

# free.aero



WORLDWIDE PARAGLIDING AND PARAMOTORING MAGAZINE. FOR FREE.



#trends 2025  
1/2





On the cover, pilot Pierre Bottero with a Niviuk Artik 7P, photographed by Tim Rochas above Factory Butte in Utah. In the photo at the bottom of the page, the launch point at 1931 m, is reached by helicopter. The plain lies 400 m below. The pilots climbed up in strong desert thermals to about 450 m above the launch.

On the right, Tim Rochas drifts around Fisher Tower, photographed by Pierre Bottero.



Photo: Tim Rochas / Niviuk



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**Tanguy Renaud Goud, photographed by Tim Rochas above Factory Butte. A legendary mountain...**

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# #shots

Photo: Tim Rochas / Niviuk



Exposed launches, vast landings...

Photo: Pierre Bottero / Niviuk





# A PASSPORT TO NEW FRONTIERS

The Calypso 2 is your passport to a world of adventure, ready to discover new places and routes — both on the ground and in the air.

The Calypso 2 is a true lightweight design, aimed to perfectly match the needs of leisure and progressing pilots who like to travel, hike and even do some XC.

5 Sizes | 55-115 kg | EN B





Photo: Alain Doucé

# #trends 2025 1/2

*At the Coupe Icare in late September 2024, we were able to discover many trends for the 2025 season. Here are the details of what awaits you next year...*

*Not all the news could fit into this issue, which has anyway become quite extensive. The rest will come in January, along with more practical tips for purchases of used gear...*





As we announced, a significant part of the 2024/2025 innovations presented at the Coupe Icare focused on harnesses, particularly those with pressurised shells, whether brand-new or upgraded. The Gin Genie Race 5, available for a year now, stands out with its impeccable design and fit.

Photo: Jérôme Maupoint/GIN

2024 improvements to the Ozone Submarine: adjustable collar, enhanced instrument visibility, reduced temperature through increased fabric opacity, easier inflation, and extended lifespan.



Photo: Sascha Burkhardt





Photo: Jérôme Maupoint/GIN

The underside of the Gin Genie Race 5: a very aerodynamic and smooth shape.

On the right, the "keel" of the Ozone Submarine is clearly visible, which can enhance yaw stability.

In front of the Submarine stands Sam Jobard, part of the harness development team at Ozone.



Photo: Sascha Burkhardt



EN/LTF B+

# IKUMA 3



Expand *your horizons*

The new Ikuma 3 is perfect for your long distance cross-country flights. Dare to go further with this EN B+ classified glider, which offers unparalleled comfort and manoeuvrability. The new aerofoil, optimised for performance and damping, will allow you to enjoy your flights like never before. Thanks to the C2B system, it feels like a two-liner. Get that perfect flying feeling with this accessible, high performance glider.

Sizes

20 / 22 / 24 / 26 / 28 / 30



Mars



Nimbus



Unakit



Fuchsia

# ARROW

Aim high, *aim far*



A rear fairing harness designed for pilots who want to make the most of their XC adventures and start competing. Optimised aerodynamics for drag reduction and performance. A comfortable, stable, light and durable harness designed to help you achieve all your goals.



Sizes

S / M / L / XL





# HIKE&FLY COMPETITION HARNESS

Ready-to-fly weight from

1.58 Kg

Photo: :Sascha Burkhardt

# SUPAIR ALP

As we announced, Supair has presented a harness of the Submarine type weighing 1.58 kg. The Alp's sealing is ensured, as with other harnesses of this type, by a collar and arm sleeves. The closure, however, is not done with a zipper but with an overlapping magnetic system (see photo below). This seems very quick and convenient.

Let's not forget that the X-Alps 2025 regulations, where this type of harness might be envisioned, still require pilots to be able to enter and exit their harness in less than 2 seconds without using their hands. However, the maximum harness length is limited to 1.75 m (measured between the carabiners and the end of the fairing), which remains (once again) a limiting factor.

Photo: :Sascha Burkhardt

Photo: :Sascha Burkhardt





Photo: Stefan Ungemach

# SUPAIR SKYMATE

The Skymate system is a complete package including a wing, harness, and 2 rescue parachutes, equipped with numerous sensors and electronics described as artificial intelligence by Supair. The goal is to provide maximum safety against a common and severe type of accident: asymmetric collapses leading to a spiral dive.

Sensors embedded in the wing detect collapses. The data from these sensors, combined with input from another sensor located in the harness, enables the system to identify dangerous situations. It calculates the available altitude above ground using a global terrain database and decides whether to deploy the rescue parachute if necessary. Unlike pyrotechnic systems, the parachute is deployed through an opening beneath the harness (see photo below).

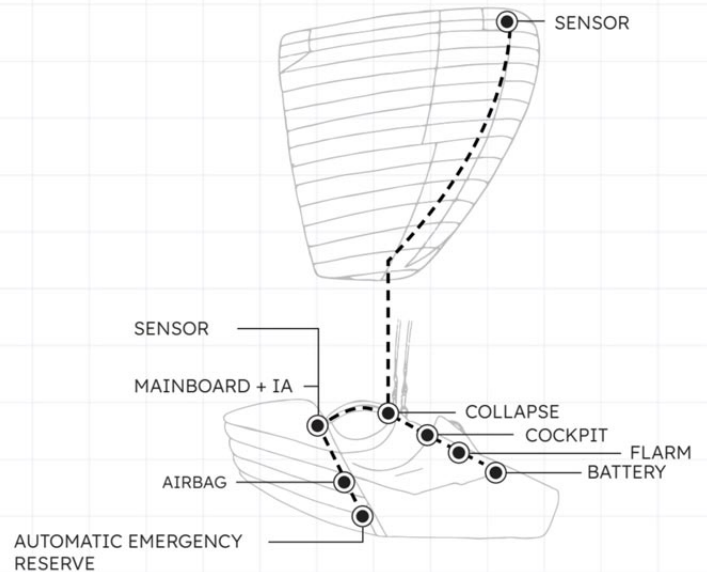


Photo: Sascha Burkhardt





Photo: Sascha Burkhardt

The system is also equipped with a manual front-mounted rescue parachute. Other features include a FLARM anti-collision system (see more details in this issue).

At ground impact, a lateral airbag will deploy.

Part of the Supair Skymate team: Roman Barthélemy, Laurent Chiabot (Supair Manager), and Clément Latour.

The system is expected to be available in spring 2025. Complete pack price: €15,000.



Photo: Sascha Burkhardt



Photo: Sascha Burkhardt





**XA**  
Beginner  
EN A



**X2C LT**  
Lightweight XC  
2-LINER EN C



Supair offers a brand-new ultra-light rescue parachute, the "X-Lite". By utilising an elastic Dynalink riser, inspired by climbing ropes, the weight is reduced to 741 g for a maximum load of 80 kg.



**X2C**  
Sportclass XC  
2-LINER EN C





Photo : Sascha Burkhardt



# INSTRUMENTS

Three of these instruments communicate with each other: via FANET, FLARM, and OGN. This is a communication technology of the future, but it won't necessarily take the same form: ADS-L will soon complement or even replace FLARM/FANET.

Instruments develop at cyclical speeds. Given the relatively low prices compared to the investment, as well as the costs of after-sales service, which are often complex due to the need for many explanations, this sometimes slows down the release of new models. There is also the shortage of components, which slowed down production, or even "killed" excellent products like the Skytraxx 3.0, whose manufacturer could no longer source the screens.

One aspect of free flight instruments, the connection between pilots, which offers tactical, recreational, and safety advantages, was developing around FLARM/FANET in a growing number of devices.

In the news about Syride, a few pages further, we explain the communication techniques between instruments again.

FANET radar on the Strato: where are the others and at what altitude?

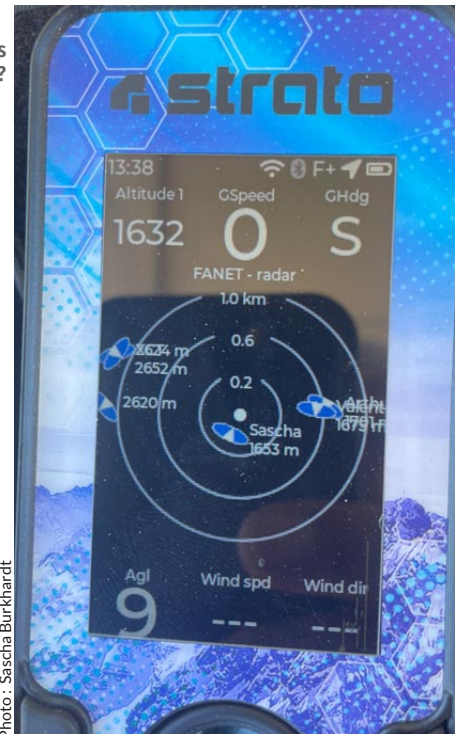


Photo : Sascha Burkhardt

Selection of "buddies" visible on an XC-Tracer Max II.

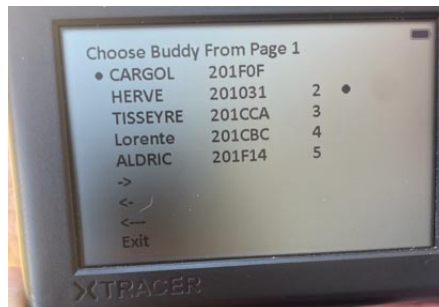




Photo : Sascha Burkhardt



# STRATO

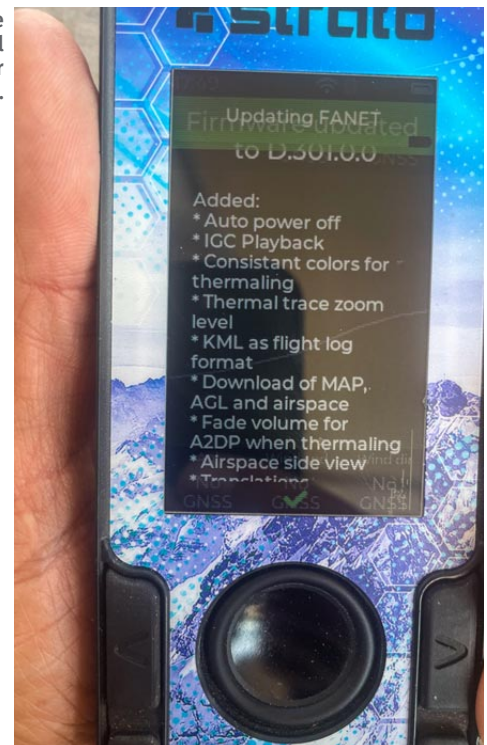
The Strato is one of the instruments in constant evolution, offering so many possibilities that sometimes this complexity led to small or large bugs, which irritated many pilots. After all these years, one can reasonably hope that the actual version is nearing maturity.

