

# HIKO P

User *manual*



**IVIUK** BEYOND  
THE GLIDE



# Engolve *with lightness*

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## WELCOME

We welcome you to our team and thank you for the trust you have placed in us by choosing a Niviuk paraglider. We would like you to share the enthusiasm with which we have created this paraglider and the importance and care with which we have developed the design and manufacture of this new model. All this, in order to be able to offer you the maximum pleasure in every flight under a Niviuk paraglider.

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. In our range, it lies between the Hook P and the Ikuma P.

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 & fly. It offers great comfort and excellent performance to start new adventures and improve your skills.

From 2.99 kg.

We are confident you will enjoy flying this glider and will soon discover the meaning of our motto:

"The importance of small details to make great things happen".

This is the user manual and we recommend you read it carefully.

CATEGORIES



PROGRESSION



CROSS-COUNTRY



HIKE & FLY



## USER MANUAL

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This manual provides you with the necessary information on the main characteristics of your new paraglider.

Whilst it provides information on the wing, it cannot be viewed as an instructional handbook and does not offer the training required to fly this type of paraglider.

Training can only be undertaken at a certified paragliding school and each country has its own system of licensing.

Only the aeronautical authorities of respective countries can determine pilot competence. The information in this manual is provided in order to warn you against adverse flying situations and potential dangers.

Equally, we would like to remind you that it is important to carefully read all the contents of your new HIKO P manual.

Misuse of this equipment could lead to severe injuries or death. The manufacturers and dealers cannot be held responsible for misuse of the paraglider. It is the responsibility of the pilot to ensure the equipment is used correctly.

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# 1. CHARACTERISTICS

## 1.1 WHO IS IT DESIGNED FOR?

*Progression:* continue your learning phase to polish your skills and gain confidence with every flight. The HIKO P is perfect for those who have just finished their training.

*Cross-country:* take your first steps into long distance flying with confidence, thanks to this intermediate EN B glider that will allow you to experience performance for the first time, with safety and control.

*Hike & fly:* this lightweight model is perfect for hike & fly adventures. Its compact and lightweight design makes it easy to transport, allowing you to enjoy exciting flights in remote and difficult to reach places.

## 1.2 CERTIFICATION

The HIKO P has been submitted for the European EN and LTF certification.

All certification tests were performed at the Swiss testing house Air Turquoise.

All sizes passed the load, shock and flight tests.

The load test proved that the wing can withstand the stipulated 8G.

The shock test proved that the wing can resist 1000 daN of force.

The flight test resulted in the following certification of the HIKO P for all sizes (20, 22, 24, 24, 26 and 28):

EN B  
LTF B

We recommend that only pilots who are familiar with gliders of this certification or above fly this paraglider.

Only the aeronautical authorities of respective countries can determine pilot competence.

We recommend pilots read the flight test report carefully, especially the comments of the test pilot. The report contains all the necessary information on how the paraglider reacts during each of the tested manoeuvres.

It is important to note that different size wings will react differently during manoeuvres. Even within the same size, at maximum or minimum load, the behaviour and reactions of the wing may vary.

- Description of EN B class wing characteristics:  
Paragliders with a high degree of passive safety and very forgiving flight characteristics. Gliders with high collapse resistance outside normal flight.
- Description of the skills required by the pilot to fly an EN B wing:  
Designed for all pilots, including pilots at all levels of training and qualification.

For further information on the flight test and the corresponding certification, please see the final pages of this manual or see or visit the [Downloads section](#).

