

free.aero®

WORLDWIDE PARAGLIDING AND PARAMOTORING MAGAZINE. FOR FREE.

COCOONING





NIVIUK.COM > CROSS COUNTRY

EN/LTF C

ARTIK 5

Time to raise the bar

When ambition and passion come together, excellence is born. The famous Niviuk XC touring wing is reinvented in a paraglider that has the highest performance with maximum accessibility - ready to take you beyond your imagination on all your cross-country flights.

Discover the most Amazing Adventures on our Facebook and Instagram:



facebook.com/Niviuk



instagram.com/Niviukparagliders



The photographer,
Jérôme Maupoint,
in a Neo StayUp.

Amongst other subjects, in this issue, we made an interesting observation: cocoon harnesses (especially the lightweight ones), are taking off in force, and rightly so: they bring performance and precision piloting, as well as comfort...

SOMMAIRE

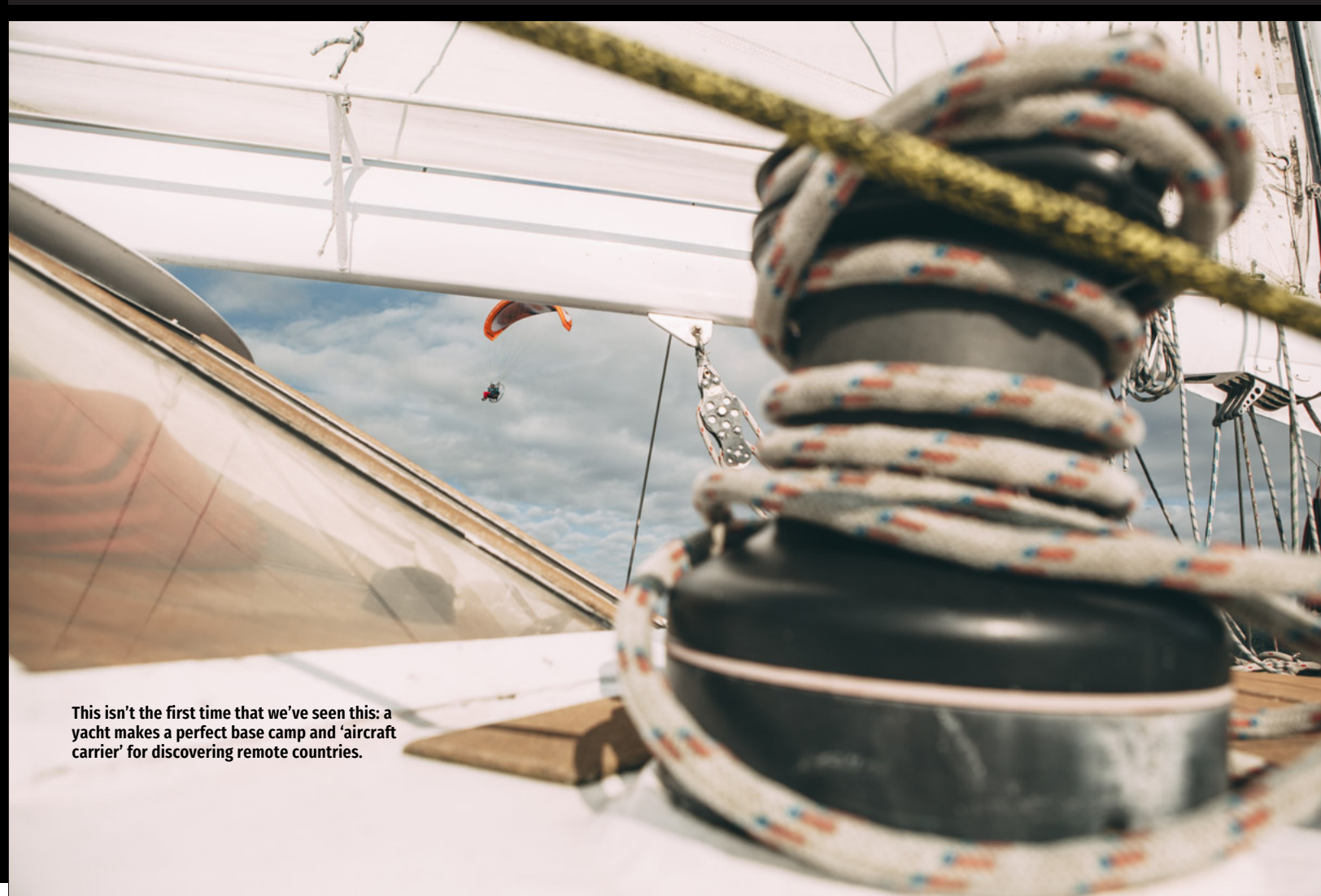
WE ARE THE ROVERS NORWAY	4
VIDEO: TRAILER NORWAY	10
WEATHER	12
PRE-WORLD CUP IN CERDAGNE	14
NEWS : ET EN + C'EST VRAI	22
SUPERTESTIVAL KÖSSEN	24
ASPECT RATIO	26
TEST : PHI SYMPHONIA	53
COCOONING	59
SUPAIR STRIKE	68
NEO STAY UP	70
HARNESS TEST NEARBIRD GENESIS	73
PARAMOTOR WORLD CHAMPIONSHIP IN THAILAND.	77
EN, TC136/WG6: FLYING NORMS	83
A CONCRETE EXAMPLE: THE HARNESS	85



WE ARE THE ROVERS, NORWAY

After Korea and Scotland, the Rovers went to the Norwegian fjords to make another film. The film will come out at the end of the summer. In the meantime, here are some amazing pictures by Louis Garnier who accompanied the team...

COCOONING



This isn't the first time that we've seen this: a yacht makes a perfect base camp and 'aircraft carrier' for discovering remote countries.



The other 'mobile base camp' on this voyage to Norway: the old "Let's be Nomads" bus. It's a hotel on wheels, with a unique ambience, which travels everywhere in Europe.
<http://www.letsbenomads.com/>



Open your eyes and
explore the four elements:
earth, water, air and fire...



Pascal Campbell Jones: pioneer of the reflex profile like his father, is also the inventor of the Parabatix races.





The full film will be shown at Coupe Icare. The trailer already looks promising...



TRAILER: WE ARE THE ROVERS NORWAY



Flying, that's all.



Paramotors



Trikes

Kangook
PARAMOTORS

WWW.KANGOOK.CA 



Accessories



OZONE's Instagram feed is full of great stories from team pilots and stunning images from their adventures. Follow along and get a daily dose of flying inspiration!
[INSTAGRAM.COM/OZONEPARAGLIDERS](https://www.instagram.com/ozoneparagliders)



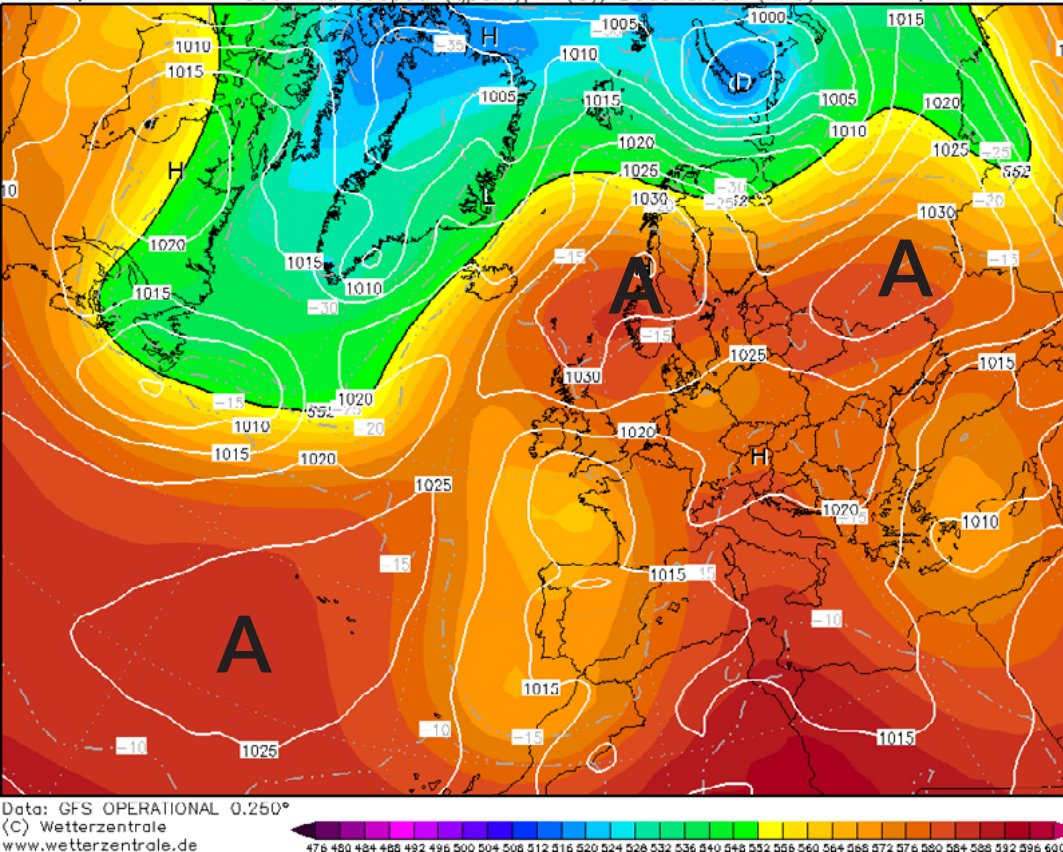
RUSH 5

The Rush 5 is a top of class Sport-Performance-Intermediate wing developed with Enzo 3 and Zeno technology. Next-gen 3D shaping, a refined OZONE SharkNose, a new low-drag line plan, and an enhanced internal structure have taken the speed, glide, and solidity to a level not seen before in this class.

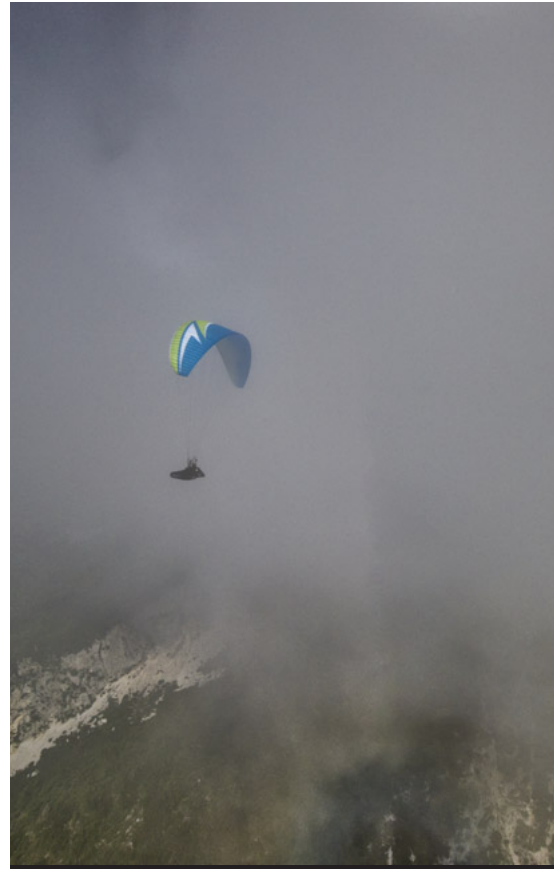
WWW.FLYOZONE.COM

Pilot: Luc Armant Photo: David Dagault Location: Gourdon, France

Init: Sun,27MAY2018 00Z 500 hPa Geopot. (gpm), T (C), Bodendruck (hPa) Valid: Sun,27MAY2018 00Z



A day typical of the weather situation at the end of May 2018: powerful anticyclones blocked the oceanic fronts, enclosing a barometric swamp over France, a situation which favours storms.



WEATHER

In May, typical summer time temperatures were recorded in numerous regions. So why was it hardly ever flyable?

Following the already very hot month of April, the weather in May and the beginning of June was amazing in Europe. It was the hottest month since weather records began in Scandinavia and also in Germany, the Czech Republic and in Slovakia for example. In the Nordic countries, it was remarkably dry, as a very strong anticyclone remained stationary over these regions. Dry continental air, which came from the east, maintained this anticyclone and was also reheated. Considering the low humidity as well as the high pressure, this didn't bring clouds to the far north.

In the South of France and Spain on the other hand, the fronts remained blocked, and brought in the humid Mediterranean air.

GLOBAL WARMING AND PARAGLIDING.

Global warming doesn't just ruin flights. As we wrote four years ago: if we are just selfishly interested in our leisure pursuits as pilots and forget all the environmental aspects, a probable scenario, according to lots of specialists, would partly favour flying. Firstly, the length of the period which is good for thermals will increase: starting earlier in the spring and finishing later in the autumn. But at the same time, the contrasts being

greater, the conditions would be more violent too, with an increase in phenomena such as dust devils as well as storms which would prevent any flying. This is what's happening!

In the middle of summer, paradoxically, the omnipresent heat at all levels could stabilise the atmosphere more, stifling the thermals under a leaden layer. At least paramotors would benefit...