The device notably offers a color screen that is well visible in daylight, displaying topography and obstacles.

Connectivity combines Bluetooth and Wi-Fi, allowing for easy updates without needing a computer.

A useful "gadget" for many pilots: a surprisingly powerful speaker for listening to music, with volume that adapts to the situation, prioritising vario sounds in thermals, for instance.

The Strato is one of the variors whose ergonomics most closely resemble a small computer. Here is the list of improvements after an update.



<https://skybean.eu/strato>





A new instrument with an "indestructible" screen: the head of Skybean was vigorously scratching it with keys, and not a single scratch.....





# STODEUS

Stodeus devices are surprisingly small and at the same time very sophisticated. The high-end model, the UltraBip, offers a Bluetooth connection to a smartphone or tablet (to provide flight data to software such as XCTrack, FlySkyHy, SeeYou Navigator), and of course records flight tracks in a valid format, is powered by the sun, and... speaks with a loud, pleasant, and natural voice to announce values like altitude and GPS speed, all for under 30 grams and €300.

On the right, you can reread the article we published in 2023.

At the Coupe Icare, Stodeus also presented new practical accessories, including cases to protect these technological gems.

<https://www.stodeus.com/>



## MINI-VARIO, MAXIMUM PERFORMANCE

A noteworthy new feature: the UltraBip connects to iOS and Android tablets or phones via Bluetooth.  
Photos Stodeus

Since the beginning, the small varios from the brand Stodeus, with various names along the lines of "xyzBip", have made incredible progress. The UltraBip adds another dimension to this. Impressive!

Since the first BipBip 12 years ago, Stodeus instruments have amazed us. Initially it seemed relatively limited in terms of functions, however the solar charge and the clarity of the sounds were impressive.

A very big technological step was the release of the GpsBip in 2015. Already, to have integrated a GPS in an instrument of this size, powered by a solar panel, was remarkable. But also, the voice output was mind blowing. Such a natural voice, announcing flight parameters at regular intervals, was not just pleasant, but also very

useful in a mini-instrument which, by definition, can hardly offer a display.

Manufacturers such as Skytraxx tried to implement such a function, but finally abandoned it in a corner of the settings. It's quite a job to design natural voice messages, in lots of different languages, which comes out of a solar-powered mini-box! It's interesting to note that one of Timothée Maunaud's other ways of making money is by designing sound cards for pinball machines. This experience was undoubtedly very useful...







The Stodeus team: Clarisse and Timothée. New: soon, it will be possible to control instrument settings from an app on your phone or tablet.

Until now, the connection was limited to transmitting flight data to an app like XTrack.

Additionally, the instruments (Bluetooth: UltraBip, BlueBip) are already compatible with Engo glasses (via XTrack). More details about these smart glasses can be found later in this issue.



Photo : Sascha Burkhardt



# XC-TRACER

The XC-Tracer range, particularly the XC-Tracer Max II with its high-contrast screen, took some time to establish itself, but now it is among the most popular flight instruments.

Many top-level pilots, such as Chrigel Maurer, use it (see the list of pilots in the X-Alps 2023 on the right). One of the greatest strengths of the entire range:

the algorithms of its IMU (Inertial Measurement Unit), which includes an accelerometer, variometer, gyroscope, magnetometer, and even some GPS data, allow for a very fast detection of thermals while filtering out any pendulum movements that might mislead simpler variometers.

Read the full article about this technology by clicking on the image below.



Thomas De Dorlodot   Céline Lorenz   Christian Maurer   Reto Reiser   Sepp Inniger



Tanguy Renaud-Goud   Patrik Von Känel   Richard Binstead   Paul Guschlbauer   Logan Walters



Aaron Durogati   Nicola Donini   Tim Alongi   Tobias Grossrubatscher   Thomas Friedrich



Elisabeth Egger   Pal Takats   Simon Oberrauner   Laurie Genovese   Ondrej Prochazka



Michal Gierlach   Maxime Pinot   Kinga Masztalerz   James Elliot   ©copyright adiGeisegger

**INSTRUMENTS**

To correctly know your position, to understand and measure all movements so that you can optimize a climb, the barometer, which is the essential sensor on any vario, is perhaps not enough. Several years ago, the manufacturers started integrating measurements from gyrometer, accelerometers and magnetometers. The gyrometer records the rotations on all the axes, the accelerometer the accelerations and the magnetometer is nothing other than an electronic compass. If you combine these values with a suitable algorithm, you will be able to see the position of the aircraft at any time. You can then, amongst other things, use this information to create an artificial horizon or Attitude Heading Reference System (AHRS), which isn't normally that useful on a paraglider or parafoil.

You can also do without a GPS. If you know the initial position of the aircraft before taking off, then by adding, all along the flight, all the movements on the three axes as well as all the accelerations (forwards, downwards or sideways), you can recalculate your trajectory and position it on a map of the Earth. That's how commercial airlines used to navigate using their inertial systems before the late arrival of GPS into their navigation systems (well after us sports pilots with our GARMIN 38s and other Top Navigators).

Certain applications for iPhones and iPads serve as gyroscopes by integrating the values of the gyrometric sensor. Note: a gyrometer gives the angular speeds of the rotations around the three axes and the gyroscope works out the orientation of the aircraft.

A chip, like the one used in the XC-Tracer, contains an accelerometer on three axes (above), a gyrometer on three axes (middle) and a magnetometer (like a compass) (below).



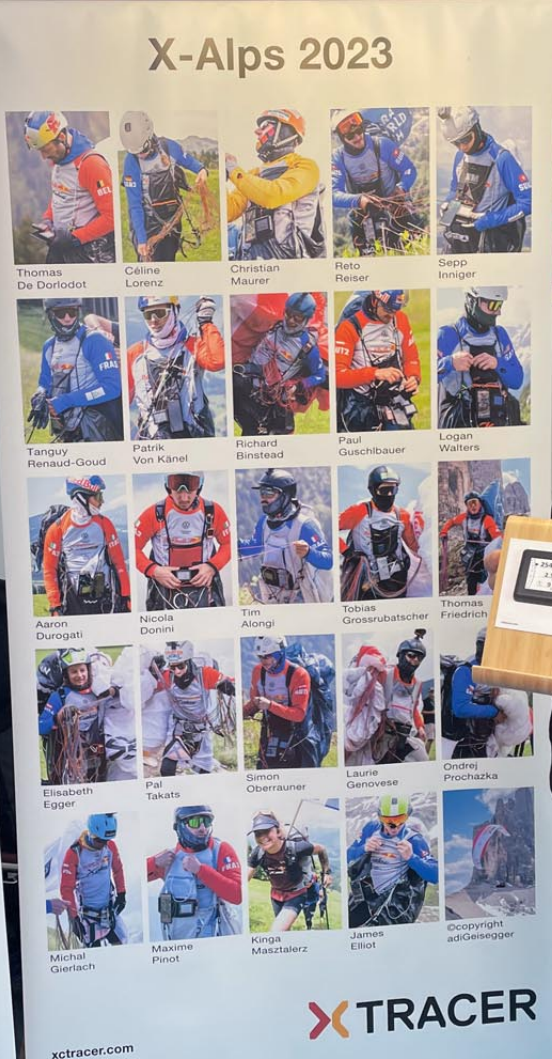
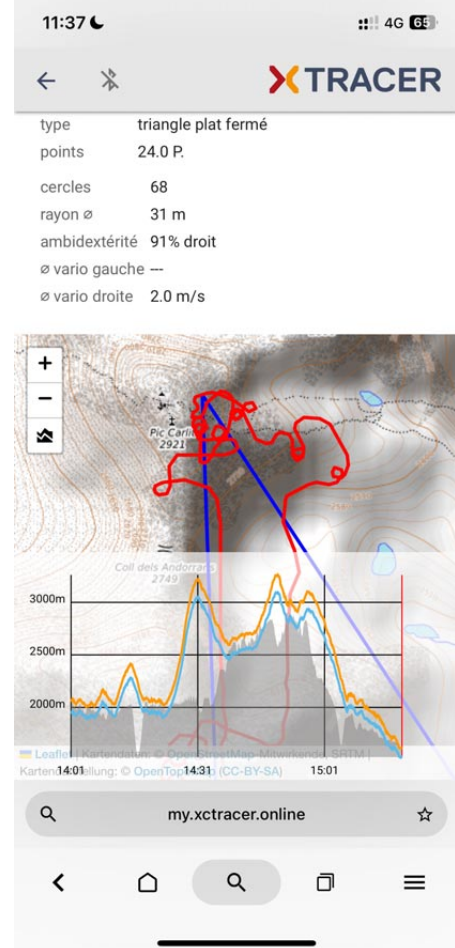


Photo : Sascha Burkhardt

Team XC-Tracer: Koni Schafroth (who also works as a paraglider designer) and Lisa Da Costa.

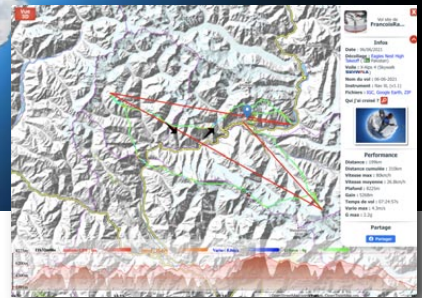
New: flights can now also be downloaded from the instrument using a web app. <http://my.xctracer.online>







2 million flights recorded on Syride's server... including that of François Ragolski in Pakistan, here at 8200 meters altitude...



The first Sys'Evolution tested in 2018. Reread it here.

Explanations on FLARM and FANET. Both systems could potentially be replaced by ADS-L.

# SYRIDE & ADSL

'Syride reports 2 million flights recorded on their servers - that's quite a lot when you think that these are only flights performed using instruments from this manufacturer...

The SysNav XL remains one of the most interesting instruments from the brand. We will be publishing our full review shortly. At the Coupe Icare, Syride presented a new version of the Syride Evolution. We tested the first version a long time ago, which can be reread to the right...

**SYRIDE SYS'EVOLUTION**

The Sys'Evolution is the top of the range instrument from Syride and a model type tablet. The screen and the system's mobility are particularly good, as well as what might be called its 'ease of use'. The Sys'Evolution is 100% made in France.

**First test of the Sys'Evolution, an instrument shaped like a tablet designed from start to finish for flying...**

The Syride team worked on this tablet for nearly three years before starting to commercialize it in 2017. At first glance, this instrument resembles an e-reader, like a Kobo or an Amazon Kindle. But in reality, the electronics and the operating system written in the C language, which gives direct access to the electronic data designed from the ground up for use in flight, has therefore been optimized for pilots.