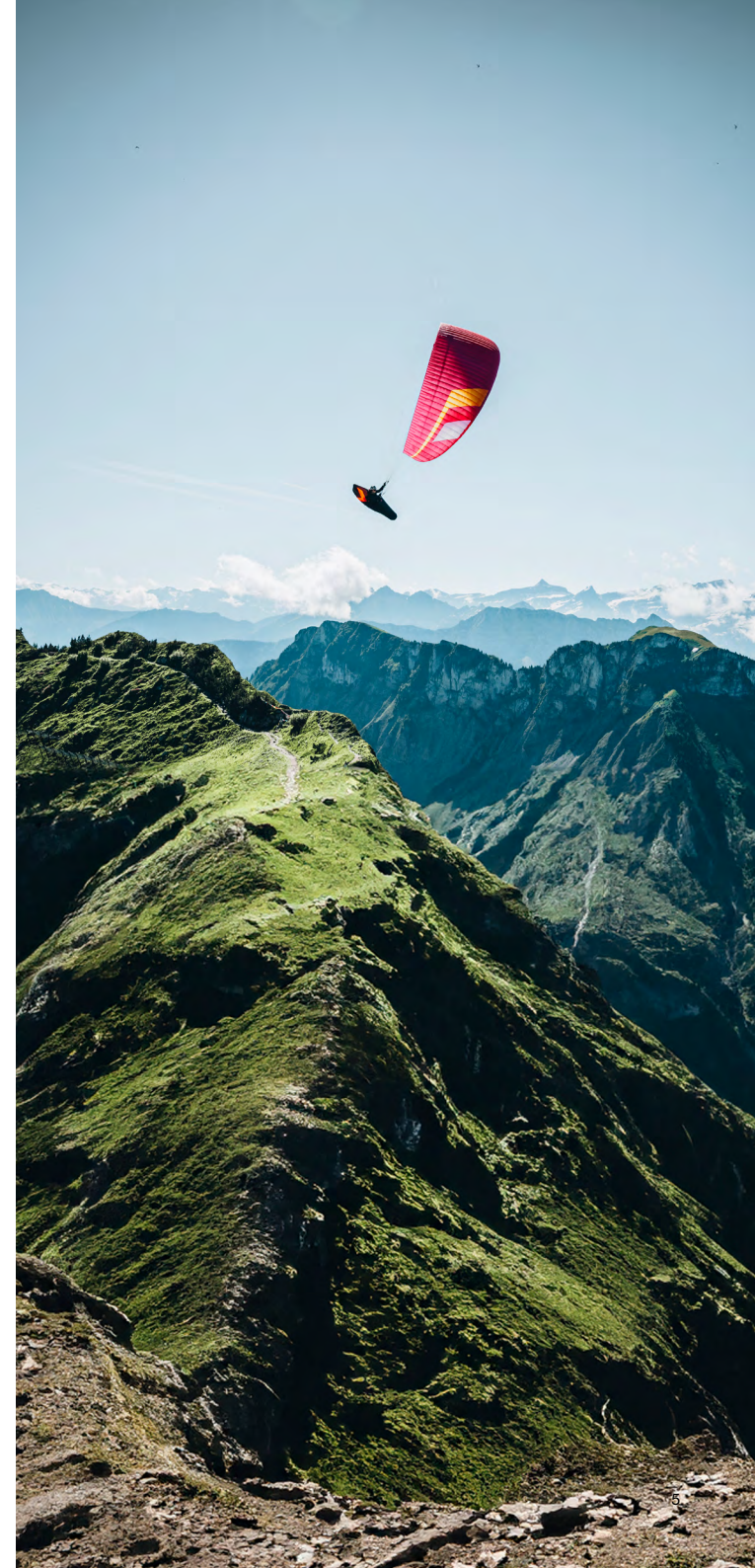
## 1.3 IN-FLIGHT BEHAVIOUR

Niviuk developed this wing by adopting very specific goals: to offer the best possible features, excellent handling, and to make flying easier for the pilot.

Our other aims were to achieve optimal performance while maintaining the highest level of safety. To ensure that the wing transmits the maximum feedback in an understandable and comfortable way so that the pilot can focus on piloting and enjoying the flight. And, with active piloting, take advantage of all favourable conditions.

The HIKO P is an accessible and easy to handle wing for pilots in the progression stage, offering superior performance in its category. It also meets the needs of more experienced XC pilots. The HIKO P offers a middle ground between training gliders (Koyot, Hook) and high performance EN B gliders such as the Ikuma P.

The HIKO P is very solid in all facets of flight. The glide is consistent, even when fully accelerated. The profile remains stable. Enjoy great comfort and passive safety in any situation, with special emphasis on pitch stability thanks to the profile shape. You can explore the sky with confidence.



The HIKO P is manoeuvrable with the brakes and responds predictably to the pilot's inputs, making it very pleasant to fly and efficient in turns and thermals. Its handling is very intuitive, with nuanced and clear feedback about state of the air mass, quick to understand and very understandable.

It is ultra-light, light in flight and easy to fly, with exceptional behaviour in turbulence and a surprising range of speeds, resulting in an incredible glide.

## 1.4 TECHNOLOGIES, CONSTRUCTION, MATERIALS

The HIKO P benefits from all the construction and assembly techniques used in our factory. It has all the current technology and accessories available to improve pilot comfort whilst increasing safety and performance.