DISCOVER NEW PATHS

For example with the lightest tandem paraglider in the world:
Sir Edmund 31 (EN /LTF B) - 2,61 kg



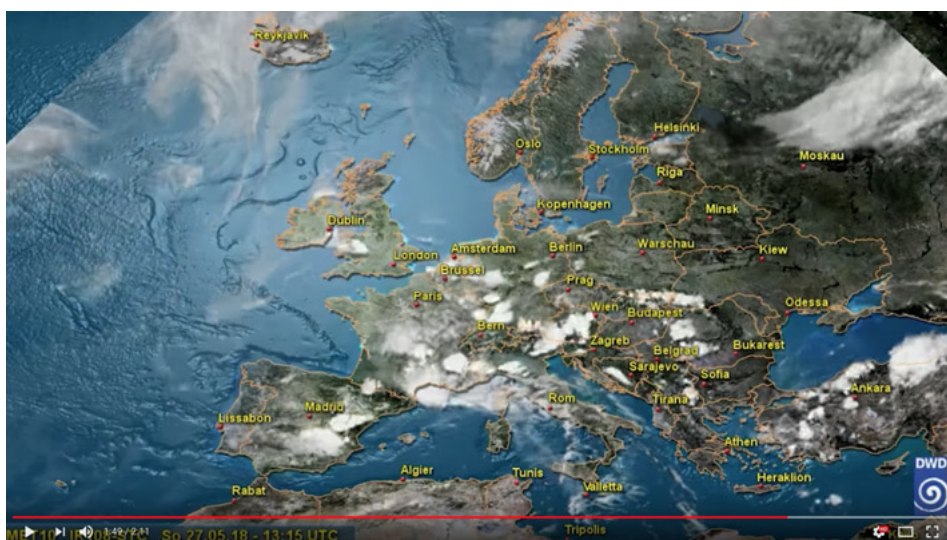
The freedom of lightness!
Ultra-light equipment for adventurers,
XC and tandem pilots.



Under this layer, in the mountains, it was relatively cool. Everywhere the sun pierced through, the storms developed quickly.

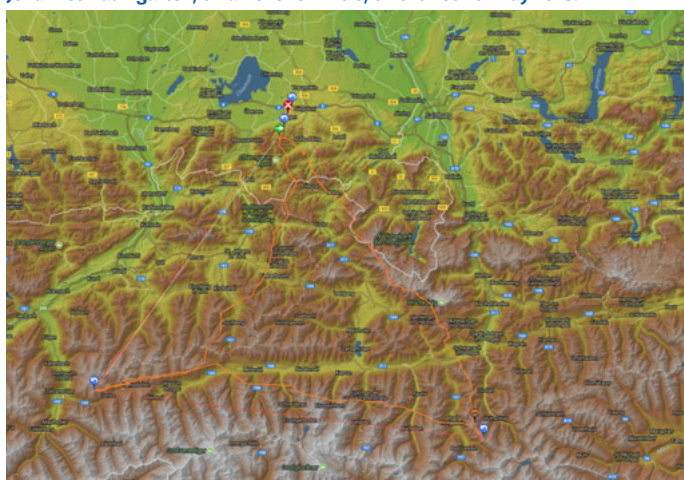
Geographically there was a big contrast in the weather. As the relatively small amount of wind hardly stirred the air, it was possible to have cumimbs which, within the space of a few hours, dropped the equivalent of a whole months rain whilst, a few kilometres away, nothing fell.

And yes, according to certain specialists, we probably owe the temperatures and the lack of flyable days, in part at least, to global warming. The exceptional quantity of rain from storms will become even more clearly linked to this. ☹️

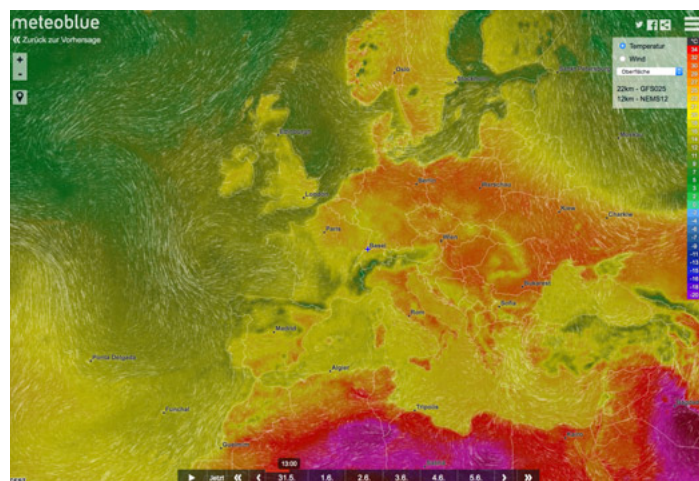


In this animation of the month of May 2018, you can see the chaotic situation over the Alps and the Pyrenees, as well as the development of storm cells.

Despite the problems with over development, there were flyable gaps, particularly in the east: shown here a triangle of nearly 258 km flown by **Johannes Baumgarten**, on an **Ozone Enzo 3**, on the 26th of May 2018.



Another view of the situation at the end of May: weak flows and still very hot in the east.



PWCA PRE-WORLD CUP IN CERDAGNE



At the beginning of June, for the first time, a Pre-World Cup took place in the Cerdagne Valley. This area is well known as the birth place of the 'Pôle Espoir,' the intensive training centre for French Champions, which is the envy of the rest of the free flying world...

The Pre-World Cups serve, amongst other things, as a qualifying round for new comers to get into 'top level' World Cup competitions. They also allow a site to be tested and the organisational team so that they can perhaps organise a 'real' World Cup there later on.

The infrastructure of the main Pic dels Moros site has been improved massively. The access road has been remade, allowing access with a 'normal' car and not just 4x4s. The take-off has been covered with two carpets.

A well-deserved face lift for this site in northern Catalonia, in the Eastern Pyrenees, half way between Perpignan and Andorra. This is where champions are born. Numerous very high-level paraglider pilots have trained here: amongst others, the current women's Super Final champion, Laurie Genovese, women's World Cup winner, Meryl Delferrière, former champions Jérémy Lager, Charles Cazaux and Maxime Pinot, as well as the very talented aerodynamic engineer and Ozone designer, Fred Pieri...



An international event with pilots from all over the world. Pictured here, participating from Hong Kong, Tung Fai Kwong.



As far as the public press were concerned, France 3 pictured here, were interested in the event.



The winners: Meryl Delferrière won the ladies and Pierre Remy was the overall winner.



Catalan pilot, Xevi Bonet Dalmau, took second place.

OVERALLS	
1	Remy Pierre
2	Bonet Dalmau Xevi
3	Delferriere Meryl
4	Goutagny Lois
5	Mettetal Constance
6	Dijoux Daniel
7	Bouvard Teo
8	Vargas Thibaut
9	Chiu Ho nam
10	Berge Nancy



Constance Mettetal, Meryl Delferrière and Nancy Bergé.



The champion had to leave before the prize giving. So, the President of the club, Damien Hamard (to the left of Meryl) took the prize in his place. Well deserved, given the excellent organisation!

The Pôle Espoir de Vol Libre, created by the state and the French Federation, is part of the Lycée Font Romeu...

Other European countries envy the French having this centre and its results. 'Of course, the French walk away with all the titles, given the support that they get,' you often hear.

In fact, the state allows students at the 'Pôle' to have a normal schooling whilst, at the same time, developing their sporting talents. After they have been away for a competition, for example, the teachers help them catch up with the lessons they have missed in the evenings...

MAGIC BAG: Born in Cerdagne



Another Champion born at Targassonne, at the foot of Pic dels Moros, from the company Ailipse: the Magic Bag. In this photo taken in 2005, the inventor explained the principle. Since then, because it wasn't protected by patent, almost all the manufacturers have copied or modified it and often sell it listed as a "Concertina Bag".

Ailipse has moved since then, but you can still order the original which is very light (250g) and practical, 49€:
<http://www.ailipse-technique.fr/>

Despite a dreadful weather forecast, there were two valid tasks.



THE PÔLE

Julien Garcia, who is currently in charge of the Paragliding 'Pôle Espoir.'



The current ladies vice champion in the Paragliding World Cup and frequently first lady in rounds of the World Cup, Meryl Delferrière, went through the Pôle and was trained by Marc Rispoli, who has helped an impressive number of students to succeed.



Méryl taking off. She did her competition apprenticeship at this site.



The site of the school at Font Romeu, at more than 1800m, seen from the Pic dels Moros. The school celebrates its 50th birthday.

A tourist and aeronautic region: here the Merens, black horses which originate from the Pyrenees, gallop next to the airport runway at Mont Louis-La Quillane (LFNQ), known internationally for gliding.





At the foot of the site at Pic dels Moros is the Thémis experimental power station. In the back ground, Serra del Cadí: Barcelona isn't far away!

FLYING IN CERDAGNE

The Cerdagne valley, a high plain at more than 1200 m above sea level, benefits from exceptional amounts of sunshine. There are solar plants at Mont Louis and Odeillo, the solar power station at Thémis and the all new 'ELLO,' a thermodynamic power station producing 9 MW over 33 hectares. Contrary to other French sites in the Pyrenees, the Pic dels Moros is mostly oriented towards Spain. Therefore, you can fly it in a southerly with good thermals.

Sometimes, the site can be subject to the Tramontane from the north west which can also turn west-south-west here. In this case, the mecca of acro flying, the site of Organya, often remains protected and is only a little over an hour away by car.

Otherwise, the sea breeze often comes up from the Roussillon plain giving a nice confluence. Nonetheless, as is the case everywhere in the Pyrenees, very big cross-country flights are difficult. Flying further than 60 km is pretty rare.

The dream of many pilots, fulfilled by only five pilots, one of whom is our colleague Estéban Bourroufiès, who managed to land on the edge of the Mediterranean, a distance of 90 km as the crow flies.

Fifty years ago, the CNRS built the biggest solar plant in the world at Font Romeu, pictured here, over-flown by a paramotor, as a one off.

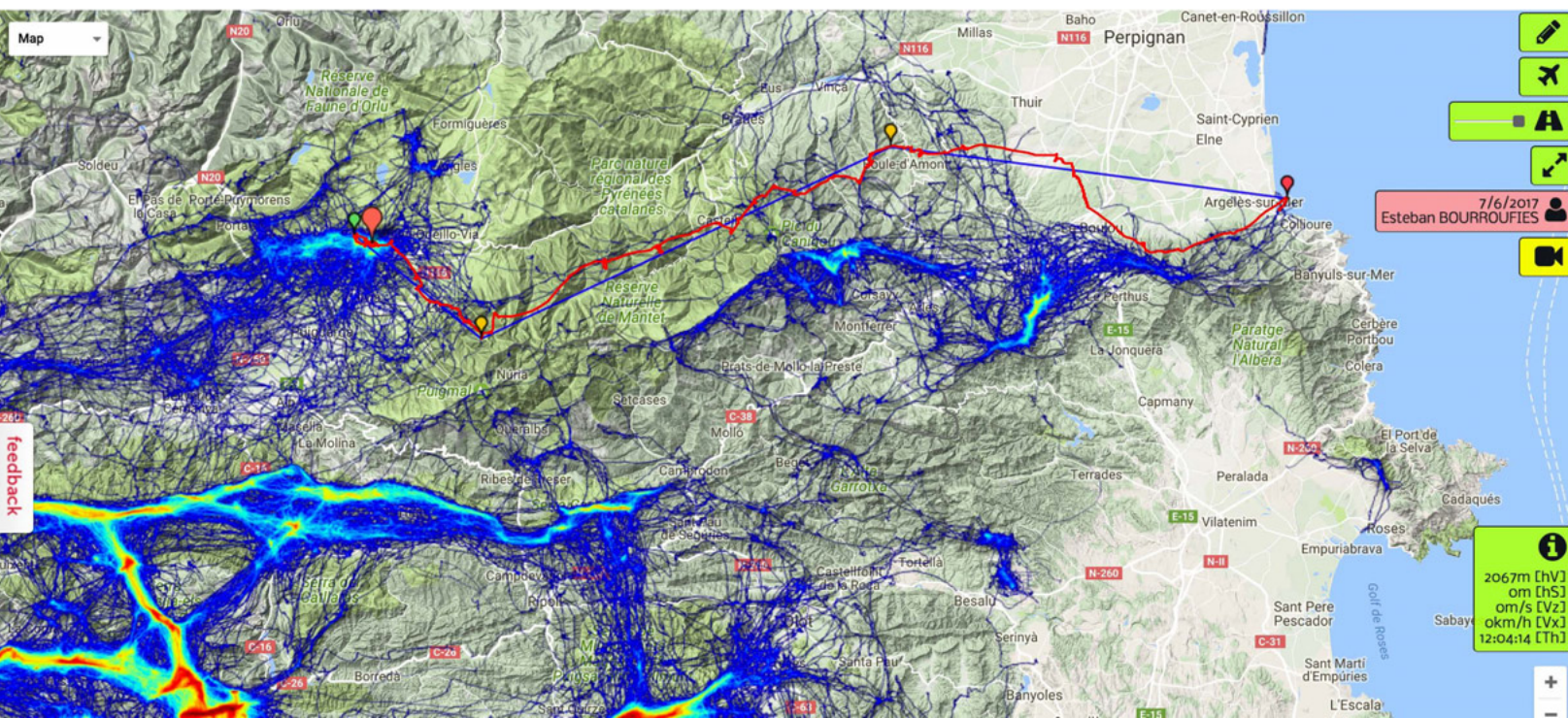




Out and returns from the Vallée du Carol. A simple, classic flight.