**WHO CAN SEE WHO AND WHEN?**

**FLARM:** Shows basic position and altitude data between aircraft.

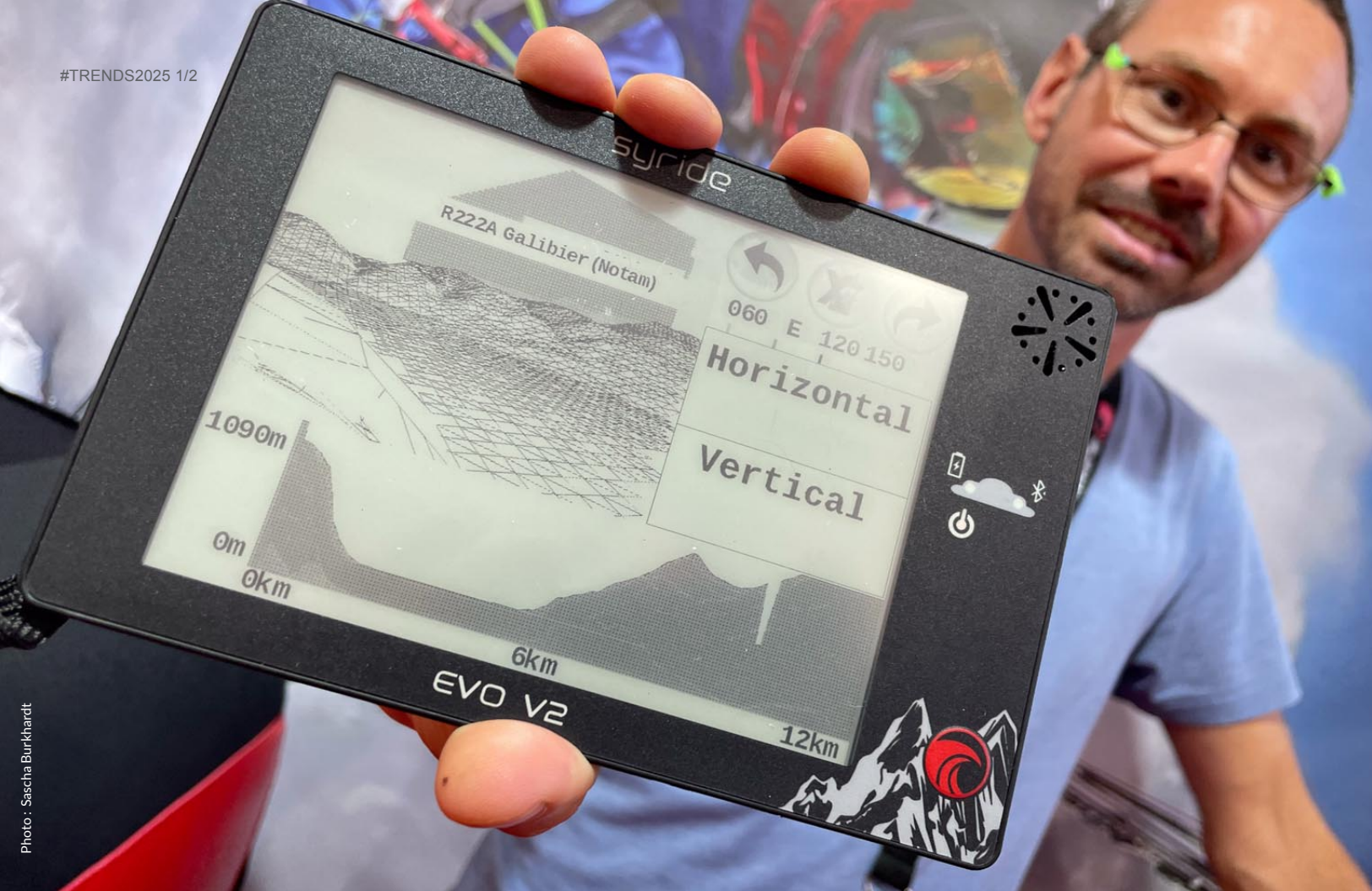
**FANET:** Shows more detailed data, including speed, heading, and synchronization, allowing for more precise collision avoidance.

Before joining Skytrax, Airgen Eckert from the University of Evry, started to put in place a peer-to-peer system comparable to FLARM, with a range of tens of kilometers. The goal: communication over the radio waves, in real time, between the participants, giving information about the rates of climb encountered. So, it's not an anti-collision system, but instead a tool for collaborative flying. On the screen of his early a pilot can see if it's worth going to join another plane.

ADS-L messages can be sent through the air by a communication in the group with acknowledgment of receipt.



Photo: Sascha Burkhardt



The new version 2 of the Sys'Evolution showcased at the 2024 Coupe Icare, here with one of Syride's founders, Anthony Créteur.

The new version will include, among other features, the possibility of an upgrade to the ADS-L collision avoidance system, which could potentially replace FANET and FLARM in the near future. FLARM suffers from the constraint of the required commercial license, a system that has never been used in Syride instruments. ADS-L will be an open, license-free collision avoidance system and will likely also equip drones soon. More news soon.







Antoine Girard with Engo glasses in flight.

## HUD: CONNECTED GLASSES

What if we could benefit from a real Head-Up Display like military pilots?

Many pilots dream of having a variometric data display on a HUD (Head-Up Display), like in fighter jets.

When the pilot is focused on aerology and flying in turbulent thermals, it would be practical to see all the important data directly in the field of vision, similar to military pilots with their "Head-Up Displays."







The Intel Recon glasses during our tests in 2016. A bit too bulky, but with a rather sophisticated display...



Eight years ago, we tested one of the first glasses designed for paramotoring and paragliding, the Recon glasses, made by a company owned by Intel. Very promising, these glasses were adopted by Android developers like Stéphane Nicole (<http://www.ppgps.info/>), who integrated them with their flight applications. A fairly sophisticated display impressed us during our tests.

However, a short battery life tempered our enthusiasm. Following the lack of commercial success, Intel eventually dropped this division, marking its end.







Recently, the French company Engo Eyewear has been offering glasses that are much less bulky and, most importantly, compatible with a wide range of sports applications, smartphones, and smartwatches like the Apple Watch, Garmin, Suunto...

This wide compatibility, along with a price around €300, makes them usable in many sports, which could lead to greater success than their predecessors.

In the free flight sector, Syride is the exclusive distributor and has adapted its NavXL instrument, which connects to the glasses through the Syride smartphone app. Through XTrack, the glasses are also compatible with instruments like those from Stodeus.

The advertised battery life of 12 hours is a bit optimistic, but during our flights, the Engo glasses never ran out of power. In the photochromatic version (the lens darkens when exposed to sunlight and becomes clear again in low-light conditions), the Engo glasses can accompany the pilot all day long.

Antoine Girard, who has been using the Engo glasses for much longer than we have, shares his flight experiences in the following pages.

These Engo glasses and a typical display (at takeoff) when connected to a Syride instrument. Our test unit weighed 47 g (with a cord essential to never lose them during flight). Below: the new version of the Engo glasses is much more successful in terms of design...

**BlueBip** SOLAR · BLUETOOTH · INSTANT VARIO

- AUGMENTED REALITY** Optimise your flying experience with ActiveLook® glasses and XTrack.
- INTUITIVE CONFIGURATOR** Complete configurability with friendly web-app. Free software updates incredibly easy to install.
- BLUETOOTH** Compatible with iOS and Android. Connects to XTrack, SeeYou Navigator, FlySkyHy, and more.
- REMOTE CONTROL** Change screen on your flight app without touching the smartphone.

STO SOLAR PARAGLIDING





To begin with, let's talk about the glasses alone. I tested the glasses for a while with other applications like XTrack or the Active-Look application developed by Engo. The device that projects the virtual screen is quite bulky, and at first glance on the ground, it seems to block part of the field of vision. In reality, you completely forget about it while flying, and it's not cumbersome, just like its weight. The screen is easy to read even when facing the sun, and the display forms a square in the field of vision.

The display has a focal point at about 2 meters, which forces you to look at the virtual screen by focusing not at infinity but at 2 meters in front of you. This requires some effort, but you can still partially see what's happening around you. Thus, it is possible to spot a potential danger, such as another paraglider. Another advantage would be the ability to do without a traditional variometer with a screen, as flight information is retrieved from the phone, which remains in standby mode, allowing it to last much longer than a regular phone. In summary, the glasses alone don't offer many advantages over a traditional instrument.

It is when coupled with the Syride XL vario that the Engo glasses truly shine. The glasses provide a second screen, visible at all times, without having to manually switch between

displays, effectively doubling the amount of displayed data.

To sum up, the Engo glasses are not a revolution for flying, but they bring real value when paired with the Syride XL.

However, it's hard not to dream about the next generation of connected glasses with a screen that covers the entire field of view and requires no focusing effort. For example, it would be possible to display airspaces and see them materialised in the sky! We would just need to slalom between the spaces without checking altitudes. Everything remains to be invented!

Antoine Girard

The Engo glasses coupled with a Syride NavXL. Around €300-350, <https://www.syride.com/fr/engo> Our flight experiences were even more positive than Antoine's; however, the reliability of charging and updating was an issue.





EN/LTF B

# HIKO P



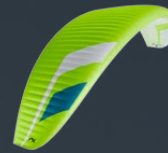
Engage *with lightness*

From 2.99 kg

The Hiko P is an intermediate and ultra-light EN B wing - an all-rounder for a wide range of pilots. It will accompany you in the transition from paragliding training to your first XC flights. Thanks to the combination of the lightest materials, the IKS 1000 connection system and a weight-optimised internal structure, it is also the ideal glider for hike and fly. It offers great confidence building and excellent performance, to start new adventures and improve your skills.



Flamingo



Citrik



Tekno



Sizes

20 / 22 / 24

26 / 28



# ARROW P

Beyond *your limits*

From 1.61 kg

Sizes

S / M / L



The lightest pod harness in its class, with fairing and aerodynamics, designed to obtain the best performance. Practical, easy to use and compact: carry it comfortably on all your adventures. Optimised in every aspect, the Arrow P is very stable and offers exceptional comfort and ergonomics for its weight. The Arrow P joins the new generation of Niviuk harnesses, with the aim of satisfying the needs of all those pilots who want to fly further.