In the design of all Niviuk products the team aims to ensure development and continuous improvement. The technologies developed in recent years have allowed us to develop greater, better wings. It is in this context that we would like to introduce the technologies included in this new model:

**RAM Air Intake** – the system is characterised by the arrangement of the air inlets, to ensure optimal maintenance of internal pressure across the whole range of angles of attack.

The result? Having greater internal pressure means better tolerance of turbulence, greater consistency of the profile shape across the speed range; excellent handling at low speed is achieved by allowing the pilot to extend the braking limit, there is a lower risk of collapse and consequently, greater control and safety.

The application of RAM technology ensures that the internal pressure of the wing is optimal and that the profile maintains its ideal shape in all flight conditions.

**TNT Titanium Technology** – a revolutionary technique using titanium. Using Nitinol in the internal construction provides a more uniform profile and reduces the weight to gain efficiency in flight. Nitinol provides the highest level of protection against deformation, heat or breaks. Nitinol now features in all our wings.

The distribution of the Nitinol rods along the leading edge and top surface has been simplified. This ensures the lightness of the wing, while maintaining its durability and compactness when folded.

**SLE Structured Leading Edge** – SLE is the application of Nitinol rods in the leading edge. This technology provides increased strength and stability by maintaining the shape of the aerofoil throughout all phases of flight. This increases performance, efficiency and stability, absorbs turbulence better and makes the wing much more durable over time.

**3DP Pattern Cut Optimization** – this involves placing the fabric of each panel in one direction only, taking as a reference its location on the leading edge. It has been proved that, if the cloth pattern is correctly aligned to the direction of the load axes, the material deforms much less flight after flight, so the leading edge keeps its shape better and is much more durable over time. Over the years, the design of our paragliding and paramotoring wings has evolved a lot, with a positive and specific advancement of the leading edge.

**3DL 3D Leading Edge** – this means adjusting the material of the leading edge to avoid ballooning and the creases that form in this curved area of the wing. Specifically, the leading edge is divided into “sub-panels” sewn into each of the cells at the front of the glider. As a result, the tension of the leading edge cloth is perfectly uniform, increasing the performance and durability of the glider.

**DRS Drag Reduction Structure** – the DRS aims to reduce the adverse pressure gradient and drag by optimising the aerodynamic shape of the wing. Its application makes the airflow direction much more progressive at the trailing edge. This increases performance without reducing safety and control of the wing.

The mini-ribs are integrated directly into the trailing edge, with special slots to incorporate them into the wing seam. This results in a cleaner profile, eliminating external seams and protecting them from wear and tear when rubbing against the ground.

**RSD Radical Sliced Diagonal** – this involves a redesign of the internal structure of the wing. It incorporates independent and efficiently oriented diagonals, i.e. following the direction of the cloth. This improves strength, reduces the overall weight of the wing and avoids deformations.

Nowadays, in order to improve stress distribution and reduce the number of attachment points and lines, most wings already have these diagonals, connected from the attachment points to the adjacent profiles.

**C2B System** – manoeuvrability has been improved with the new C2B system that is integrated into the risers, and which allows a three-liner wing to be flown as if it were a two-liner. Steering with the C-risers automatically includes the B-risers.

Therefore, the angle of attack can be fully controlled over the entire speed range without deforming the aerofoil. As a result, the wing has a much more efficient, controlled and precise handling.

**IKS Interlock System** – the IKS is a connection system that allows the risers to be connected to different parts of the wing, such as the lines or the harness. The IKS technology is a step towards greater lightness in wings and equipment, without sacrificing effectiveness and providing the same degree of safety and strength.

The HIKO P comes with IKS 1000 as standard and is designed to connect risers and lines. It has a breaking load of 1055 kg, which greatly exceeds that of the classic 3 mm (550 kg) maillon, but with a much less weight. This system allows a reduction in the total weight of the equipment, while maintaining safety and durability.

The use of these technologies is a big technological leap forward in building wings and a big improvement in flight comfort.

For the construction process of the HIKO we use the same criteria, quality controls and manufacturing processes as in the rest of our range. From Olivier Nef's computer to fabric cutting, the operation does not allow for even a millimetre of error. The cutting of each wing component is performed by a rigorous, extremely meticulous, automated computer laser-cutting robotic arm. This program also paints the guideline markers and numbers on each individual fabric piece, thus avoiding errors during this delicate process.