The flight to the sea on the 7th of June 2017.





ARE YOU
ready
to touch
the clouds?



Yes
I am.

new! even lighter!
Wani light, 2.6 kg (L)
www.woodyvalley.eu



Photo : V.B./ free aero Pilote: Sascha Burkhardt

ADRESSES

FFVL site information

https://federation.ffvl.fr/sites_pratique/voir/1377

Weather station.

<http://www.balisemeteo.com/balise.php?idBalise=44>

Contact Pôle Espoir:

<https://goo.gl/mVDDiK>

The Vol'Aime paragliding school:

Established 30 years ago.

<http://www.volaime.com/>

Tourism in the Pyrénées-Cerdagne region:

<https://www.pyrenees-cerdagne.com/>





Efficient Performance

IOTA 2: the new Performance-Intermediate

What is your cross country dream? To achieve your first 200 kms or land in front of your house after a long flying day? The IOTA 2 presents you with the most important ingredients: efficient performance and relaxed piloting in all conditions. The latest technology also gives the high end EN-B wing an outstanding polar curve for its class.

www.advance.ch/iota

ADVANCE IOTA²

Picture: Felix Wolk | Location: Oman

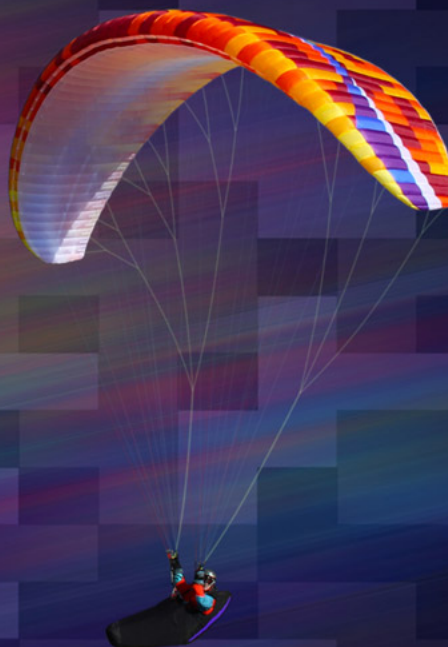
Seen at the Pre-World Cup: The Paragliding Acrobatic World Champion, Christina Kolb, who was wind-dummy for the organisation on her Omega X-Alps 2. From now on, she will also be flying for Advance, for distance flying and hike & fly. For acro, on the other hand, she will stay, for reasons of historic loyalty, faithful to her AirG Emilie. Remember that since 2016 Advance have added an acro wing to their range: [the Omikron](#).



Punk EN-B

TIME FOR CHANGE

Rebellious, fun, and enlightening. Not just talk, the Punk actually tells you the truth about the air. Stay informed, make your own choices, fly the Punk.



BRUCE GOLDSMITH DESIGN

www.flybgd.com

NEWS

ET EN + C'EST VRAI!

This range of clothing was created by Laetitia Mescoff. It has been designed to suite all different tastes and styles. Some items from the new collection:

- 1- Ladies DUNE T-shirt 22 €
- 2- Unisex TUMBLING Sweatshirt 38 €
- 3- Men's PLAY Polo 28 €
- 4- Unisex VOL DE NUIT Sweatshirt 38 €

<http://www.etenpluscvrai.com/>



2



1



3



4

EONA 2

PROGRESSION WING

5 SIZES

3 COLOURS


SUPAIR
LIFE IS IN THE AIR

WWW.SUPAIR.COM

DESIGNED
IN ANNECY

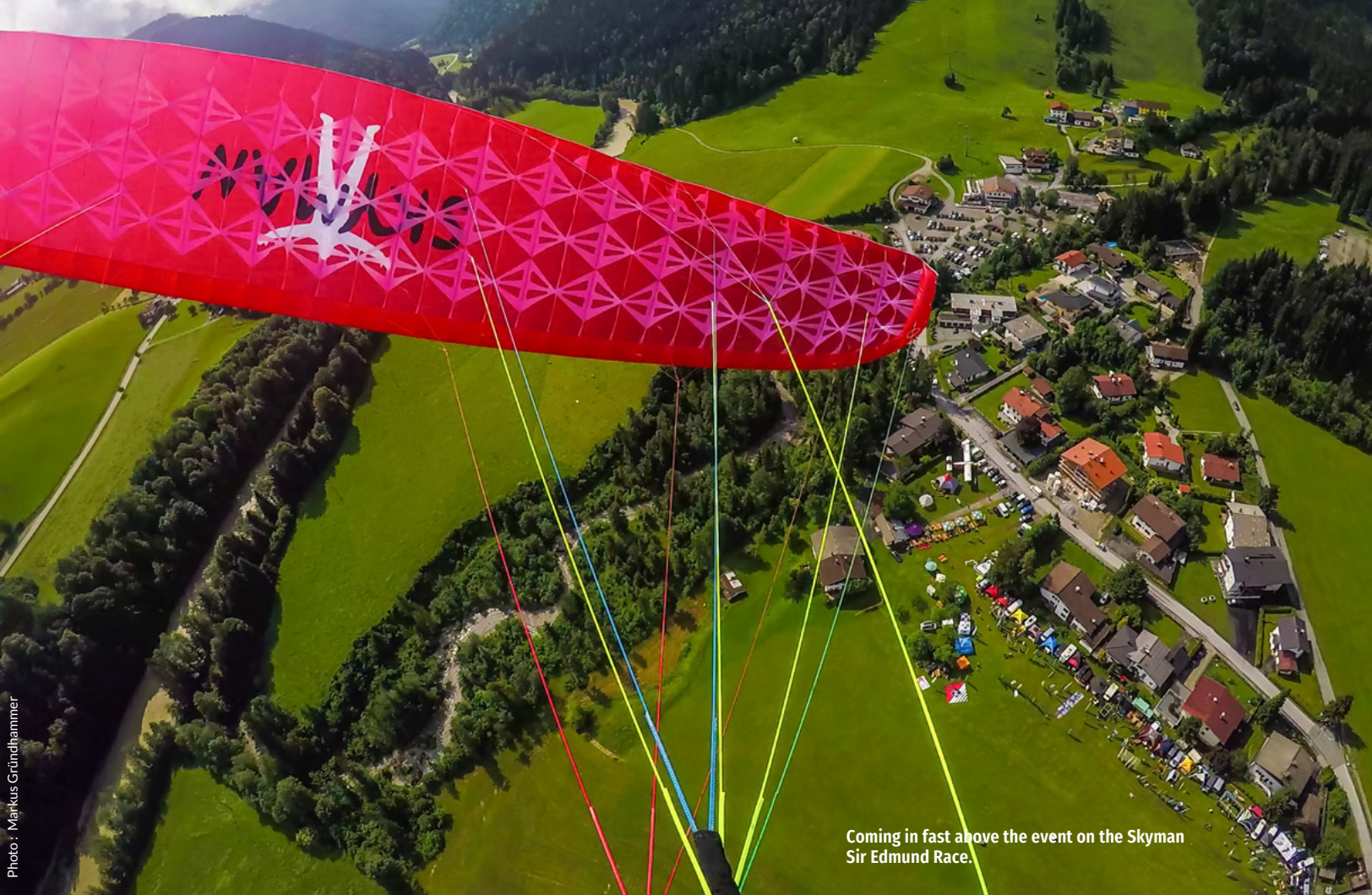


Photo : Markus Gründhammer

Coming in fast above the event on the Skyman Sir Edmund Race.

SUPERTESTIVAL KÖSSEN

Held at the end of May, the Kössen festival in Austria is always one of the major free flying events. It's a shop window for all the new flying products for the season.

By Stefan Ungemach



Photo : Stefan Ungemach

Despite the pessimistic weather forecast, it was flyable every day. The organisers speak of 6000 take offs in total, by 3000 pilots, a figure which seems a little on the high side. In any case, every year there are more and more exhibitors, thirty this year, who brought their latest innovations. Amongst other things, there was a proliferation of lightweight cocoon harnesses

There were no completely unexpected surprises, having seen virtually everything at the project stage at Saint Hilaire. But a few interesting things were confirmed in the air. Here's a small selection.



TANDEM TRENDS

There are some new tandems both in the 'pro' category, weighing more than 7 kg, and also in the category of 'very light double surface classic tandems'.

The Asterion by U-Turn, EN A, only weighs 4.85 kg for a surface of 36 m².

The all new Wisp by Ozone, photo right, weighs 4.35kg/4.65 kg (risers dyneema/classic) for 38 m² and an all up weight of 110 – 180 kg.

Photo: Cody Tuttle, Rider / Pilot: Dave Turner



ASPECT RATIO

The aspect ratio is a determining factor in a paraglider's behaviour.

There are a few increases of between 0.1 and 0.3, but also some slight decreases for the new versions of certain models.

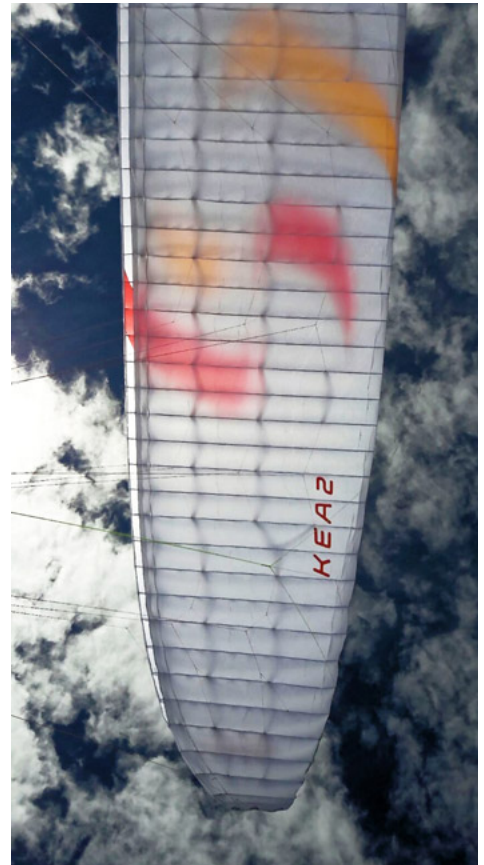
To understand the evolution and importance of this over the last few years, our article, [written in 2016, is still freely available.](#)



SKY PARAGLIDERS

Here's a harness which follows all the trends: just as easy to use sitting up (1) as supine in a cocoon (2), the very comfortable Transformer by Sky Paragliders only weighs 4.37 to 4.83 kg. A lightweight wing which goes well with it: the Kea 2 wing which weighs only 3 kg.

The Aeon (photo below) is an EN D with a 6.95 aspect ratio and is a 2/3-line hybrid.



ICARO2000

extreme sport helmets



Nerv Scratch Grey



Nerv Black & Green



Nerv Deep Forest



Nerv Blu



Nerv Carbon Optic



Nerv Black & Orange



Nerv Carbon White

www.icaro2000.com
staff@icaro2000.com

BRAVE⁴

... VERSATILE LIGHT-WEIGHT HARNESS!

7

BASIC MODULE

Extremely reduced, ultra-light and comfortable for minimalists or for ground handling.



+ 2



+ speed riding module with rear storage

+ 3



+ backpack module for Hike & Fly

+ AIRBAG MODULE 4

... and frontal container for the rescue parachute it becomes a LTF-compliant paragliding light-weight harness.



Speed riding, speed flying and hike & fly harness.
Shines with ZIP-ON system.
Uncompromisingly adaptable to your style.



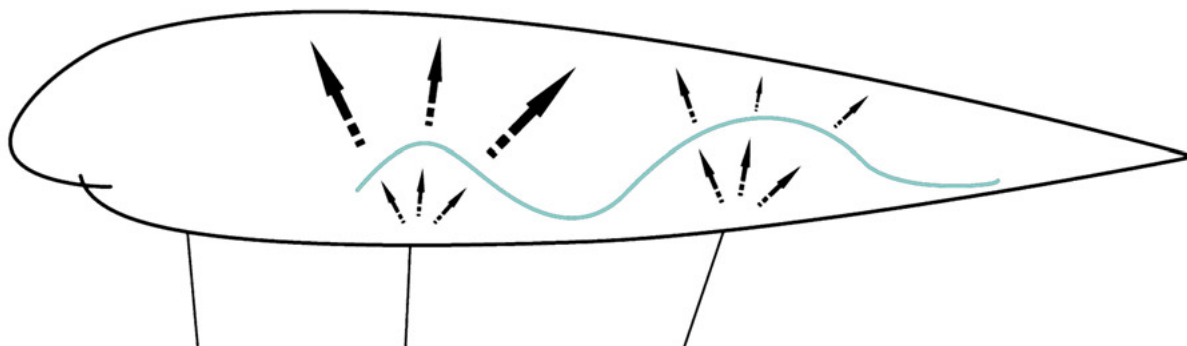
Learn everything about SWING BRAVE 4 | EXTREMELY VERSATILE LIGHT-WEIGHT HARNESS | www.swing.de/brave4-en.html

MITO | ARCUS RS | ARCUS RS LITE | NYOS RS | NEXUS | TWIN RS | APUS RS | TRINITY RS | MIRAGE RS | SPITFIRE 2

SWING

TRIPLE SEVEN

On the Queen 2, 777 use stitching in the shape of a wave on the cell walls to spread the forces better.