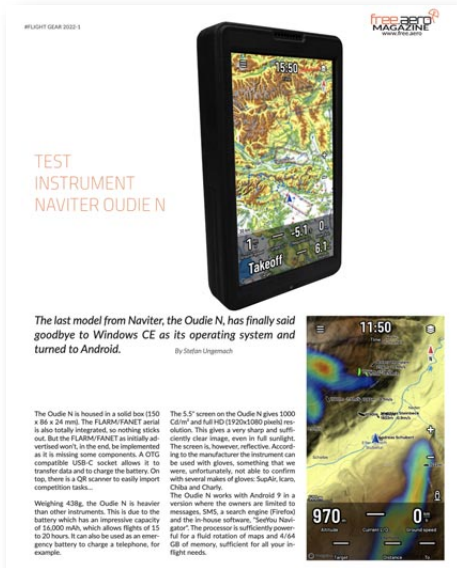


# NAVITER OMNI

The Naviter Omni is comparable to the Oudie N in terms of hardware and software but is twice as compact in size and weight:

- 3.5" screen, 800x480px
- 222 g
- 97 x 71 (87 with antenna) x 25 mm
- WLAN/BLE/LTE (Micro-SIM)
- Integration with the SeeYou.Cloud system

Revisit our Oudie N review:



World of XC paragliding



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## AIR 3 7.35(+)

The Air 3 tablet, in its new 7.35(+) version, features a new screen with a record brightness of 2600 NITS, more than double the previous version (1000 NITS). With a sophisticated automatic adjustment, the device seems to genuinely hold a 12-hour battery life, as confirmed by the remaining charge after a 4-hour flight.

The instrument is priced at €625 and, as always, includes a lifetime licence for XCTrack Pro. The "Plus" version, at €825, is equipped with FLARM and FANET.

<https://www.fly-air3.com/>

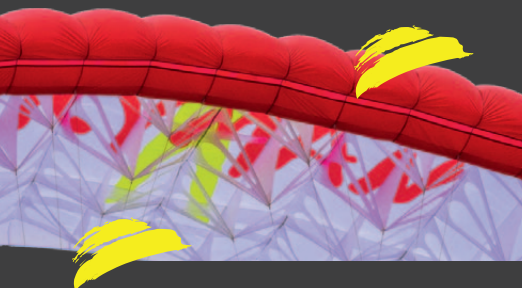


Photo : Sascha Burkhardt





LIVE YOUR  
**ADVENTURE**



## THE SIR EDMUND SHARK IS SKYMAN'S MOST POWERFUL SINGLE SKIN

hybrid single skin with 20% double surface



## SIR EDMUND SHARK

most powerful single skin for

Hike & Fly

thermalling

short cross-country flights

[www.skyman.aero](http://www.skyman.aero)



Photo: Sascha Burkhardt

## FLYMASTER

The Live 1 One is a new flight recorder/tracker available in three versions. Here are some of its features:

- Available versions: Basic (recorder only), Advanced, or PRO (both with 4G tracking).
- Vario option: included starting with the PRO version or available as an add-on for other versions.
- FLARM/ADS-L: available as an option.
- Navigation: simple and intuitive.
- SOS button: for emergency situations.
- Backlit LCD screen: 90 x 90 mm.
- Battery life: up to 20 hours.
- BLE 5.0: data output (e.g., to XCTrack), available only in the PRO version.
- Weight: 93 g.
- Dimensions: 87 x 58 x 22.5 mm.

The Live 1 One is, as always, well-suited for competitions, particularly with handy accessories like a ready-to-use carrying case. However, according to our information, Flymaster will not supply this device for the X-Alps 2025.



Photo: Sascha Burkhardt





# BEAT 2 light

Comfort B

## FLYMASTER LIVE DS

The Live DS was introduced over a year ago, but it's only recently that we were able to get a unit.

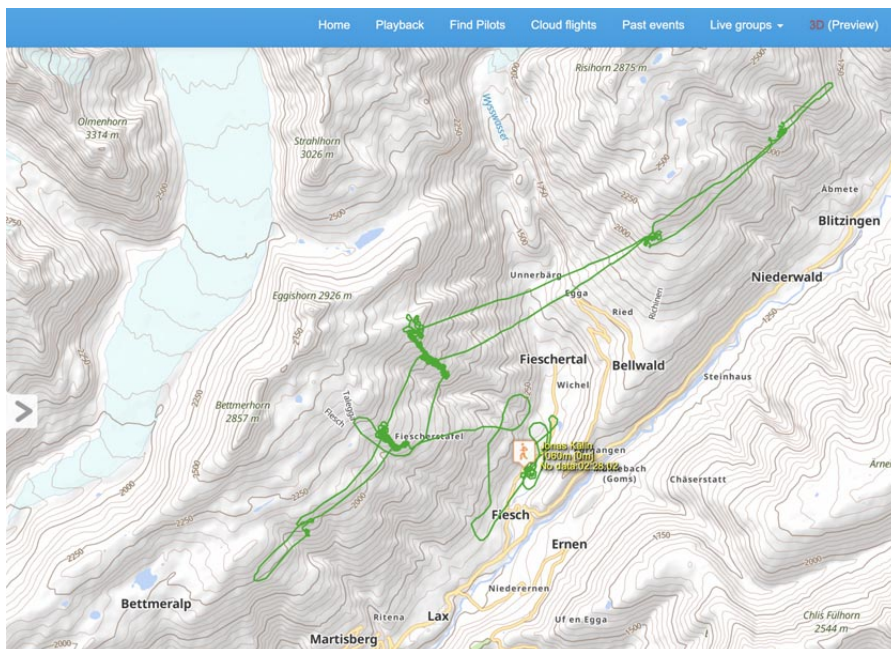
We'll provide a detailed review soon, but here's a first impression after about ten flights:

the dual-screen concept is very clever, allowing quick access to key parameters on the black-and-white screen, while the colour screen provides cartography with an intuitive and well-executed display of topography.

The instrument is very versatile, suitable for all types of flying, including competitions. It offers excellent battery life (24 hours), but it is understandably quite heavy (410 g) and relatively expensive (around €1,280).

The standard FLARM/FANET antenna poses a high risk of snagging a line during takeoff, but it can either be replaced with a shorter antenna or omitted altogether (at the cost of reduced FANET/FLARM signal range).

The live transmission of flights to Flymaster's servers allows others to track the pilot in real time on the web. After landing, the flight is immediately available online in IGC format. This practical feature also works, of course, with many more affordable tracking instruments from Flymaster.





# SKYTRAXX



Photos: Stefan Ungemach

Skytraxx had already introduced the 5 Mini model in the Zillertal. Here are some key specifications:

- Size and screen: similar to the 2.1 model, with a 2.1-inch display.
- Integrated antenna: FANET/FLARM integrated for communication and collision avoidance.
- Connectivity: no GSM or Wi-Fi; updates are done via cable, but Bluetooth Low Energy (BLE) is available.
- Hike & Fly mode: recording of routes in GPX format for hike and fly activities.
- Price: €499 (compared to €649 for the Skytraxx 5).

On the right, the Skytraxx 5 and the new 5 Mini are shown side by side.

A new feature for the Skytraxx 5: a smartphone app allows scanning QR codes (e.g., for task exchange before competitions) and then transferring the data via BLE to the instrument.



PARAGLIDERS' FAVORITE SOLAR INSTRUMENTS WORLDWIDE SINCE 2010.

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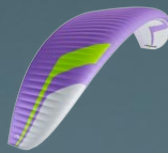
EN/LTF B

# HIKO

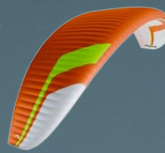


Progress *with total confidence*

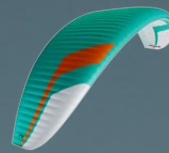
The new Hiko is the perfect compromise between passive safety and performance to commence your first long distance flights. It is an intermediate glider (mid EN B), situated between the Hook and Ikuma, expanding our range of paragliders. Its intuitive handling and advanced technologies will allow you to fly with confidence and explore new horizons.



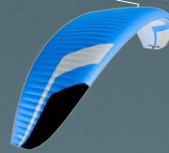
Lavande



Clay



Motmot



River



Sizes

20 / 22 / 24  
26 / 28 / 30



# HAWK

Mile *hunter*

Sizes  
S / M / L / XL



An accessible pod harness. The ideal pod harness for those pilots who want to start venturing into the world of cross-country. A stable, comfortable and light harness especially designed for everyday long flights.







# ASCENDANT ZIAN

The young company Ascendant has introduced a new version of a submarine harness: the Zian (approx. 1.6 kg, 2500 €) One of its collaborators, Hugo Laronze (on the right in the picture), previously worked at Supair. It is therefore not surprising to find certain similarities with the Alp. An interesting detail can be seen at the bottom: a piece of fabric serves as a spring, automatically adjusting the distance between the footplate and the nose of the pod.





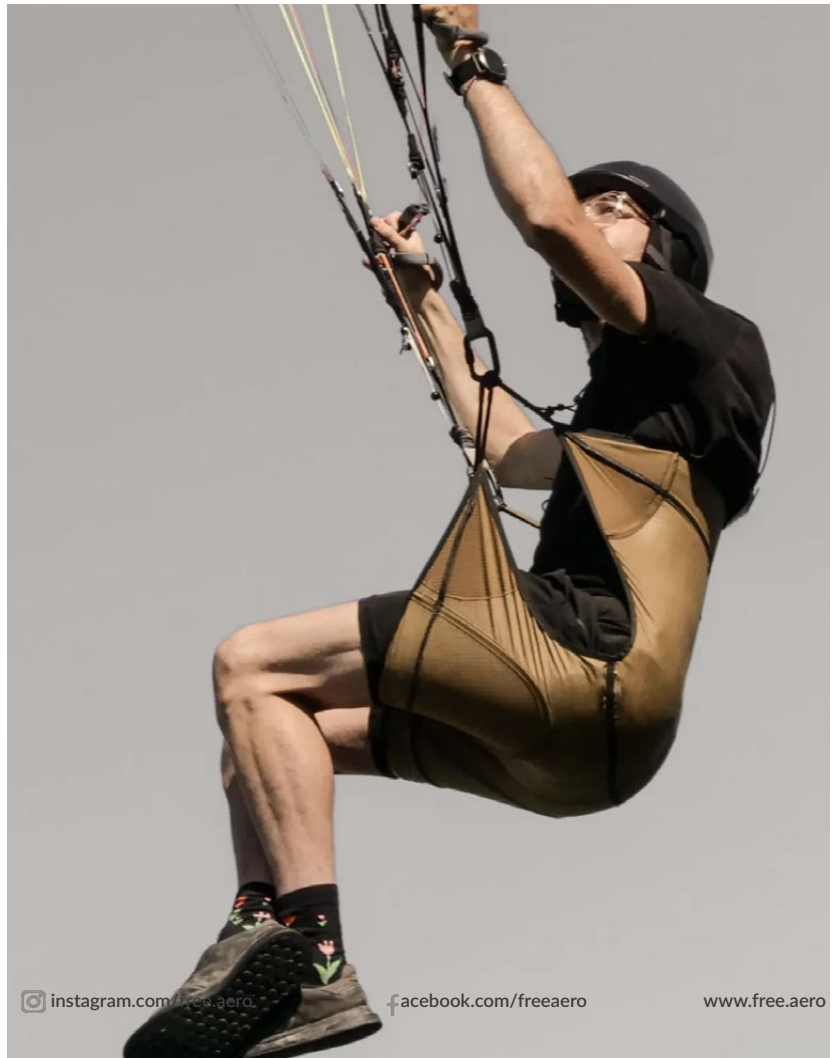


A light relative wind is enough to inflate the fairing of the footplate, as is the case for all harnesses of this type.

