can take part in our sport with sophisticated gliders. After the initial focus on flying characteristics and performance throughout glider development, cockpit ergonomics, safety and agility have gained more interest. Today's gliders are straightforward, easy-to-handle sports items.

Nevertheless, there is still a large potential remaining for great dreams of an even better future.

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The Network

Developing new a new aircraft is a challenge, which in isolation is unlikely to be successful; even the most „perfect design team“ will only be able to work successfully if it includes the latest science and research findings into its work. For this reason, from the very beginning, Schempp-Hirth have built an efficient, world-wide network. In proven co-operation, renowned scientists, specialists, as well as top pilots and companies, work together to support the Schempp-Hirth engineering team. The latest knowledge from different areas can therefore be used to keep our products at the highest possible level in terms on concept, design and realisation.

Here is a list of the important partners that have worked together with us since Klaus Holighaus took over the management of Schempp-Hirth. We apologise should this list be incomplete.

Scientific partners

Walter Stender, Ground resonance tests, flutter assessments for Cirrus, Standard Cirrus and Janus

Dr. Franz Xaver Wortmann †, Stuttgart University, Airfoil development

Dieter Althaus, Stuttgart University, Wind tunnel research, airfoil development

Prof. Dr. Richard Eppler, Stuttgart University, Airfoil development, stressing

Prof. Dr. Karl Heinz Horstmann, DLR Braunschweig, Aerodynamic optimisation of wings and airfoil development

Prof. Loek M.M. Boermans, Delft University (NL), Airfoil development

Cristoph Kensche, DLR Stuttgart, Component testing, fatigue tests, resin certification

Herr Prof. Dr. Horst Kossira, TU Braunschweig University, Component testing, fatigue testing

Prof. Dr. Norbert Niedbal, Dr. Fritz Kießling, Dr. M. Rippel: DLR Göttingen, FH Bielefeld University (Niedbal), Ground resonance tests, flutter assessments

Prof. Wolf Röger, FH Aachen University Pilot rescue systems, emergency exit research, canopy jettison research

Dr. Werner Würz, Stuttgart University, Wind tunnel research, airfoil development

Prof. Dr. Mark Maughmer, Pennsylvania State University (USA), Optimisation of wing geometry, winglet design

IDAFLEG, Association of the German Akaflieds, Performance and flight characteristic evaluations

Dr. Volker Trappe, BAM Federal Institute for Materials Research and Testing, Material analysis, component testing

Steinbeiss-Transferzentrum Stuttgart: Load assumptions, mechanical strength

Jan Schwochow, DLR in Göttingen, Ground resonance tests, flutter research, digital flutter simulations

Other Partners

Prof. Claus Oehler †, TU Berlin, TU Berlin University, Development and tests folding propeller and Oehler “Turbo” sustainer system

Martin Sperber, TÜV Rheinland, Mechanical strength research, cockpit area crash tests

Walter Binder, Binder Motorenbau Ostheim, Self-launcher drives

Jürgen Schindler, Ilec: Engine control units

Rolf Schmid, Technoflug Leichtflugzeugbau GmbH, Propeller development

Hans-Jörg Streifeneder, Glasfaser Flugzeug-Service GmbH. Aircraft rescue systems, mould milling

Axel Lange, Fa. Lange Aviation, Development and design of the Arcus E drive system

Wolfgang Emmerich, Fa. SOLO Kleinmotoren GmbH, Engine development

Martin Käppeler, Development of the jet turbine drive

Our customers

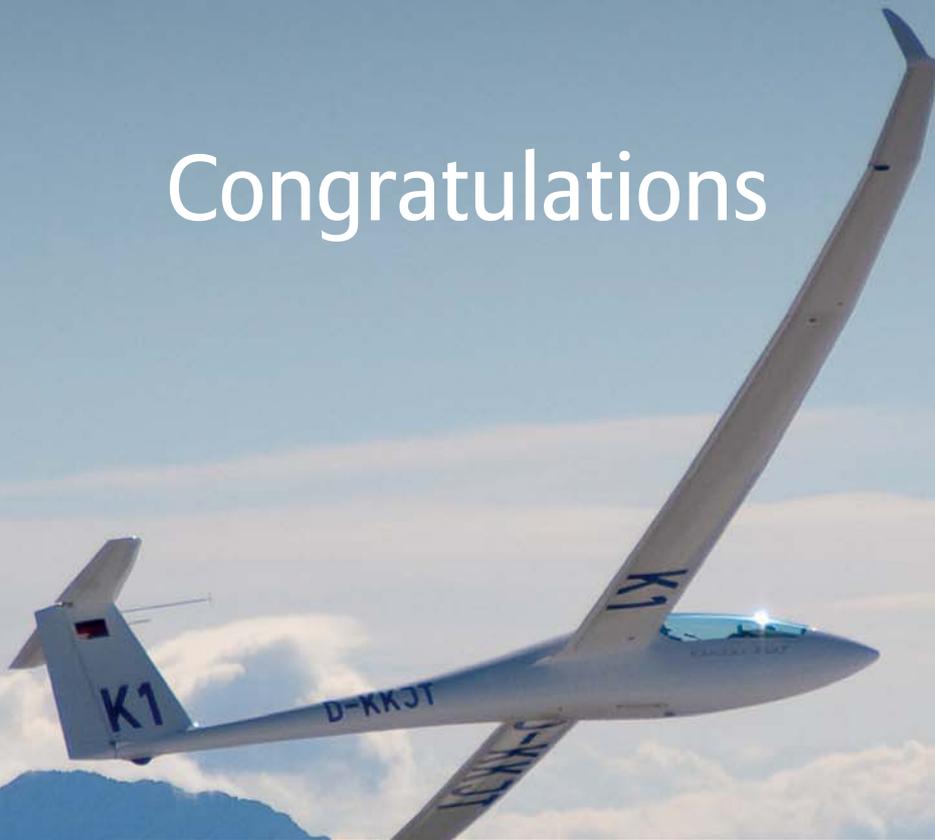
It is not only high performance and competition pilots that give us their feedback; many instructors and „normal“ pilots give us their comments ranging from practical operation and requests down to their ideas and requirements. These people make up an invaluable „pool“ of people that have wide-spread experience. This allows us to continue to develop our products to suit the needs of our customers and the market.