DUDEK

Dudek harnesses following all the trends: The Soul 2018 and Techno 2018, cocoon harnesses weighing 3.3 kg. The protection has been extended and the reserve handles are easier to reach. The front reserve on the Techno, with its hook-knife for cutting lines, can be removed so that it can be used on another harness.



ICARO

At Icaro, the freestyle Xenur wing (EN B, a nice contradiction) weighs 4.6 kg for 22.5 m² and aspect ratio 5.2.



Windsriders.fr

Mountain&Flight

Ethic and awesome

Reversible Jackets,
Lady, Hybrid, Thermik Light,
Yéti, Nosleeve, Everest.

**- Paragliding
Down Jackets
Fill Power 700 cuin
- Flight Muffles**

**BECOME
A DEALER**

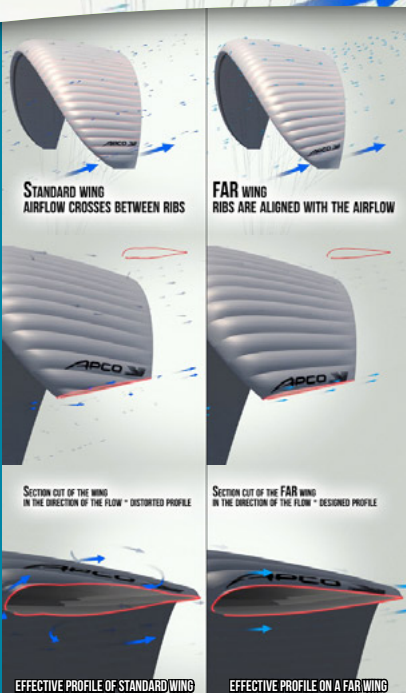
MACPARA

The Outback was finally visible for all to see. With a size of 21 m², this EN B wing, weighing only 2.7 kg and with an aspect ratio of 4.7, has three uses: thermic flying up to 75 kg, hike&fly up to 90 kg and speed gliding up to 105 kg.



FLOW ALIGNED RIBS

FAR more than ever before



Flow Aligned Ribs (FAR*) is a conceptual change in the way paragliders have been designed until today (Apco and the rest of the industry).

Traditionally, due to a paragliders curvature / anhedral, ribs progressively become less and less aligned to the angle of airflow on the wing as you move closer to the wingtip.

The FAR concept is, to gradually change the angle of the ribs so that they are aligned with the flow across the span of the wing. On wings designed using FAR, the ribs are positioned as normal on the centre of the wing, and gradually change direction towards the tips of the wing.

With the FAR rib layout, air flows over the wing without crossing ribs, and the flow "sees" the designed profile and not a distorted shape as it used to be until today.

Wings designed using FAR, result in the cleanest most efficient airflow over the glider, reducing drag, minimising turbulent airflow and therefore increasing lift / performance.

We believe that this concept will be embraced by the entire paragliding industry and that in a few years all wings will be designed in this way, as it is the correct way!

This concept will gradually be implemented into our entire range of wings!

The Flow Aligned Ribs is another example of Apco Aviation Setting Future Standards.

*Patent Pending

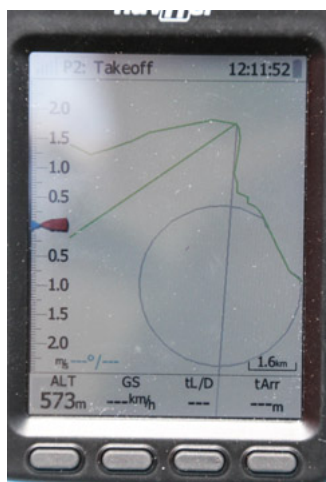


WWW.APCOAVIATION.COM
Setting Future Standards since 1974



NAVITER

The famous Oudie vario is going to have a little brother: the Hyper only weighs 135 g, but offers colour, physical buttons and the display has a clear layout which integrates topography and air space.



NOVA

NOVA

The Ion 5 and the Sector drew pilots to the Nova stand. The Sector is an EN C with 67 cells and an aspect ratio of 5.92. The previous model, the Factor 2 in 2011, had a slightly larger aspect ratio of 6.





OZONE

OZONE

The Alpina 3 is the lightweight version (3.9 – 4.7 kg) of the Delta 3. Comparison with the Delta 2: 66 cells (+4), aspect ratio 6 (=).

The very long leading-edge rods can be folded without causing problems.



World of XC paragliding

Maillon Rapide

THE ORIGINAL



OZONE RUSH 5

The Rush 5: this high end EN B has some of the same genes as the Enzo 3 and the Zeno. The very sophisticated 3D-Shaping is obvious. 57 cells (as in the version 4), aspect ratio 5.55 (unchanged), 4.63-6.2 kg (about 400 g less).

SKYWALK

The Tequila 5 has 49 cells, a few more than the previous model, and an aspect ratio of 5.29 instead of 5.2. The leading edge has been given more complex 3D-Shaping, so that the wing will have even better performance despite its classification of 'straight EN B.' Skywalk quite correctly reminded us that previously, in 2014, Armin Harich crossed the German plains, 300 km, on a previous model of the Tequila.

We've already presented the high-end EN B model, the Cumeo, with its technical data and nice promotional video by the manufacturer. We are testing one at the moment and will publish the results as soon as we can.



SKYWALK CUMEO

CONSTRUCTEUR: Skywalk Paragliders

ANNEE SORTIE	2017
TAILLE	KGS 1 KGS 2 KGS 3
CELLULES	57
SURFACE A PLAT (m²)	21.38 24.38 26.41
ENDEUSEUR A PLAT (m)	12.88 11.78 12.81
ALLONGEMENT A PLAT	5.85 5.85 5.85
PTV (kg)	55-77 70-85 85-100
POIDS DE L'ENVELOPPE	3.7 4.1 4.5
HOMOLOGISATION	EN B
LABO HOMOLOGISATION	ENB 1 ENB 2 ENB 3
HOMOLOGISATION FACTEUR	1.05 1.05 1.05
PRIX (€)	3080 3080 3080
MATÉRIAU	Patcher Siles 300T

SKYWALK CUMEO
La Cumeo est une version allégée de la Cili, donc une EN B haut de gamme extrêmement légère. Elle débute encore plus facilement grâce à son poids réduit. La pression interne se fait naturellement homogène sur toute la plage de vitesse, elle présente une bonne stabilité, un grand confort et une très bonne performance à haute vitesse aussi. La Cumeo est évidemment homologuée et disponible dans toutes les tailles.
Un clip publicitaire sympa de cette aile:
<https://www.youtube.com/watch?v=231304840>

skywalk paragliders - CUMEO | performance made light
de skywalk Paragliders

CUMEO





Photo : Profly/SWING

SWING

The Nyos RS by Swing (aspect ratio 5.7), is a high-end EN B wing with a particularly elaborate construction and with details such as Harken pullies. The Cs are easy to use. The Nyos RS is now available in XS (60-82 kg). We'll publish the test of the Nyos RS in our next issue.

The new Brave 4 harness is a modular reversible harness for hike&fly, travelling and speedflying. An LTF certified airbag can be attached. Together the components come to 2.8 kg.



SKYBEAN FAHRRAD

Apart from the famous helmet vario, a unique project was on display at the Skybean stand: the prototype of a 3 kg lightweight harness to which a mountain bike can be attached. The harness is really comfortable. An LTF protector is anticipated.

Ride up to take off, fly, then return by bike... Unlike the practice of simply attaching a bike in front of, or behind the pilot, this solution should be safer, because the rods keep the metal frame away from the pilot's back.



Reread 'Flying bike' in 2016: two variations of more classic systems.



BGD

The new Punk (EN B) has a 5.42 aspect ratio, photo below.

New, a wing for ground handling use only: the Seed. This type of wing has existed for decades already, but the Seed integrates all the modern technology: SharkNose, CCB, 3D-Shaping...

Three lines, 14 m² and aspect ratio 4.4. Based on the EN B Epic, the Seed reacts and is piloted like a normal paraglider.

It is made from Dominico N40 50 g/m² resistant fabric and has 3 risers. A quick reaction from our test pilot Philippe Lami: 'A super-effective tool from a teaching point of view.'



Photo: Philippe Lami



SUPAIR

Next to wings like the Eona 2, there was also a lot of interest in harnesses such as the Evo Lite (860 €, photos 1 and 2). It's full of clever little details such as the retractable attachment for a cocoon, the little tube to thread the accelerator cord through, an optional cocoon and an effective protector which really compresses down (photo 3).

We are testing one at the moment and the results should come out in July.

News: the acro star, Raul Rodriguez, is now part of the team along with Tim Alongi and Horacio Llorens. In the past, he helped with development, but on a free-lance basis.

Photo 4: the importer's premises at Kossen, showing the successful fusion of the new Gradient and Supair logos. The new Supair logo, moreover, also judiciously symbolises both harnesses and paragliders...





The Gradient Aspen in 2017 has an aspect ratio of 6.46, while the Aspen 5 in 2014 had 6.25, therefore 0.2 less.

The EN B Gradient Golden 5 has an aspect ratio of 5.34, while the previous models were almost identical: 5.3 for the G4 and 5.37 for the G3.



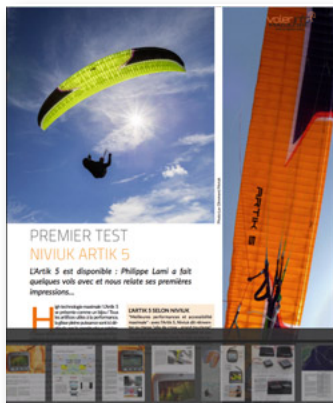


NIVIUK

The Roamer 2 is a reversible harness onto which you can add a certified airbag. The rucksack is very practical, with the Roamer 2 only weighing 1.7 kg, including the airbag. We're testing it and the report will be ready to read in July.

A wing which, justifiably, created interest in Kössen was the Artik 5: EN C and aspect ratio 6.3 (0.2 more than the Artik 4). However, the wing is calmer in turbulence.

We'll continue our in-depth test; meanwhile our first impressions are already on line.
<http://www.free.aero/contents/EN/instruments2018/index.html#issue/4>





The Takoo 4 tandem, is in the category of wings which weigh more than 7 kg and is now available in three sizes, which is rare for a tandem. The aspect ratio has evolved, 5.5 instead of 5.4 for the previous model. Reread our test of the Takoo 4 on the right.





NIVIUK.COM > TANDEM

EN / LTF B

TAKOO 4

Tandem like never before

The Takoo 4 meets the most stringent demands of tandem pilots and is one step above the rest thanks to greater performance in all aspects of the flight.

Discover the most Amazing Adventures on our Facebook and Instagram:



facebook.com/Niviuk



instagram.com/Niviukparagliders

SKYTRAXX

We reviewed the Skytraxx 3.0 and the FANET system in our last issue. Kössen was a great opportunity to test collaborative flying with numerous instruments in the air as well as a FANET weather station. It all worked really well, with the furthest pilot in this peer-to-peer network being 40km away.



WOODY VALLEY

Totally following the current trend, this manufacturer has brought out a lightweight version of the GTO X-Alps cocoon harness: the GTO light weighs only a little over 3 kg, therefore 2 kg lighter! The scoops on the sides are now easy to replace. The mounting of the foot plate represents a good compromise between lightness and solidity and, in addition, nothing gets in the way.



GIN

Completely new: the 'easy intermediate' Atlas 2 replaces the previous model which has been on the market since 2013. The Atlas 2 weighs 500 g less (5.4 kg in M). This EN B will be, amongst other things, even more pitch stable and calmer in turbulence.



GIN

We have already reviewed the racing harness, the Genie Race 4 (8.5 kg) which is finally available, even if only in dribs and drabs. Just a reminder that it contains a Neo-Koroid2 protector from Neo whose founder, Eric Roussel, was, for a long time the managing director of Gin Gliders.



The new tandem model, the Fuse 2, weighs 300 g less than its predecessor. According to GIN, it has improved stability on the pitch axis. It turns more easily and is more efficient in thermals.





SKYMAN

The Skyman Markus Gründhammer (self-portrait on the right) was at Kössen with his Sir Edmund Race (above left). It's an EN B despite having an aspect ratio of 6.0, so it's a lot more than the 'classic' Sir Edmund (above right) which it doesn't have much in common with.