On the right: a harness made from Dyneema, recycled nylon, and Nitinol, the Zyme.

Weight: between 210 and 320 g depending on size. Price: €370.

<https://fly-ascendant.com/>.





# PERFECT HIKE&FLY SET



Hike&Cruise (from 2.37 kg - 19, 22, 25 m<sup>2</sup>)

Techno 2023 (from 1.95 kg - S, M, L, XL)

DuraLight 2023 (from 0.45 kg - litres: 65, 75, 85)



[www.dudek.eu](http://www.dudek.eu)





Maxime Pinot lands with the Submarine harness from Neo, the Neo Pro. Currently, this harness was reserved for a few professional pilots: Tim Alongi and Maxime, but Maxime ceased working with Neo in December 2024. At the top, Maxime is pictured with his partner Salomé Baudoin, an industrial engineer and the designer of the Neo Pro.

Photos : Sascha Burkhardt

NEO PRO

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# Windsriders.fr

en pur d'parapente

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- Paragliding  
Down Jackets

Fill Power 700 cuin

- Flight Muffles



BECOME  
A DEALER





Photo: Sascha Burkhardt

# NEO

By diversifying into backpacks designed for "everyone" outside our sport, one might think that Neo is forgetting about paragliding.



Photo: Stefan Ungemach

However, new products have emerged, such as the "Push-Up". Size S, approximately 2 kg, featuring a carbon board, Koroyd 2.4 protector (with rounded corners), buckles, and stabilisation provided by triangulation on the sides..

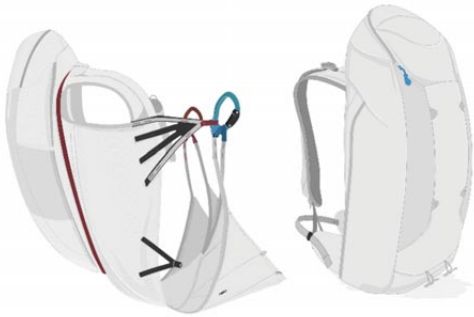


Photos: Stefan Ungemach





# NEO STRING PACK 2.0



Just like the Shorty, the Stringpack 2.0 is not a reversible harness but a backpack with a special compartment to store the harness part during hiking. The backpack straps are therefore identical to those of the harness.





# NEO KORROYD

Photos: Stefan Ungemach

Koroyd protectors are easier to store in the latest versions (3.1) as they can be folded. This is made possible by a dual-layer construction.

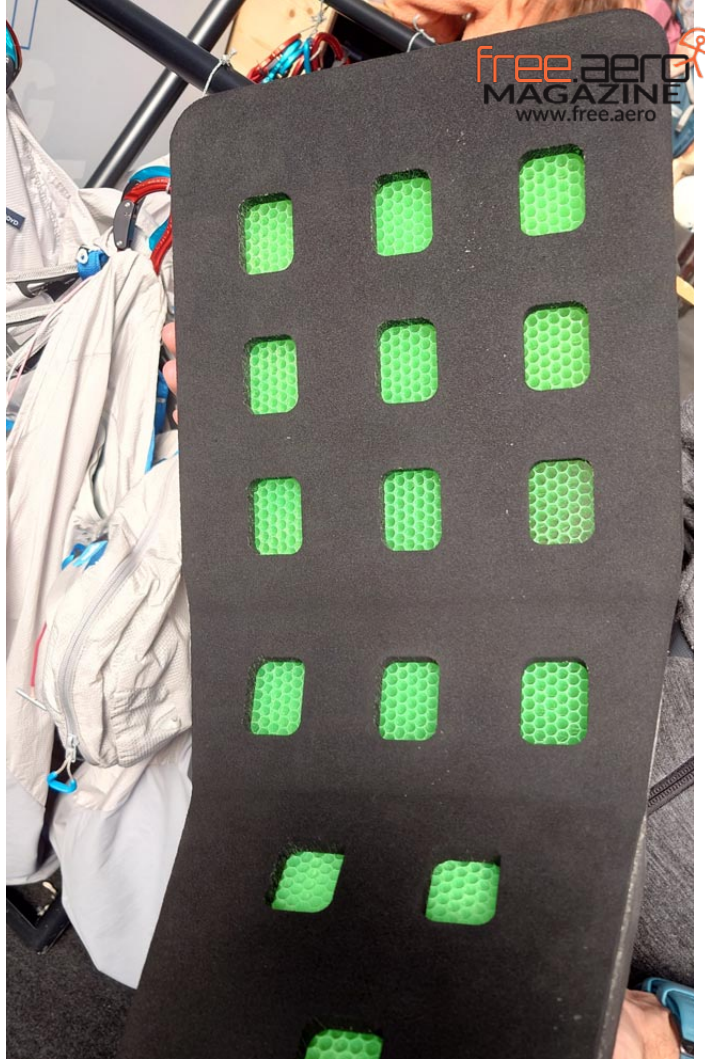




Photo: Jérôme Maupoint



free.aero  
MAGAZINE

## SECOND HAND

**NEW SECTION**

The second-hand market is thriving, particularly due to the slow growth in purchasing power. In addition to our usual features on new releases and new products, we will now regularly include reviews of used equipment. We will assess these products and compare them to new ones, providing a comprehensive perspective on the best options available for our readers.

# NEO STAY UP 1, STAY UP 2: SECOND HAND OR BUY NEW?

In 2017, the Neo Stay Up was one of the first very light new generation pod harnesses.

It was a success, and many pilots still use it. During the Coupe Icare 2022, Neo introduced the Stay Up 2 (photo at the top), an improved version that corrected minor issues attributed to the first version, while simultaneously enhancing comfort and finish, complemented by a new design.

We compare the two models and assess the interest in buying second-hand.

Version 2 (on the left in the image) retails for about €1800 new, €1200 used in good condition. The Stay Up 1 (on the right in the image) is available for about €700 used in good c



Photo: Sascha Burkhardt





We have extensively tested both models. (Version 1 is on the left in this photo.)

You will find our first test of the Stay Up 1 in this 2018 issue, along with many interesting details about pod harnesses.



Photo: Sascha Burkhardt

The Neo-Koroyd of the Stay Up 1 on the left and the Neo-Koroyd of version 2 on the right.



Photos: Sascha Burkhardt

Additionally, the Stay Up 2 is equipped with a ProPack back protector: a significant selling point.





The Stay Up 1 on the left, the Stay Up 2 on the right.

Photos: Sascha Burkhardt



The rescue pod of the Stay Up 2 on the left is placed in a recess, and the one of the Stay Up 1 on the right is just laid on the pod, thus less stable.



The Stay Up 2 in the foreground and the V1 in the background: an even more refined cut in the new version.





On the right, a minor flaw in version 2 was quickly addressed by the manufacturer: the Nitinol coming out of its housing.

This is a problem that nearly all manufacturers have had to discover in their first models containing Nitinol.

And it has been resolved everywhere to our knowledge.

Important: the all-white Stay Up does not stay white forever, but it can go in the washing machine and usually comes out looking like new.

Another issue encountered with the Stay Up 2 was premature wear of the pod's adjustment lines. The brand's customer service reacted very quickly for the affected users.

The localization of both manufacturing and customer service in the same place in France is a plus for European pilots, whether they bought new or used Neo products.

This occurs on all rescue systems with braided risers when they come into contact with Velcro: part of it frays, as seen here on a Stay Up 1. This does not pose a safety issue and can easily be avoided by storing the riser carefully.

Photo: Sascha Burkhardt



Photo: Sascha Burkhardt



Both the Stay Up 1 and version 2 remain reliable choices, especially for hike & fly.  
Weight Stay Up 1: 1.45 kg plus 340 g of Koroyd.  
Stay Up 2: 1.45 kg without protection, 1.95 kg with Koroyd 2.3 + Propack (back protector).



Photo: Jérôme Maupoint



Photo: Jérôme Maupoint

One might regret the absence of a nose fairing on these harnesses (1 and 2), as found on almost all recent pod harnesses. However, beyond the lack of storage space, one could question whether the improvement in aerodynamic flow around this fairing has any real impact on performance with the wings typically used for hike & fly.  
Top photo: Stay Up 2  
Bottom photo: Stay Up 1



Photo: Jérôme Maupoint





In the foreground, the lumbar adjustment on the Stay Up 2.  
In the background, the Stay Up 1.

Photo: Sascha Burkhardt



## THE OPINION OF AN EXPERIENCED PILOT



### Richard Janot

Tandem pilot, kite, windsurf, and ski instructor. Has been paragliding for 14 years in the Pyrenees.

Richard shared his opinion on the Stay Up 1 and Stay Up 2 with us. He finds the latter much better designed than the first version, whether in terms of design, comfort, or ergonomics.

He flew for 4 years with the Stay Up 1 and about 150 hours with the Stay Up 2. It is partly thanks to his feedback that we created this table.



The Stay Up family is well-suited for pilots who wish to fly locally as well as those practicing hike & fly or vol-biv. They combine lightness, comfort, compactness, and safety, with high-quality manufacturing in France and a responsive customer service team.

As a result, these harnesses have a relatively high resale value, justified if they are in good condition. The fabric usually becomes white again after a machine wash.

The minor flaws of the Stay Up 1 were corrected with version 2, but the first version remains very appealing for those on a tight budget. The absence of a back protector on the first version might be regrettable.

Buying a brand-new Stay Up 2 allows for a quick resale at a good price after one or two years.

Whether it's a used V1 or V2, or a brand-new V2: go with your budget, as all three choices are good.