Test flights „right outside the door“: for everyone in the region our gliders are normal parts of a view to the sky. Like in this picture, above the „Burg Teck“ castle.



Congratulations



On board since the early days of aviation and one of the largest in the business. We have a lot in common. Allianz congratulates **Schempp-Hirth Flugzeugbau** on its 75th anniversary.

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The tools to win

Schempp-Hirth gliders have won around half of all of the possible world champion titles.
Our gliders are developed by ambitious experts for ambitious pilots.

Winners of the World Gliding Championships, Standard Class:

1985	in Italy	L. Brigliadori	with Discus
1987	in Australia	M. Kuittinen	with Discus
1989	in Austria	J. Aboulin	with Discus
1991	in the USA	B. Selen	with Discus
1993	in Sweden	A. Davis	with Discus
1995	in New Zealand	M. Kuittinen	with Discus
1999	in Germany	J.M. Caillard	with Discus-2
2001	in South Africa	L. Aboulin	with Discus-2
2003	in Poland	A. Davis	with Discus-2a
2008	in Italy	M. Buchthal	with Discus-2a
2010	in Slovakia	S. Kawa	with Discus-2a

Winners of the World Gliding Championships, Open Class:

1968	in Poland	H. Wödl	with Cirrus
1970	in the USA	G. Moffat	with Nimbus
1972	in Yugoslavia	G. Ax	with Nimbus-2
1974	in Australia	G. Moffat	with Nimbus-2
1981	in Germany	G. Lee	with Nimbus-3
1983	in the USA	I. Renner	with Nimbus-3
1985	in Italy	I. Renner	with Nimbus-3
1995	in New Zealand	R. Lynskey	with Nimbus-4
1999	in Germany	H. Karow	with Nimbus-4
2003	in Poland	H. Karow	with Nimbus-4M

Winners of the World Gliding Championships, 15m-Class

1983	in the USA	K. Musters	with Ventus-a
1989	in Austria	B. Gantenbrink	with Ventus-c
1995	in New Zealand	E. Napoleon	with Ventus-2
1997	in France	W. Meuser	with Ventus 2
1999	in Germany	G. Galetto	with Ventus-2
2001	in South Africa	W. Meuser	with Ventus-2ax
2008	in Germany	G. Guylas	with Ventus-2a



Since the very popular 18m-Class was first introduced in 2001, 3 of the 4 possible world champion titles have been won by the Ventus-2.

Winners of the World Gliding Championships, 18m-Class:

2001	in Spain	S. Jones	with Ventus-2c
2003	in Poland	W. Janowitsch	with Ventus-2cxT
2006	in Sweden	P. Jones	with Ventus-2cxT



The team is always directly responsible for when a new Schempp-Hirth glider is ready to be handed over to its new pilot. An aircraft with all the prerequisites to be unmatched in performance and the ability to bring endless joy.

Fascinations, Challenges and Goals



The contribution of the Schempp-Hirth factory to the history of aviation is undeniable: great names, fascinating aircraft and countless world records confirm that.

We wouldn't be the legitimate successors of our unforgotten founders if we were to rest on the successes of the past. Quite the contrary, the questions and challenges of the future are a part of what we do today. We are looking for new goals, possibilities and boundaries to explore.



75 years of top performance and visionary ideas, implemented by skilled technicians and craftsmen, flown by the best pilots. That's how it should be.



The flexibility of our enterprise, the visions of our engineers and research staff and the commitment and ability of our employees opens up new prospects: more efficient use of the wind and sun's energy, lighter and stronger materials, silent electric drives – our potential is huge.

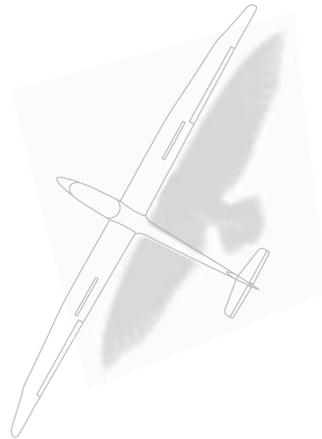
We'll continue to research, design, invent and build; realising new dreams.

Our ambition for the future is for the pilots of our gliders to land with a big smile on their face.

...beyond horizons.







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Alexander Gilles
Jochen Ewald
Wil Janssens
Klaus Ohlmann / Mountain Wave Project
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Schempp-Hirth Flugzeugbau GmbH
Krebenstraße 25
73230 Kirchheim / Teck
fon: + 49 7021 7298-0
online: www.schempp-hirth.com