To give this high aspect wing good cohesion, it has clearly visible diagonals. On the classic Sir Edmund, there aren't any.



SKYMAN (2)

After the Skyman Cocone, here's the X-Alps: it weighs only 2.3 kg with back protection and production carbon plates (seat and feet).

INDEPENDENCE TRIGON RESERVE.

The triangular reserve, the Trigon, is steerable within certain limits. It is aimed at beginners, offering 'great pendular stability and a very low sink rate.' Without any pilot input after it opens, the Trigon works like a classic non-steerable reserve. It comes down in a very slightly circular trajectory.

For more experienced pilots who want to manoeuvre a fully steerable reserve, Independence offer the Control (below right).

In general, the Independence reserves are made with highly sophisticated materials and technology. 'The choice of materials is crucial,' the owner, Stefan Kurrle, told us. 'We only use non coated ripstop nylon fabric for our reserves.' To obtain the necessary impermeability in the air, our fabric undergoes several expensive and complex thermomechanical processes of hot calendering.

The advantage compared to a simple and much less expensive coating: durability after contact with water!

Because many cheap coated fabrics are sensitive to humidity! After an SIV course with a water landing, this coating can be damaged and the sink rate increases drastically.



ADVANCE

Advance have got some new lightweight products: thanks to a marketing campaign which judiciously unveiled, little by little, information about the new products, everyone was keen to see their lightweight XC wing, the Xi. But, as expected, it still wasn't available at Kössen. However, the striped design Photo-shopped on during the campaign, won't be reproduced on a real Xi.

This lightweight high-end EN/LTF B wing (3.4 kg), will have, according to Advance, the genes of both the Omega X-Alps 2 and the Pi 2 giving a wing with 'the same level of safety and performance as the Iota 2.' The combination of the Xi and the Lightness 3, expected in the autumn, will be the ideal partnership for 'hike & fly.'

Very popular with the pilots at Kössen: the Iota 2 weighing less than 4 kg in size medium. We've already tested it in detail, which you can reread here:



TEST ADVANCE IOTA 2 - LE VERDICT

En décembre, nous avions livré nos premières impressions sur la Iota 2 d'Advance. Voici le verdict final après l'avoir testée à fond dans les Alpes du Sud et en Andalousie... Par Philippe Lami

D'abord quelques mots à Saint André, en conditions thermiques, mais faibles: cela confirme les qualités de vol présentées à Barcelone. Le gonflage est très homogène, facile et sans ping. Et ce sans l'air dans le sac de l'homme à l'air. L'air descend dans les toutes petites conditions une bonne capacité à contrôler et surtout une excellente communication, sans secousses. Le dégonflage, d'une simplicité de grand-mère avant décollage, présente la particularité d'une réponse rapide et franche, dès la garde absorbée. Le pilotage principal s'effectue dans les 20 premiers centimètres, avec peu d'effort et une grande précision. La commande de l'axe de chute est très simple à utiliser, même si une commande d'axe plus atypique, surtout pas plus difficile, en fait, mais une précision qui rend le pilotage plus agréable.



The Axess 4 harness, which is particularly aimed at leisure pilots and beginners, will be available in July.

The new Compressbag Tube combines the advantages of a TubeBag with the low volume of a Compressbag...



FLOW

The XCRacer (EN D) from the Australian company Flow, which we saw at Kössen, is identical to the XChord from the Korean company Davinci Gliders. Apparently, it is the result of collaboration between the two manufacturers.

We tested the XCRacer; at first glance this 2-liner greatly resembles the Zeno but, in the end, there are some interesting differences.

More in our next issue...



SYRIDE

In the past, the European hang-glider pilots kitted themselves out almost exclusively with German and Swiss instruments. Now, high-tech French companies like Syride are starting to make inroads into the Germanic nations: their big tablet, the Sys'Evo, in particular, generated interest amongst the public at Kössen... Reread our test:



APCO

The Apco Hybrid (EN B, close to an EN A) will be available from mid-July. What's special about this combination of single skin and classic wing? Despite its small volume when folded, comparable to a single skin wing, it has very good penetration in thermals and exceptional pitch stability, combined with very little effort for the controls.

We'll test it as soon as it comes out.



PHI

The design of the Symphonia has its fans and its critics. The quality of the wing is fairly universally recognised; see also Philippe Lami's test in this issue. (Next pages)

The EN B Tenor is also now available.



One of Phi's rivals, Markus Gründhammer from Skyman, took these stunning photos and joined the Phi team for this fun selfie. With Markus, there is always a bit of harmony in this cut throat world! From left to right: Nala Küng (a regular passenger), Bennie Hörburger, Markus Gründhammer, Hannes Papesh and Mike Küng.





Photo : Benji Hörburger

PERFORMANCE AND HOMOGENEITY

PHI SYMPHONIA

The Symphonia is an ambitious leisure wing, which has all the characteristics of a good EN B, as far as performance and flying are concerned, except that it is certified as an EN A!

By Philippe Lami

An EN A which is predicted to change the chequer board of models and their certification.

It seems that the colours aren't to everyone's taste. On the other hand, its very homogeneous behaviour in the air should make a lot of pilots happy.



Photo :



The wing flies with very little effort. For an EN A for use on a beginner's course, it may even be too manoeuvrable, but that isn't what it's designed for.

After his years with Nova and Advance, well known designer in the industry, Hannes Papesh, has launched his own brand, (Phi), in association with Mike Küng and a few other partners. The Symphonia is their first model, an unconventional EN A. Apparently, Hannes wants to repeat what he did with the Mentor 2, which turned the standards of EN B certification upside down in 2010. The Symphonia is advertised as a simple wing, which should shatter the performance and standards of its EN A certification category. With the Symphonia, every technique and bit of technology has been pushed to the extreme in a mission that can be summarised: using technology in service of simplicity. As always with Papesh, the quality comes not from very visible gimmicks, but by optimising the composition of all the details.

What is it really like?

A few hours of flying one of the first Symphonias in France, imported by Alpyr, this April. I flew a size 22 m² (there are 5 sizes in total), loaded to 90 kg (all up weight of 75 to 95 kg). 50 cells, flat aspect

ratio of 5.14 for a weight of 4.5 kg. The fabric is lightweight, but not extreme, with Porcher 38 in the leading edge and 32 for the rest. The lines are mainly sheathed in dyneema on the 2 lower levels. The uppers are very fine and unsheathed. The risers are thin and supple, with only seven lines! 2As (which evokes the Nova Ion 2), 2Bs + stabilo and 2Cs.

It's really very few, especially for the front lines. The internal structure uses all the current tricks, with thin diagonals and two bands without external stitching along the wingspan, a very pronounced one between the B and Cs, and a smaller one before the mini ribs on the trailing edge. Note the leading edge with zigzag double 'D shaping,' technology which we have already seen at Advance, the company where Hannes worked in R&D up until 2017.

The surface is amazing! You can see steps in the leading edge. Hannes refuses to call it a 'SharkNose,' because it is an optimisation which he designed 12 years ago, using his 'CFD' software which simulated the airflow for Nova's model, the Rookie.

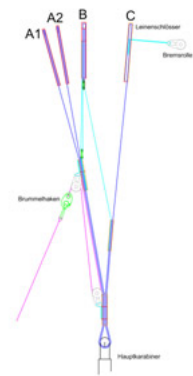
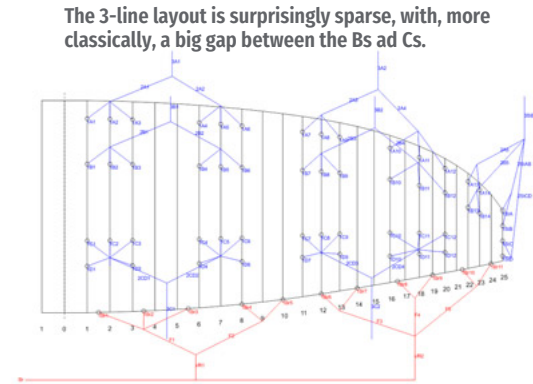


PREPARATION AND TAKE OFF.

Laying out is very fast and just takes a flick of the wrist. Take care all the same with the very fine lines high up. Two steps to tension the lines and the Symphonia scoops up, comes up, and takes shape without a tendency to overfly, all easily done. It's definitely in the A classification as far as this is concerned. A few steps, and the performance becomes clearly obvious, with an excellent load take up and glide.

The brake travel is long, about 70 cm before stalling, but it goes into a turn quickly, with little travel and fairly gentle pressure. This means that the wing works best for pilots with at least a little bit of experience. The handling is frank and obvious, and the communication is clear, so much so that the wing remains solid at all speeds.

Personally, I don't like having only 2 lines at the front, on account of the fact that a simple curtain of 2 lines (admittedly, it's a cascade on 3 levels), could possibly foster a slight risk of cravating, but I didn't experience that in the air. In thermals, the Symphonia positions itself precisely, and is easy to steer, with



This large gap between the B and Cs is evidently associated with a substantial band which runs right across the wing, shown here with large elliptical openings. It's not a RAST partition, as one might think.

But during a collapse, the large gap causes a break here and maintains the cohesion in the rear of the wing. It's a technique which the manufacturers have thoroughly tested.

SYMPHONIA					
TECHNICAL DATA					
MANUFACTURER: PHI					
Web : https://phi-air.com/project/symphonia/					
DATE	2017	2017	2017	2017	2017
SIZE	18	20	22	24	26
CELLS	50	50	50	50	50
FLAT SURFACE AREA [m²]	21.54	23.72	26	28.4	30.62
FLAT WINGSPAN [m²]	10.52	11.04	11.56	12.08	12.54
FLAT ASPECT RATIO	5.14	5.14	5.14	5.14	5.14
ALL UP WEIGHT [kg]	5.14	5.14	5.14	5.14	5.14
WEIGHT OF THE WING [kg]	4.10	4.30	4.50	4.70	4.95
FREE FLIGHT CERTIFICATION	A	A	A	A	A
FF CERTIFICATION LAB	DHV	DHV	DHV	DHV	DHV
PPG CERTIFICATION	Undergoing DGAC certification				
PRICE [€]	4150	4150	4150	4150	4150
Materials: Porcher Skytex 32, Porcher Skytex 38					
Manufacturing Aero Dynamics Sri Lanka					



There are only 2 A lines. That's very few and could give a risk of cravats. But apart from games on the ground in the wind, we didn't encounter this.

impressive pitch stability. It's very homogeneous and very efficient with a very solid leading edge. Very little effort is necessary. 37 km/h trim speed and 47 km/h with maximum accelerator. The wing is clearly restrained when accelerated surely for certification reasons. The glide ratio measured with a cocoon harness was around almost 10. It's clearly excellent with such a low aspect ratio!

Daring to try the ears, which are clearly big because there are only 2 As. They come in easily, fold under the wing and reopen all on their own, if a bit slowly. An ample brake application speeds up the operation.

The Symphonia takes turbulence in its stride without collapsing and without even crumpling a wing tip. It remains very tolerant to manage. I must admit to having really enjoyed myself without any hang-ups under the Symphonia. I found it homogeneous, precise, cohesive, with a very good glide ratio and it was generally fast enough for any XC in the Alps in the South of France. I like piloting, but I also like a wing which is simple enough that it lets you forget about everything whilst, at the same time, giving such a high level of glide and safety.

It's a very coherent package, successful in every respect, (taking into account the previous comments) and at the same time costs 4150 €, stripes included... But once again, don't confuse the certification and the category of pilot. The Symphonia is definitely aimed at pilots who already have a bit of experience by offering a very large spectrum of possibilities. Forget the notion of it being an EN A, and concentrate on a simple wing with good performance, accessible and at the same time unconventional. Hats off to Hannes!



Due to its manufacture and the materials used, the EN A Symphonia is considered by Phi as a 'higher range' wing than the B Tenor, which is, on the other hand, less expensive. The certification classifications have definitely been shaken up, in every sense!

Photo : Benni Hörburger

Photo : Phi Pilote : Hannes Papesh

A FEW DETAILS ABOUT THE PHI SYMPHONIA.

The leading edge with orange rods, reputed to be very resistant.



The reinforcements at the level of the Bs.



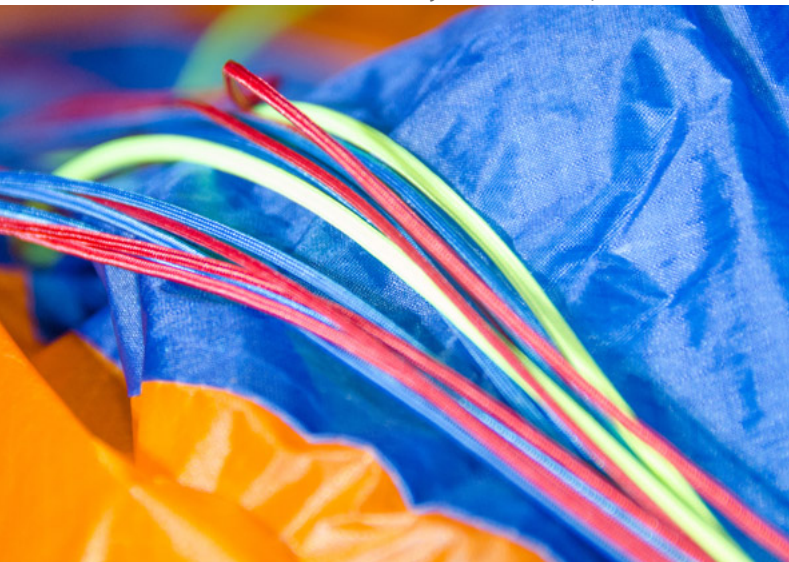
The stitching brings three-dimensional stability to the trailing edge.