## COMPARATIF ENTRE LES DEUX VERSIONS DE LA STAY-UP

### STAYUP 1 (2017)

- Comfortable
- Narrow and fragile footboard.
- Harness is more sensitive to canopy movements.
- Kicking the accelerator causes deformation in the lumbar area.
- Good stability, but less than version 2.
- Rear pocket can only be opened on one side.
- When a part broke, the whole harness often had to be sent back.
- Accelerator slots wear out quickly.
- Rescue pod is not very stable and sometimes flips over.
- Stiffening rods in the back are fragile and break easily.
- The Koroyd pocket damages easily on the front side because it's made of Lycra.
- The only two pockets accessible in flight are internal, very small, and not practical.
- The blue handle on the rescue pod sticks to the pod and hides behind the instruments.
- The handle wears out quickly.

### STAYUP 2 (2022)

- Very comfortable
- Wider footplate, making it easier to use the accelerator.
- More stable and better at filtering wing roll movements.
- Deeper and more enveloping seat, making it easier to reach the accelerator.
- Rear pocket fully openable but slightly less spacious than on the first model.
- Simplified repairs: most parts are attached with Velcro, zippers (like the Koroyd), or lark's head knots .
- Very robust accelerator slots.
- Rescue pod integrated into a recess, making it very stable and preventing flipping.
- Added instrument holder, providing an accessible pocket and better instrument visibility.
- Stiffening rods replaced by a back protector.
- The Koroyd protection pocket under the seat is made of Dyneema, more durable, and can be replaced with a bivouac pocket.
- Adjustments are hidden in Dyneema sleeves to prevent loosening.
- Rescue parachute easier to deploy as risers don't need to be tensioned.
- More accessible pockets: two external side pockets (one closable, the other larger but not closable), both equipped with loops.
- Added Camel-bag, although the hose can sometimes get blocked.
- Be careful not to set the pod too short, as this may cause a feeling of tipping backward.



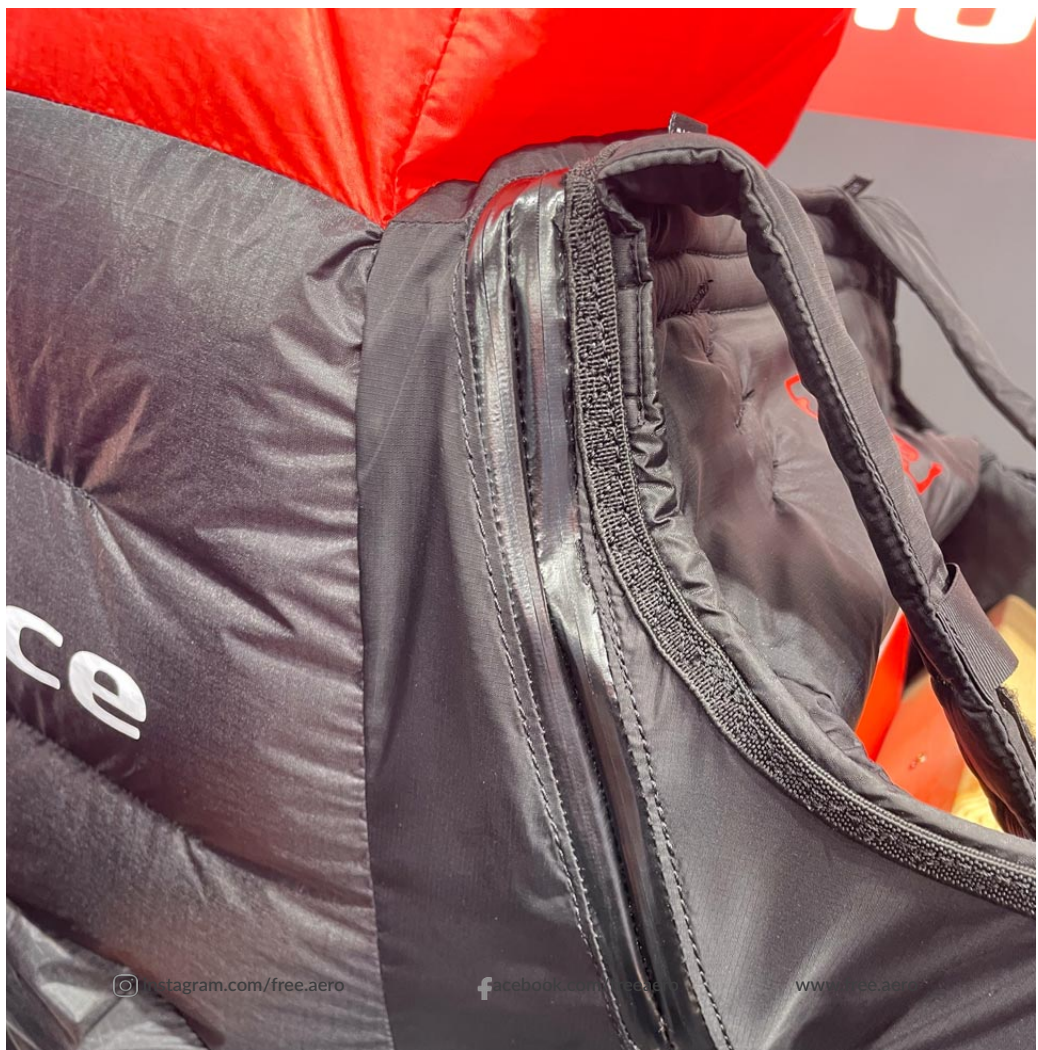


# GIN YETI RACE

The Gin Yeti Race is a very lightweight pod harness (between 1.6 and 1.9 kg), very aerodynamic and extremely compact, particularly thanks to the inflatable protection (visible in the top photo).

The harness is equipped with an emergency parachute container under the seat and a spacious cockpit. The Yeti Race fits into a 65 L backpack with a light wing, creating a well-suited pack for hike-and-fly or light distance flying.

Photos : Sascha Burkhardt





Some details that demonstrate the manufacturing quality of this harness, which will be available at the beginning of 2025.

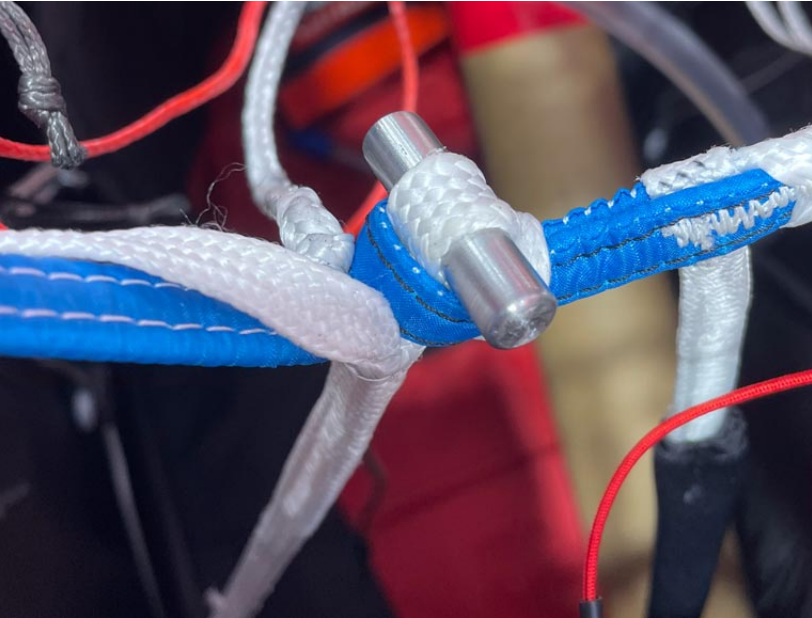


Photo: Sascha Burkhardt







# Next Generation rescue systems

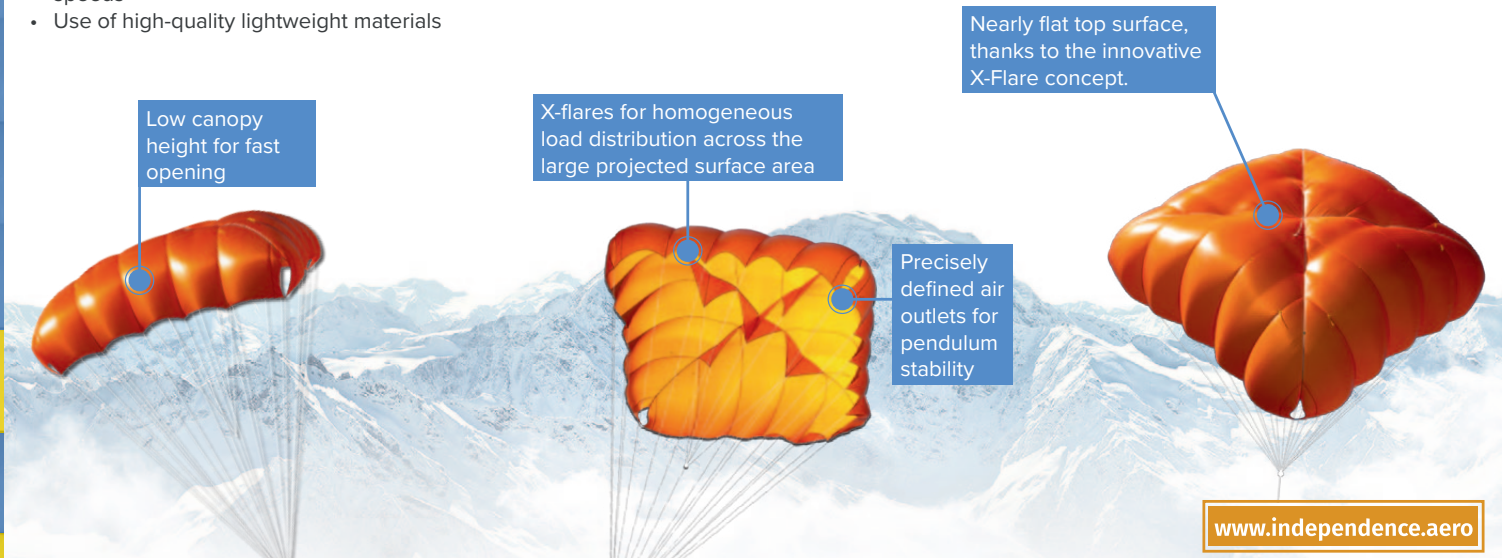


The world's leading rescue systems

### Quick facts about the NG series:

- Available in 3 sizes, in both the NG and the NG Light version. Certified according to EN12491
- New, innovative X-Flare concept for high efficiency
- Excellent sink rates, each just over 5 m/s, equivalent to a jump from a height of about 1.3 m
- Very reliable opening and extremely good pendulum stability
- Intelligent, lightweight construction for fast openings, even at low speeds
- Use of high-quality lightweight materials

	Max load (kg)	Surface (m <sup>2</sup> )	NG weight (kg)	NG light weight (kg)
NG 100 Series	100	25	1.45	1.18
NG 120 Seriea	120	29	1.6	1.3
NG 140 Seriea	140	33	1.85	1.49



Despite its low weight, the Gin Yeti Race has a nice zipped foot pocket.

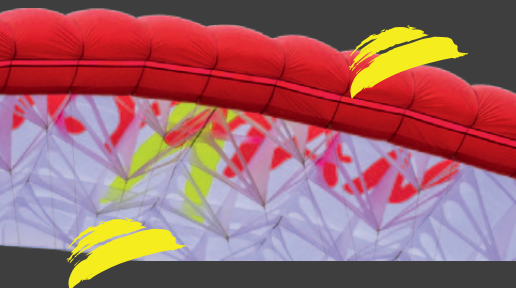


Photo: Stefan Ungamach





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hybrid single skin with 20% double surface



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[www.skyman.aero](http://www.skyman.aero)



Photo : Sascha Burkhardt

Gin unveils the G-Lite 2, a standard square rescue parachute in two sizes: 28/35 m<sup>2</sup> for 105/130 kg, weighing 1.65/2.0 kg.

The Yeti UL remains the most compact rescue parachute, demonstrated here by Yeray Gonzalez: 0.87/0.99/1.17 kg for 19/23/27 m<sup>2</sup>.



Photo : site d'Advance



The Fuse Mini tandem is the first tandem and the first low-aspect wing (4.9) equipped with a WLE leading edge. It features 49 cells. Its surface area is 32 or 35 m<sup>2</sup>, with a load capacity of 90-190 kg and 90-210 kg, respectively. The weight is 6.15 kg for the 32 m<sup>2</sup> version and 6.55 kg for the 35 m<sup>2</sup> version. The trimmers provide a 17 cm range. The fabric used, weighing 29 g/m<sup>2</sup>, was co-developed by GIN and Myungjin. Photo: Yeray Gonzalez



# GIN FUSE MINI ET FUSE 4

The Fuse 4 tandem, on the market since the beginning of the year, does not have a WLE leading edge, but it is beginning to prove its worth. Photo: Jérôme Maupoint







# SKYWALK RANGE X-ALPS AV

Photo: Skywalk

The "Athlete Version" of the Range X-Alps 3: the seat shell has been reduced, the inlet for the fairing has been placed on the right and lowered to avoid poor inflation, as sometimes occurred with improperly adjusted Range X-Alps 3. Other details:

- 3 sizes, M 1.37 kg (1.87 kg with storage compartment), all up to 100 kg load (XAlps 3: 120 kg)
- Rescue compartment 3L (Range X-Alps 3: 4.3L)
- Edelrid Aura screw carabiners
- EN certified only (no LTF)



Photo : Sascha Burkhardt





Photo : Sascha Burkhardt

Additional details of the AV version include the optional "bib" for storage.

### 2-LINER EN C "SAGE"

Skywalk introduces a new 2-Liner EN C glider, lighter and quieter than the Mint. It would be well-suited for EN B+ pilots moving up to this specific category. Some details:

- EN C two-liner
- Aspect ratio 1:6.4
- 68 cells
- 5 sizes, 55-115 kg
- 3.5 - 4.15 kg (3.8 kg in size 95)
- 





GROUNDHANDLE  
VEST: MARTINI



# CUSTOMIZED FLYWEAR FOR SOPHISTICATED PILOTS



NO MORE  
AIR DRAUGHT  
AT THE NECK  
WITH **HOODY  
OVER HELMET**

CREATE  
YOUR OWN  
FABRIC MIX



WINTER-  
VERSION



STREET-  
VERSION

XC<sup>2</sup>SLIP  
DORNHÖSCHEN  
EASY FOR URINAL CONDOMS



## NEARBIRDS ATACMS

This harness was one of the first submarine types and also the first to feature a magnetic opening, enabling very quick entry and exit.

Another distinctive feature is the internal pressure maintained by a small pump, activated during flight via a switch. According to the manufacturer, this provides a safety advantage by allowing faster re-inflation after a flight incident (which often turns submarine harnesses into a mass of fabric obstructing visibility). <https://harnesses-nearbirds.com/>



Photo: Nearbirds



Photos: Stefan Ungamach



ROCK THE OUTDOOR increases your safety, refines you handling or improves your comfort in flight



rolls of PLA yarn (biodegradable plastic)



thanks to designers skilled in 3D printing



Photos: Stefan Ungemach

## BOGDANFLY

Bogdanfly, a company originally from Ukraine, now manufactures in Portugal. For example, the Pizza Race, a pod harness that is also available in an ultra-light version (1.1 kg in size L).

<https://bogdanfly.ltd/>

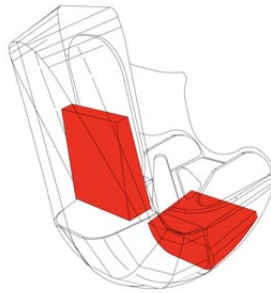
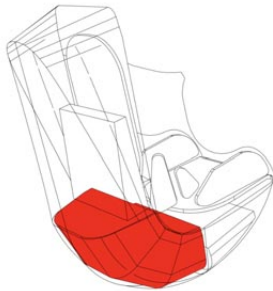




# WOODY VALLEY

The Naos from Woody Valley has been designed with maximum safety as a goal. Some details:

- 4 sizes available (S-M-L-XL)
- Foam or inflatable protectors
- Side protectors
- Back protector
- Lower back protector
- T-Lock system
- High comfort, thanks to a new webbing system
- Rear pocket with Camelbak holder
- 2 side pockets



Photos: Sascha Burkhardt





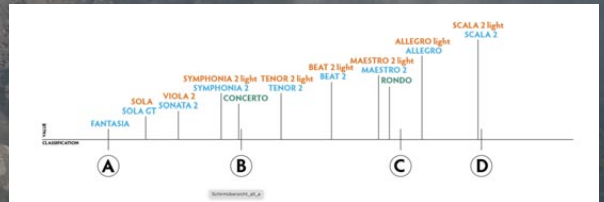
# PHI

Photo: Phi



The Sola UL is an ultra-light EN D wing weighing between 1.34 and 1.72 kg, and the Sola range (EN A) is complemented by very responsive smaller surfaces. The size specifications refer to the projected area: sizes 12 (still undergoing certification), 14, and 16 (certified). The range will be expanded with a size 18 and a size 20, as the demand for this type of wing seems high. If size 12 is certified, which seems likely, it would become the lightest certified double-surface wing (load and flight tests) on the market.





### BEAT 2 LIGHT

The Beat 2 light (mid EN B) represents a completely new design compared to the Beat 1: relocated line attachments, optimised diagonal reinforcements. The air intakes are different, as are the shape of the wing and the stabilisers, and rods have been added on the lower surface.

### TANDEM RONDO

The Rondo tandem comes in two versions: one version is equipped with conventional sheathed lines. The Rondo C features unsheathed Edelrid 8001 lines. The C version is about 100 g lighter and offers slightly better performance.

Brand new: Neoprene fabric cushions the pressure of the Nitinol rods and distributes it over a larger fabric surface, which is thus better protected.

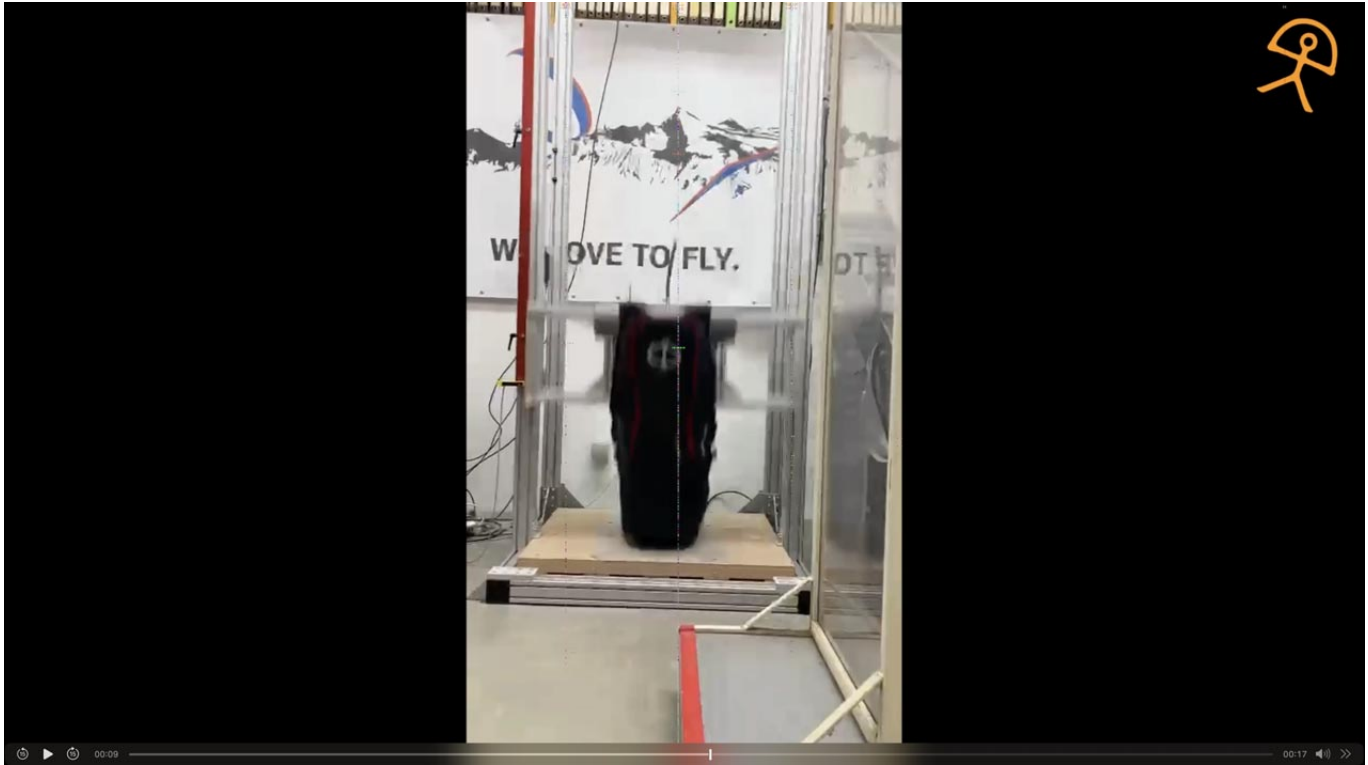
#### Rondo details:

- 3 sizes: 100-200 / 110-220 / 120-240 kg
- 35.38 m<sup>2</sup>, 38.92 m<sup>2</sup>, 41.37 m<sup>2</sup>
- 6.2 / 6.6 / 7.0 kg
- Aspect ratio 5.68



Photo: Pascal Purin





## PHI CABRIO

Contrary to the original plan, the Phi Cabrio harness will ultimately not be equipped with multiple layers of different protectors under the seat (including "Air Beans").