Classic: shortening of the trailing edge by using the brake.



The Dyneema Liros lines, sheathed lower down.



Very thin and unsheathed: the 0.5 mm Edelrid lines 8000/U-050 high up.



COCOONING

The Cocoons: a trend bringing comfort, performance and an extra means of control.



Photo : Jérôme Maupoint

In competitions (pictured here at the Paragliding World Cup in Brazil), and also for hike and fly, the cocoon allows the pilot to take off with bare legs.

A clear trend: more and more pilots fly in cocoons which are becoming increasingly lightweight. They improve comfort, flying efficiency and performance. A few years ago, cocoons were only used by competitors who flew exclusively with 'kayaks' of 10 kg or more... Since then, the X-Alps and the hike and fly trend have gone down that road too. Whether doing a few kilometres or a hundred, it's possible after a walk in too. With a cocoon harness of 3kg or less, no problem! When staying two hours or more in the air, the comfort of a cocoon isn't just appreciable, but very useful. More and more pilots are realising all the advantages:

WARMTH.

In flight, we are constantly faced with an airflow of 25-55 km/h. Even in warm air, your legs get cold. With a cocoon, the pilot is very effectively protected. You can also go up to take off in shorts without having to take trousers with you. Ultra-light cocoons are therefore becoming increasingly useful for summer hike & flys.





For distance flying, the fairing at the back of the Exocean has been optimised to improve performance. Photo: Philippe Goutagny



The small profiled part at the back, as on this Advance Lightness 2, also contributes, to a certain extent, to reducing drag...



PERFORMANCE

When flying fast, the performance of a pilot with fairing is increased. Having your legs stretched out forwards obviously reduces drag. But the biggest gain is obtained by the rear fairing, as is the case with competition harnesses. Just recently, Johan Eklund, a Norwegian pilot and programmer, simulated on his computer the difference in airflows between a classic 'sit up' harness and one with a rear fairing. The result: a 10-12% improvement in glide, that's about one point. Amazing!

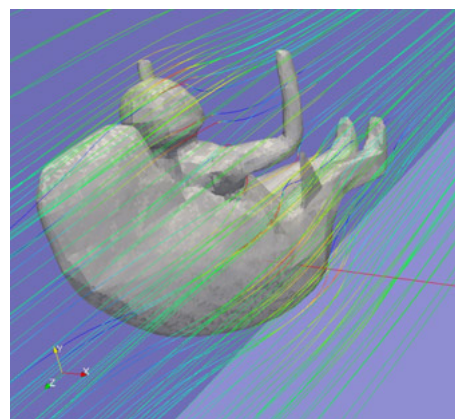
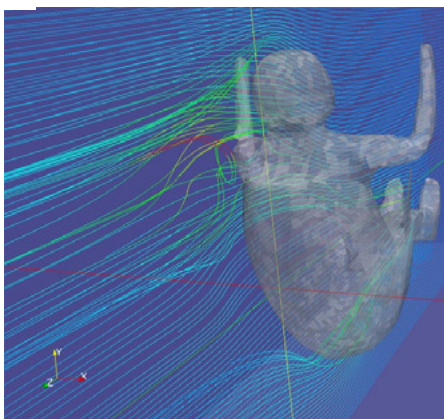
SPEED

Flying speed doesn't necessarily increase in a cocoon. In non-accelerated flight, less drag from the pilot can even increase the angle of attack of the wing because the pilot advances relative to the wing. But in accelerated flight, you can, in fact, gain 1-2 km/h.

PILOTING

There isn't just the increase in performance due to aerodynamics. Piloting is more effective too, and in several ways.

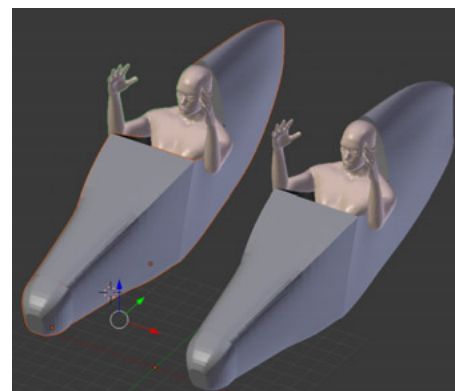
On the one hand, piloting in a lying down position changes our perception of the feedback from the wing and the way we react to it.



Above: Johan Eklund's simulations.

1 point of glide ratio gained thanks to the rear profile!

On the right, optimisations in the rear fairing thanks to CFD during the development of the Kortel Design Kannibal Race II harness.



A paraglider is shown from a high-angle perspective, gliding over a vast, white, cloud-covered landscape. The paraglider is wearing a black suit, a blue helmet, and a red communication system. The paraglider's harness and wing are visible, with the APCO logo on the wing. The background is a bright, hazy sky.





U Cruise

LTF/EN B

The **NEW** Benchmark of its category!



1st of november 2016 Konrad Görg - CEO of AirCross - flew 446km XC with the U Cruise in Brazil:

"... the stability of the glider, the extraordinary glide and especially its high speed, allowing me to enter thermals even with headwind, helped me to achieve this record flight. A feeling beyond words after flying for almost 11 hours!"

www.aircross.eu



Sitting up, leaning your body to the left or right is very efficient and acro and free-style pilots are really aware of this, but this implies other types of movement, when we are 'lying down'. In a cocoon harness, we simply 'roll' around the axis of our body with minimal inertia. The feedback from the wing can be more perceptible too, because it can easily make us 'roll' around our head to foot axis.

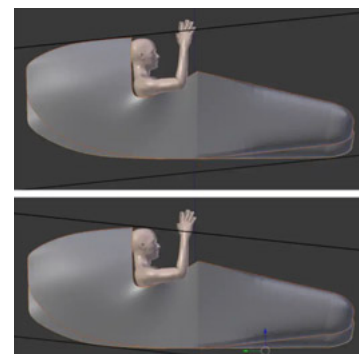
But above all, steering with your legs outstretched in a cocoon which is in contact with your whole body, lets you react more precisely with it. In addition to steering through the controls and the harness, the pilot can react to the wing with their legs, for example by pushing with one of their feet, they can exert a small amount of force on the wing on the yaw axis to reinforce the start of a turn.



The optimal adjustment isn't an exact science, especially as far as the length of the cocoon is concerned. As a general rule, when the pilot locks their outstretched legs, the cocoon should be under tension. This therefore corresponds to a length equal to the length of the pilot's legs minus 1-3 cm.

When the pilot releases their legs completely, they automatically bend a bit. A harness which holds the pilot's legs straight, without any effort from the pilot, would be very uncomfortable according to Kortel Design's tests.

As far as the angle of attack of the cocoon is concerned, there are two possibilities: either exactly along the axis of the airflow, i.e the glide angle (below left), or slightly above, so that the pilot's face will be sheltered in the lee of the cocoon (below). During the development of the Kannibal Race II, Kortel tried to optimise it to give as high a range of angle of attack as possible (right).



Cocoon to all-rounder transforming harness

Unique, easy
on/off speedbag system

Fly classic
without speedbag
or foot stirrup

Modern stable geometry,
optimized hang point
height & distance

Carbon seat board and footrest,
L size weight 4,6 kg
even with 16cm back protector!



sky-cz.com

TRANSFORMER

COMFORT
line

Even more effectively: if the airflow hits the cocoon from a different direction to that expected, it produces lots of drag, even more than a pilot sitting in a classic harness. You can play dynamically with its wind resistance for piloting. Example: by standing up when entering thermals, you go backwards compared to the wing, which can then enter the thermal more easily. The pilot can also go slightly sideways to achieve the same effect.

Just by being totally encased in fabric which, in turn, is part of the aircraft, lets the pilot control the paraglider much more efficiently. Each movement of the body can contribute to fine-tuning the piloting. In a cocoon, you 'carve' the turns!

Working perfectly well together: a nice EN B and a lightweight cocoon, with a good profile at the front as well as at the rear.

The Skywalk Chili 4 EN B and the Skywalk Range X-Alps, a profiled harness weighing less than 2kg. At take-off, you don't even feel it!

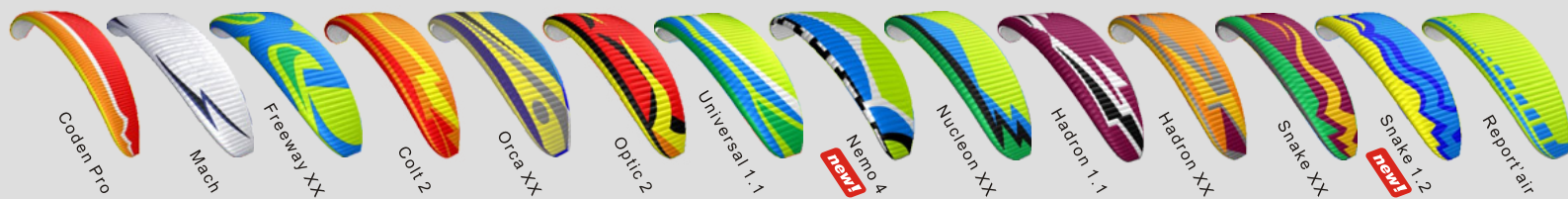
Advice: at take-off, hook into the cocoon whilst you are still leaning forward; it's easier!

Photo: Tristan Shu



Photo: Yvonique Burkhardt

DUDEK full range of freeflying & paramotor wings



www.dudek.eu

This is also why Max Jeanpierre from Kortel Design doesn't hesitate to advise pilots who want to go up a level: *'Rather than buying a higher performance wing with a superior classification, fly with a cocoon!'*

Disadvantages

However, Max doesn't hesitate to highlight the disadvantages which are well known: flying with a cocoon significantly increases the risk of twists when there is an incident in flight.

This is why it is essential to get upright and pull your whole body together when a big collapse happens. If you can still do it. Numerous cocoon harnesses from previous generations don't let you do this easily and it feels as if you are falling out of the harness. Now, even the 'racing kayaks,' can be flown temporarily sitting up, if necessary.

Photo: Sascha Burkhardt



Paragliding Map

Paragliding sites mashed up with live weather & forecasts.
See where it's flyable right now. Worldwide!



Download on the
App Store



GET IT ON
Google Play

www.paraglidingmap.com
http://



As with all harnesses, the stability and reactivity in the air depends, amongst other things, on the height of the attachments, of the triangulation and of the suppleness of the seat... Shown here, a Skywalk Range Air.



The Advance Lightness 2: even though the seat and the back form a supple shell, it is considered a hammock harness



A Kolibri Pro: a cocoon harness weighing less than 900 g.

But in the case of major incidents, in the length of time it takes to get upright, the twist movement may already be initiated. This is not insignificant. We've noticed that wings which are certified EN B, for example, can behave totally outside their category as soon as they are used with a supine harness. The certification tests don't take this into account because they are carried out sitting up using classic harnesses. Some professionals suggest doing at least the certification tests of EN C, EN D and CCC wings with supine harnesses so that they correspond to real use.



Paraglider database.
The history of our sport.
All the gliders since paragliding time began.
Technical information.
Test archives.

www.para2000.org

P@r@2000



Sponsors :

SKY DREAMS

RIPAIR

SOL

NOVA

Sum gliders


Trekking

free aero

***** © Gérard Florit *****



But, as even pilots flying EN As use cocoons, we wonder whether they shouldn't test all categories of wings with both types of harness.

As seen above, it isn't ridiculous to fly a cocoon with an entry level EN B. Certainly, given its speed in flight, the gain in performance is less than on a 'top gun' wing. But the improvement in piloting, by adding extra control in the case of the cocoon, can be very useful for an intermediate pilot who is already used to piloting using brakes and classic weightshift. 

COCOON HARNESS

ADVANTAGES

- Comfort
- Warmth
- Aerodynamics, performance
- Piloting using a slight transfer of weight can seem more delicate
- Efficient piloting using pressure and twisting the body which is in constant contact with the whole harness
- Piloting using the accelerator more ergonomic
- Piloting by playing with the wind resistance
- Instruments are clearly visible
- A more elegant look

DISADVANTAGES

- Bulkier
- Heavier
- Adverse effect on behaviour during a flying incident (twist)
- Less effective piloting with large amounts of weight shift
- Feeling of instability in turbulence
- Real instability for some hammock harnesses
- Possibility of problems at take-off/landing
- Increased risk of forgetting to clip in
- Less forward visibility
- Higher price

TENOR
EN B

PHI-AIR.COM



SUPAIR STRIKE

EXAMPLE: AN ULTRA-LIGHT COCOON

The Strike came from the development of the X-Alps 2015 Supair harness. It's a harness which is 'purpose made for hike and fly competitions,' but, in reality, it is actually a lot more flexible, as Supair have also pointed out.