However, thanks to the interchangeable back section, several protector options will be available.

The Phi team found that pre-inflating the airbag with two Nitinol rings provides the best results. Additional protectors on the back and hips are planned to increase safety beyond the requirements of certification standards.

(The standard position of the dummy during testing does not account for lateral impacts.)

The above certification video also shows how well the impact is cushioned. This is also interesting given that more and more pilots rely on the protector during landing, including in tandem flights, where landing on the buttocks is a new trend to protect the passengers' ankles. We will address this topic in an issue at the beginning of 2025.







Photo : Sascha Burkhardt



The Cabrio in its final version (right). Above, the additional protectors.

Interesting: a new string harness "PingPong" with protector (here still without).







Photo Zoom

# ZOOM X2C LT

## X2C LT

Some data on this lightweight version of the EN C two-liner:

- 5 sizes from 3.45 – 4.25 kg (3.85 kg in size 95)
- 70 cells
- Aspect ratio 1:6.53
- Big Ear folding similar to Scala 2 via B3

The designer of Zoom, Alex Höllwarth, since leaving Skywalk and founding his own brand at Papesh GmbH, has developed an EN A wing and an EN C wing (with a lightweight version).

The XLB model (=X Low B) is almost ready, the XA LT model has been released (6 sizes from 55 to 120 kg), starting at 3 kg with light risers, Skytex 27 double coated.

Photo Sascha Burkhardt



D		X2D
C		X2C LT
		X2C
B		XB
A		XA LT
A		XA



# ZOOM XA LT

MINI-RIBS



**free.aero**  
MAGAZINE

DETAILED INFO

**MINI-RIBS**  
The XA-LT features an impressively complex interior for its class. Here, the mini-ribs at the trailing edge are very visible. They help maintain a cleaner shape at the rear edge. Although the flow here is slightly less critical than at the leading edge, the benefits are evident in CFD simulations during accelerated flight and in gliders with fewer cells.

The interesting design that brings the seam back to a rib allows for an internal seam. To enable an internal seam, the lower sail at this point must consist of two overlapping panels.

However, this is only possible if the mini-rib extends to a rib. Hannes Papesh from Phi provided us with the sketch below.

MINI-RIB

LOWER SAIL WITH INTERNAL SEAM

MINI-RIB

LOWER SAIL WITH EXTERNAL SEAM

Photo Zoom





## WINDTECH DUNE

Gabriel Canada from Windtech has also entered the Parakite scene (see our article, link on the next page).

This comes as no surprise - he is one of the oldest paraglider manufacturers and also one of the first to release a traction kite for water several decades ago.

This brand also produces reflex-profile paramotor wings, so all the ingredients are there to build a parakite.

We tested a Dune 20 and, more recently, a Dune 16 - we will dive deeper into our tests with the latter and report back in an upcoming issue.

Here is a first batch of observations: the choice to put winglets on the stabilisers, a technique primarily aimed at improving roll stability, seems surprising, as on this type of wing, one wouldn't want to increase stability too much - these wings are made for "playing," particularly in soaring.

Photo Sascha Burkhardt







Photo Sascha Burkhardt Pilote Arthur Burkhardt



The risers on this wing are typical, with a significant variation in angle of attack throughout the first part of the travel.

Adjustable balls can limit the travel, but this seems unnecessary.

Second observation: given the limited roll, the 20 m<sup>2</sup> surface seems poorly suited for soaring play; despite the reflex profile, its speed is relatively limited, and its maneuverability is too low for this type of wing. It might be a wing for beginners in parakite, but the pilot may quickly get bored.

Third observation: as soon as you switch to the smaller size, the 16 m<sup>2</sup>, things change quite radically. It might not have the maneuverability of a Moustache or a Mullet (we'll need to make direct comparisons soon), but the maneuverability, speed, dives, and energy recovery are quite satisfying – you can really have fun. At the same time, the reflex profile stability is reassuring. It may need to be pushed even further, but at first glance, it could be a good wing for entering the world of parakite. To be continued...

**The Windtech Dune 16:**  
You can clearly see the change in the angle of attack by observing the height of the links.







Photo: Sascha Burkhardt

### The Dune 16 in detail.

On the right: find all the details about kiterisers in the latest issue. You'll also find detailed information about the winglets...



### KITE RISERS - CONTROLLING THE ANGLE OF ATTACK

For over two years, Kite Risers technology—risers that allow for direct adjustment of the wing's trim, similar to kitesurfing sails—has been disrupting the soaring wing market. This revolutionary change was initiated by Flare with the launch of the Moustache, the first production wing equipped with this type of riser system.

Flare is part of the same group as kitesurf manufacturer Flysurfer and paragliding brand Skywalk. In fact, it was the synergy between these sports that led to the development of the first Moustache model.

Armin Harich, an accomplished paraglider pilot and head of Flysurfer, applied the typical kite control technique—where the trim is adjusted evenly—to paragliders like the Moustache. This wing allows for a significant variation in the angle of attack, and with its pronounced reflex profile (similar to paramotors), it offers great stability against collapses. These profiles are also known as "auto-stable." The more the angle of attack decreases (shooting forward), the more the profile resists and tries to stabilise itself.

The line plan of a Moustache wing from Flare: in the upper part of the control range, the pilot only adjusts the angle of attack. The trailing edge brakes come into play only at the very bottom of the control range.



# NIVIUK HIKO, HIKO P

**Very interesting:** The Hiko is positioned between the Hook 6 and the Ikuma 3. At first glance, this might seem like a surprising choice, given that the Hook 6 is already very high-performing for its category. The Hiko is thus a very accessible yet high-performing EN B wing, ideal for a successful entry into cross-country flying.

It incorporates some elements from the Ikuma 3, such as the risers (see the next page)

Standard sizes: 6 sizes available, covering a weight range of 50 to 128 kg.

Wing weight: 4.02 kg to 5.43 kg.

P version: 5 sizes available, covering a weight range of 50 to 115 kg.

Wing weight: 2.99 kg to 3.67 kg.

Example: The Hiko P size 24 weighs 3.32 kg, compared to 4.59 kg for the standard Hiko 24.



Photo: Tim Rochas/Niviuk



Photo: Tim Rochas/Niviuk



An ideal setup for hike & fly with the option to "venture into cross-country": a Hiko P paired with an Arrow P. We tested this harness in detail in the last issue, which you can revisit below. We also discuss the Orikami protection (see photo on the right).

**Drawing:** The C2B system, inherited from the Ikuma 3, enables very effective rear-riser control.



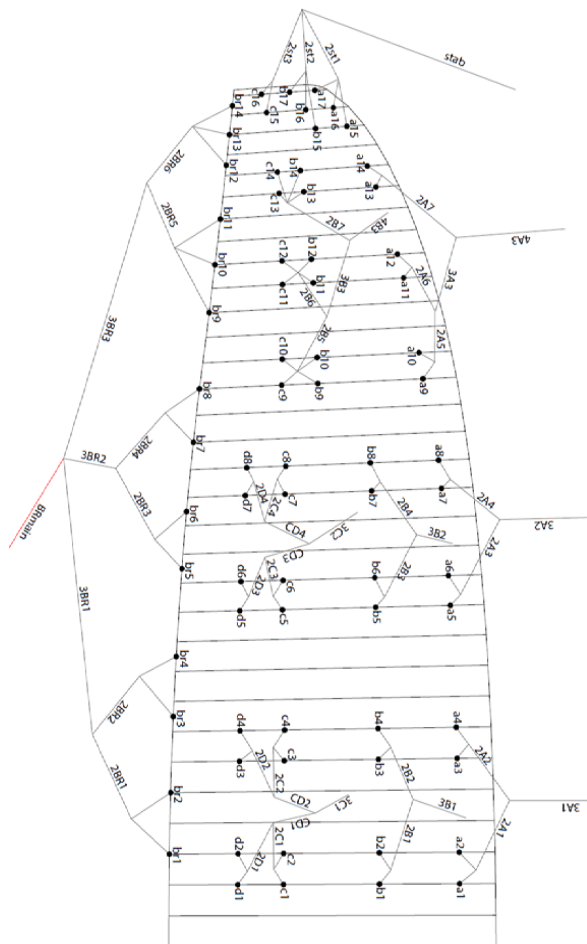


# NIVIUK ARTIK 7P

This wing, with its internal structure derived from the Klimber P, should offer impressive lightness (for example, among the six available sizes: 3.07 kg for size 20, 3.52 kg for size 24) for a wing designed for cross-country flights from wild and complicated take-offs. It also promises remarkable versatility and safety. This EN C category wing, with a span of 6.2, would offer astonishing passive safety. Its modern suspension cone is based on three lines in the middle and two lines on the outside, commonly called a 2/3 line Hybrid configuration. We will discuss this further in the next issue...



Photos: Tim Rochas/Niviuk







## NIVIUK TAKOO 6

We had already introduced it in the last issue: it is surprising that Niviuk has released a new version 6 of the Takoo tandem while version 5 is still enjoying significant success, especially among professionals...





Photo: s Markus Gründhammer/Skyman



## SKYMAN CROSS COUNTRY 3

Five years after the legendary Version 2, Markus Gründhammer's Skyman brand is launching the Cross Country 3. This model retains the same DNA: an EN B wing that is very safe, yet also highly maneuverable and performs well. Markus has worked on the profile and ballooning, slightly increased the aspect ratio, and claims to have achieved a wing that glides better against the wind and is even more maneuverable. Typical for Skyman: the systematic use of lightweight materials, not only to meet the requirements of hike & fly, but also for the additional safety provided by light wings. Due to their low inertia, they are responsive, but tend to shoot less far after an incident.



Photo: Markus Gründhammer/Skyman





Photo: Markus Gründhammer/Skyman

Also mandatory: "Skyman" Markus Gründhammer himself thoroughly tests the wings and puts them through their paces...



Photo: Markus Gründhammer/Skyman





Photo: Markus Gründhammer/Skyman

The Skyman Cross Country 3 will be available in four sizes, from 23 to 29, with a weight range from 60 kg to 120 kg. The aspect ratio is 5.65.



Photo: Markus Gründhammer/Skyman



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