The structure of the harness with thigh straps with mini movable plates should, according to Supair, allow 'frank and precise' feeling. The steering and comfort are advertised as being very close to that of the Delight 2. For landing in the mountains or areas of turbulence, it is easy to pilot with your legs bent or out of the Speedbag.

PHILIPPE LAMI'S OPINION

A super cocoon, very light (2140 g in size L), born from the X-Alps prototypes. It has everything of an ultralight, without conceding any comfort. The ventral reserve, mini removable plate and thigh straps with aluminium buckles, make the Strike very easy to get into and adjust. Its geometry gives it excellent stability, without harming the turning precision.

I was amazed by the comfort when flying and the mobility it gives during take-off. I have started to use it now on a daily basis!

Be careful however: limited back protection is provided by a mini bumpair (14 cm foam bag).

It comes with Connect softlinks in dyneema (12 grammes each).



SUPAIR STRIKE

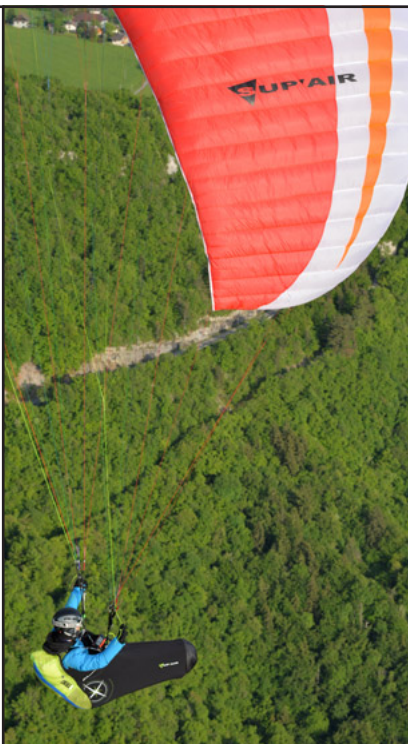
Three sizes S/M/L,
2120g/2140g/2240g.

According to Supair, it has significant safety features with a 14 cm Bumpair, auto stable ABS type thigh straps geometry giving a fairly stable harness, all of which should be appreciated by the X-Alps pilots.

The right thigh strap is closed and has to be stepped through: a radical form of anti-forget!

Chest-mounted reserve pocket with attachments on the shoulders for the reserve bridle.

1180 €.



WHO'S WHO?



Laurent Chiabaut
managing
director
of Supair
Vice
President
of the PMA

Supair are growing rapidly. In the beginning they were harness and reserve specialists. The French company now want to provide a full range of products for the paragliding market. They make their own wings and have, in addition, bought the company Gradient. Supair have opened an office in Germany, and the manager, Laurent Chiabaut, is involved in the PMA (Paragliding Manufacturers Association) at an international level.

We wanted to know a bit more.

Free.Aero: How long have you been a member of the PMA and its Vice President?

Laurent: SUPAIR have been a member of the PMA since it began. I was voted onto the Governing Board as Vice President in September 2017.

FA: Why this, no doubt, time-consuming involvement?

Laurent: Now that Supair is known as a brand of paragliders as well as harnesses, it made more sense. It also seemed to me that it was important to have at the heart of the PMA a French manufacturer to represent the second largest market in the world. I also wanted to advance certain subjects, such as the harmonisation of wing testing, for example. Above and beyond that, I have a vision of being able to work for our sport (free flying) in the interests of the pilots and those involved in it.

FA: In your personal opinion, what should the PMA's priorities be in the immediate and medium term?

I think we need to be able to have better discussions with all the players in the free flying world. We don't have to agree, but we must be able to have discussions so that we can stand up for our sport.

The PMA is there to represent the voice of manufacturers in front of federations and associations (harmonise the norms, keep in check the ever-increasing demands from the authorities, etc). That's its principal mission.

The manufacturers are the best placed to talk about their products.

The role, in my eyes, of the PMA is also to help the manufacturers progress (we need to work together to all progress), so that, ultimately, the pilots can enjoy flying with total confidence in their equipment.



NEO STAY UP

The rigidifications and sewing techniques enable this harness, which only weighs 1.8 kg, to stand up all by itself.

The StayUp is an ultra-light hammock style harness for hike&fly without a seat board. Instead, underneath, there is a 9 cm Neo Koroyd 2 protector: it's an ensemble of foam and, above all, little tubes in copolymer, which is a special form of polymer. The Koroyd is clearly a very good shock absorber and is used in thin layers in helmets as well.

It is used in Neo Koroyd protectors by Neo, who also supply Gin for the Genie Race 4 harness.

This protection gives the Stay Up good rigidity, which is further increased by the sewing technique. Although the protection doesn't go high up the back, as it does in the more classic "Suspender" by the same manufacturer, the Stay Up stands up all by itself when it is placed on the ground.



In the air, you really notice the rigidity and surprising coherence for a harness which weighs less than 2 kg with protector and cocoon. The Stay Up is very comfortable and remains so even in long flights of several hours. It has lots of adjustments and fits the body perfectly. In turbulence, it is very supportive, has surprising stability and enables very precise steering with the body.

To do the harness up at take-off, colour codes help this to be done very quickly. The parachute doesn't have a compartment in the harness as it is chest mounted. After take-off, the Stay Up is easy to get into.

In summary, the compromise between light weight, comfort and stability, as well as precision, is remarkably successful in this ultra-light Stay Up. In addition to hike & fly, it is very universal when it comes to use on classic sites too.

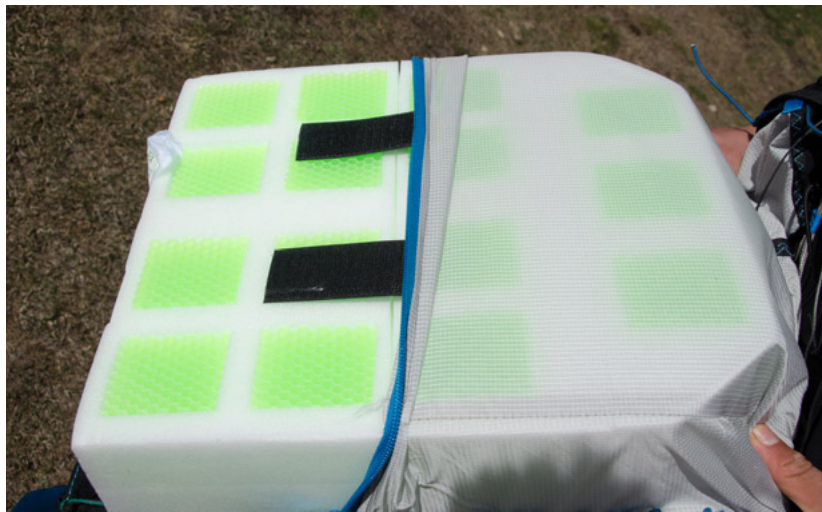
In the cocoon, the lightweight accelerator with several bars is standard.



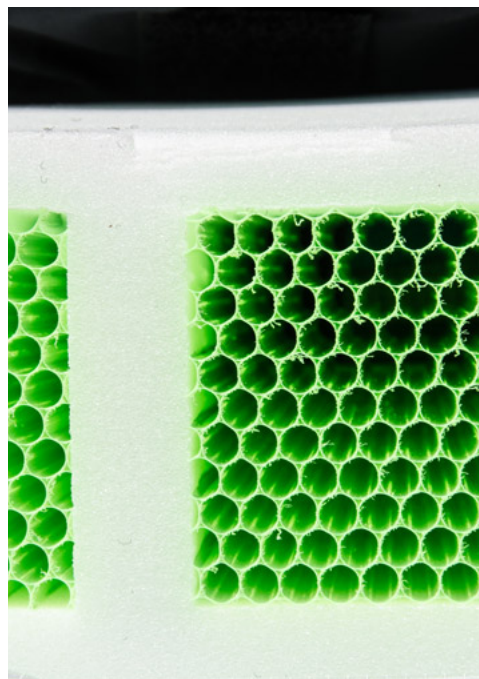
The harness is visibly nicely finished down to the last detail, having been manufactured in France.



The Neo-Koroyd 2.0 protector, 340g is in the form of a board in this hybrid hammock harness. To convert it to a harness weighing 1.45 kg, you can use it without protection too.



The Neo Koroyd protector tubes can be replaced in blocks if they get damaged.





Lots of adjustments are possible: angle of attack, lower back comfort, back recline...



The chest strap is very easy to adjust. Colour codes make it easier to do up when getting ready.

Amongst the ultra-light cocoon harnesses it is, no doubt, one of the most comfortable and efficient. The lightweight fabric in the fairing holds its shape well.





Photo: Veronique Burkhardt

HARNESS TEST

NEARBIRD GENESIS

A cocoon competition harness at an unbeatable price, from eastern Europe. We took a close look at it.

By Philippe Lami

Photo: PWCA 2017 SuperFinale, Organisation

It already came to our attention at the World Cup Super Final in 2017.





Photos : Véronique Burkhardt

Even more comfortable: the fastening system with a padded cushion between your legs. The ventral container is clipped to it before take-off. The ABS is adjustable.

In the world of competition harnesses, the hegemonic Ozone (Exoceat), Gin (Genie Race 4, the thinnest) and Woody Valley (X-Rated7) dominate the field at the World Cup. Apco have recently brought out the Swift. And now Nearbirds, the Ukranian manufacturer, who already have a full range of harnesses, have launched the Genesis, seen at the 2017 Coupe Icare and the Super Final. They promise low drag, maximum comfort and directional stability...

Practical fastening and connection of the ventral reserve with a Kong Frog, well known amongst climbers.





A very comfortable harness and incredibly roll efficient. It has a 'hybrid hammock' style seat with large rigid reinforcements placed under the seat and thighs.

The Genesis, when seen from afar, looks a lot like the Ozone Exoceat. Up close, a lot of the details are different. The weight, for a start (6.5 kg in size M compared to 9.4 kg for the Exoceat in size M). The ventilation system in the aircone (the back part of the point) consists of two lateral scoops. Protection is assured by a foam bag.

It's a very sophisticated product with every detail nicely finished. For example, the link from the front mounted reserve to the karabiners, via a Kong Frog, is very popular. All in all, great design work by Nearbirds, giving a nice clean product.

The hammock style seat is narrow, very wraparound and comes down to just under the knees when flying. The fastening system uses no less than 9 points. There are pipes, cables and wires everywhere, but that's normal. The transition to supine requires a bit of time spent adjusting it so that you can hook into the pod without using your hands.

The space for the second reserve is well integrated.



Photo: Philippe Lami

The cone at the back is inflated by two lateral scoops.



Photo: Véronique Burkhardt

A comfortable back with an adjustable cushion.
The spacious instrument cockpit above the ventral reserve.



IN THE AIR.

Really comfortable, without a compression point and really efficient in the roll. The instruments are well positioned where they can be clearly seen and the tilt can be adjusted. The cone at the back can lose a bit of air and soften if you block an air inlet, simply by flying with your arms a bit low. To have a nice surface, it is necessary to spend time adjusting it and to read the manual thoroughly. The accelerator ladder is nicely positioned under your feet and is smooth to operate. With the accelerator full on, under

a high aspect ratio wing, the harness plays its role of stabiliser well.

The under-seat reserve is remarkably well integrated. This harness truly has a role to play in the Paragliding World Cup and shouldn't feel embarrassed next to its rivals. Its main plus point is actually the price (1390 €).

<http://www.nearbirds.com>



The cocoon is removable making it easy to clean. With its integrated foam bag, the harness is LTF certified. It offers a general concept and numerous well thought out details, despite being very reasonably priced.

Comfortable and efficient in the supine position. But if necessary, the pilot can easily sit upright.



PARAMOTOR WORLD CHAMPIONSHIP IN THAILAND.

Photos : Pascal Vallee

The Paramotor World Championship, which took place in Thailand, saw France sweep up the titles. The French team coach, and also former World Champion and co-owner of Adventure, has now taken up photography. He brought back this beautiful photo report of the Championship...



World Champion for the third time, Alex Mateos !



Alex Mateos left his adversaries no chance in the slalom.

The French monoplane foot launch team flew off with most of the prizes at the competition.





Boris Tysebaert in action on the all new Flex-Race RC19.



The PAP pilot, Laurent Assié, is getting better every year; he finished 11th. He was penalised for his lack of experience in the slalom.

à partir de 18,5 kg



CRÉDIT PHOTO ARNAUD DREAN

The Thaliandais, Phumsit Thanasasakuikornsaeng was happy that the manoeuvrability test didn't take place over hard ground...





The Brazilian team were there in force with twelve pilots, shown gathered together here around César Medeiros, pilot of a monoplacé paraplegic trike.

Most of the tandem trikes took part in slalom courses over water. Pictured here the French team Better Malochet.



Laurent Salinas celebrated a great competition comeback by finishing 9th.



R SPORT



EN, TC136/WG6...

FLYING NORMS

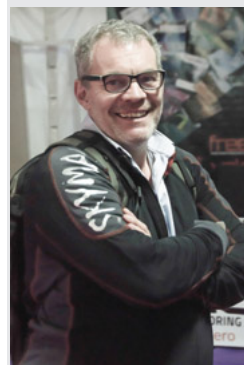
The EN norms govern numerous aspects of paragliding, but where do they come from and who draws them up?

The answer is, in fact, quite simple. The norms for paragliders are drawn up by the working group CEN TC136/WG-6.

Who are the 'WG6'?

The working group on paragliding norms comes under the auspices of the European Committee for Standardization. (CEN=Comité Européen de Normalisation). The CEN is based in Brussels and was created in 1961 as a private organisation. It has no direct contact or links with the EU or European Governments. The CEN has thirty-four members. They are national standards organisations such as the German DIN, the British BSI and the French AFNOR.

TRIBUNE



Guido Reusch

Secretary of The Paragliding Manufacturers Association, the PMA, since September 2016. Former director of the EAPR test laboratory.

The PMA brings together numerous manufacturers and suppliers from the paragliding world. It isn't just involved politically in the regulatory framework of our sport, but also technically and practically from a safety point of view. From now on, in our magazine, Guido Reusch will be regularly explaining various technical and regulatory aspects.

Some subjects which are a bit dry do actually affect us a lot more than you would think at first glance...

The views in this column don't necessarily reflect the opinion of the editor.

www.p-m-a.info

The WG-6 is appointed by the CEN. Each member can send experts to this working group. These experts are appointed by their national organisation such as AFNOR and not by the federations. The norms for paragliding are treated in the same way as any other industrial norm, just like the specifications for electric plugs.

Some countries only send one expert to the "WG-6" working group: the British BSI send a representative from the BHPA for example. The Swiss send a representative of the SHV Federation and the Air Turquoise testing house. The French send three representatives: manufacturers, testing house and FFLV.

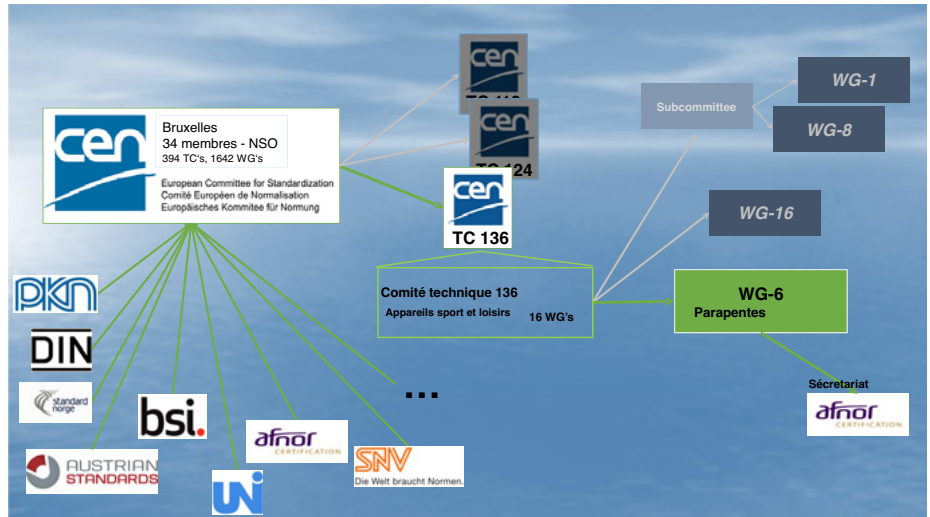
THE MEETINGS

The WG-6 physically meet two or three times a year in different places in Europe. Four to six telephone conferences are also organised. There is no voting in the WG-6, it works on the principal of consensus.

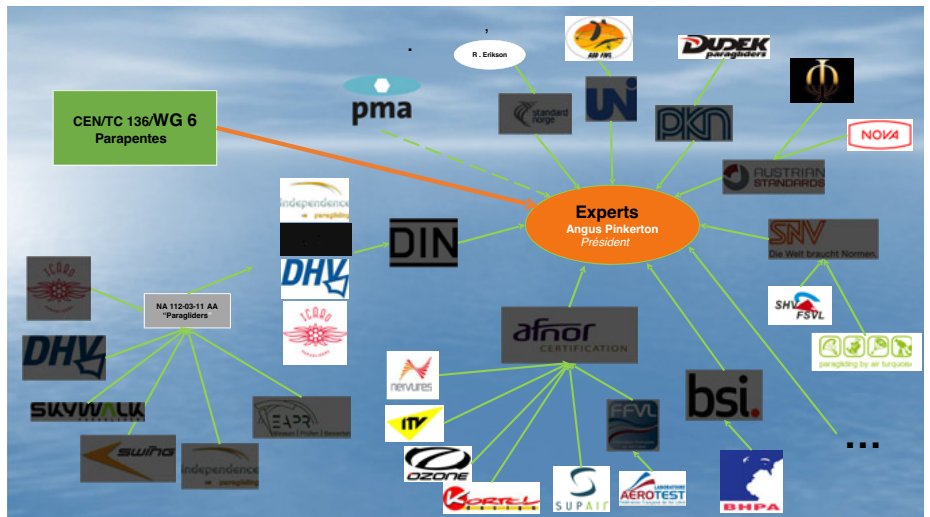
The willingness to come to a consensus reduces the pace of work, but everyone's opinion is thus heard and taken on board sufficiently. At the moment, 5 federations, 3 testing houses and 5-6 manufacturers are actively involved. This shows the balance within the WG-6, but its composition changes from one subject to another.

The final vote takes place at national level in the standardisation bodies. The votes are weighted as a function of the number of people in the member states.

France has almost 11% more voting rights than Austria which has only 1.4%.



The CEN integrates technical committees (TC), made up of working groups (WG).



Who does what at the moment in the WG-6? The participants and roles can change depending on the topic.

A meeting of the WG-6: manufacturers, federation executives and managers of testing houses.



A CONCRETE EXAMPLE: THE HARNESS

The last norm revised was EN 1651 for paraglider harnesses. The origin of this norm goes back to 1999 and it was therefore in great need of being updated.

Some load tests were excessively restrictive and hindered development. For example, the load applied through the thigh straps when the ventral strap is open: 2 tonnes - in other words, fifteen times the maximum total load of the harness.

With this test, it simply wasn't possible to certify harnesses above a maximum load of 120 daN. But what use is a paraglider certified up to 140 kg if the harness hasn't been certified up to this value?

There were discussions and research within the working group. Both testing houses, EAPR and Air Turquoise, have examined different harnesses and checked the loading in different situations. The results were then included in the experts' discussions and were used as a basis for the new, revised norm. Of course, there were also examples where the tests became stricter.

A second good example: tests for back protectors. According to the German LTF, the harness must have protection, otherwise it can't be certified. However, the old EN 1651:1999 didn't include any protection test. Numerous harnesses were tested in line with the EN 1615 norm (load test), and in keeping with the German LTF 91/09 norm for protection.

Now, the test for protection according to the German LTF 1:1 norm is integrated in the EN 1651:2017 norm, but only as an option.

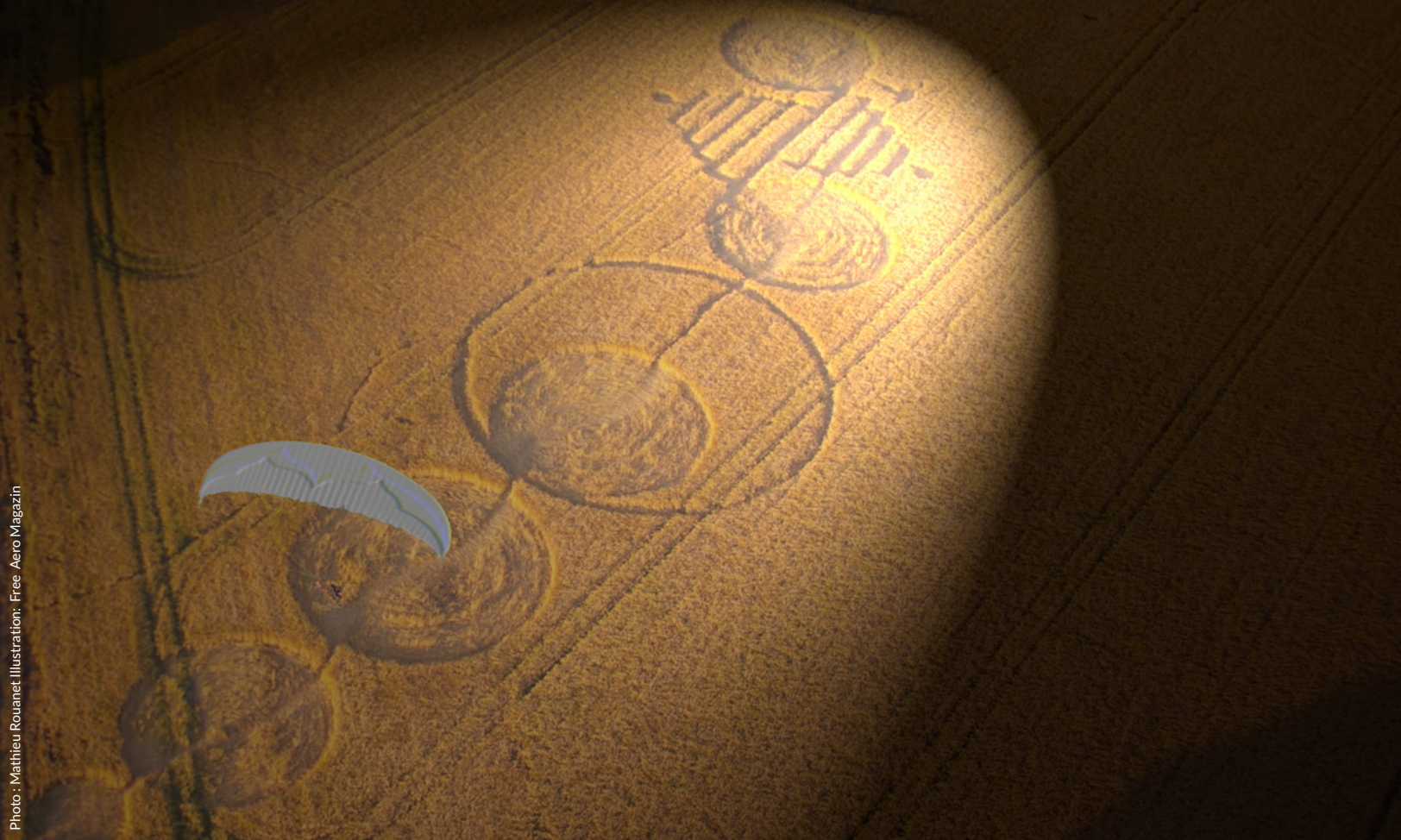
Harnesses which don't have any protection can still be tested (just for load) according to the EN 1651 norm. At the same time, if the manufacture includes this type of protection, it must satisfy the corresponding norms.

The next project: the norm for classifying paragliders (EN 926-2:2013) will be revised.

Editor's note: In France, there is, in addition, an obligation for protectors to satisfy the EPI norm, equipment for individual protection, comparable with motorbike protection. The test is being done at the CRITT. (A French laboratory for certifying motorbike protection). The legality of this obligation is being contested because, according to those against it, the EPI norms aren't applicable to aircraft.

Photo : Sascha Burkhardt





free.aero

INTERNATIONALES MAGAZIN FÜR GLEITSCHIRM-UND MOTORSCHIRMPILOTEN. FOR FREE. 

Concept, editor in chief, webmaster: Sascha Burkhardt
test pilots: Sylvain Dupuis, Pascal Kreyder, Estéban Bourroufiès, Philippe Lami
Layout: Véronique Burkhardt
Translations: Ruth Jessop
iOS development: Hartwig Wiesmann, [Skywind](#)
Android development: Stéphane Nicole www.ppgps.info
Logo designed by Indalo: All rights reserved by Michael Sucker indalo@web.de
Magazine free.aero
SIRET 807821319 00017

Editor and director of the publication:
Sascha Burkhardt, contact@free.aero
F-66210 Saint Pierre dels Forcats
Tel. +33 6 70 15 11 16

The contents of [free.aero](#) (photographs, articles, videos etc) are protected by copyright.

Anyone has the right to duplicate, redistribute or publish our online magazines, as long as they don't modify them. It is strictly forbidden to copy articles or photographs, to publish them, to use them in any other format or context, or to use them in another piece of work.

free.aero

WORLDWIDE PARAGLIDING AND PARAMOTORING MAGAZINE. FOR FREE.



ALL ABOUT FLYING.
ANY TIME.
ANY PLACE.
ALL FOR FREE.

THE WORLDWIDE **ALL** DIGITAL
PARAGLIDING AND PARAMOTORING MAGAZINE.