The jigsaw puzzle assembly is made easier using this method and optimises the operation while making the quality control more efficient. All Niviuk gliders go through an extremely thorough and detailed final inspection. The canopy is cut and assembled under strict quality control conditions facilitated by the automation of this process.

Every wing is individually checked with a final inspection.

The HIKO P has been designed with the latest generation of ultra-lightweight materials to achieve the perfect balance between weight and durability. IKS 1000 has also been used as the connection system. As a result, the glider weighs 2.99 kg (in size 20).

Unsheathed Dyneema and Aramid are used for the lines.

The line diameter has been calculated depending on the workload and aims to achieve the required best performance with the least drag.

The lines are semi-automatically cut to length and all the sewing is completed under the supervision of our specialists.



Every line is checked and measured once the final assembly is concluded.

Each glider is packed following specific maintenance instructions as recommended by the fabric manufacturer.

Niviuk gliders are made of premium materials that meet the requirements of performance, durability and certification that the current market demands.

Information about the various materials used to manufacture the wing can be viewed in the final pages of this manual.

## 1.5 ELEMENTS, COMPONENTS

The HIKO P is delivered with a series of accessories that will greatly assist you in the maintenance of your paraglider:

- The Inner Bag, that allows you to keep your glider protected during storage and transport.
- An adjustable compression strap, which allows you to compress the Inner Bag as much as possible to reduce packing.
- A riser bag, to protect and pack them neatly.
- A repair kit with self-adhesive ripstop fabric.
- The Kargo 90 backpack: this is not included in the pack, but it is recommended. It allows you to carry all the equipment comfortably and without space problems. It has been optimally and ergonomically designed for X-Alps athletes, for maximum comfort over long distances. It has enough space for the HIKO P and the Arrow P / Arrow P Race.
- The Expe 80 backpack: this is not included in the pack, but is also recommended if you need more space for your equipment. It is the largest lightweight mountain backpack in our range. It has been specially designed for hike & fly with our larger P Series gliders. It's adjustable, comfortable and ergonomic: very practical for vol bivs. Its volume capacity is variable, with +15 litres thanks to the roll-up top, which allows you to adapt the space according to the content. It is perfect for pilots and adventurers looking for a combination of comfort, functionality and capacity.

## 2. UNPACKING AND ASSEMBLY

### 2.1 CHOOSING THE RIGHT LOCATION

We recommend unpacking and assembling the wing on a training hill or a flat clear area without too much wind and free of obstacles. It will help you to carry out all the recommended steps required to check and inflate the HIKO P.

We recommend the whole installation procedure is supervised by a qualified professional instructor or official dealer. Only they can address any doubts in a safe and professional way.

### 2.2 PROCEDURE

Take the paraglider out of the rucksack, open and unfold it on the ground with the lines positioned on the undersurface, oriented in the direction of inflation. Check the condition of the fabric and the lines for defects. Check the maillons are closed and connect the lines to the risers. Identify, and if necessary, untangle, the A, B and C-lines, the brake lines and corresponding risers. Make sure that there are no knots.


### 2.3 CONNECTING THE HARNESS

The HIKO P risers are colour-coded.

- Right: green
- Left: red

This colour-coding makes it easier to connect the wing to the correct side and helps prevent pre-flight errors.

Correctly connect the risers to the attachment points so that the risers and lines are correctly ordered and free of twists. Check that the IKS and carabiners are properly fastened and securely locked.

 **WARNING!** The HIKO P has different riser lengths depending on the size. The differentials of the risers on sizes 20 and 22 are different from the others. In the rest of the sizes (24, 26 and 28) the risers are the same and interchangeable, which is NOT the case in size 20 and 22.

### 2.4 HARNESS TYPE

The HIKO P can be flown with all current harness types. If the harness features an adjustable chest strap, we recommend setting this to the

distance specified in the certification report – this will vary depending on size. See the certification certificate.

Distance between the risers:

- Size 20 – 40/44 cm
- Size 22 – 40/44 cm
- Size 24 – 40/44 cm
- Size 26 – 44/48 cm
- Size 28 – 44/48 cm

Care should be taken with the chest strap setting, as the distance of the chest strap setting will affect the handling of the glider. If the chest strap is too wide, it allows greater feedback but this carries the risk of affecting the stability of the wing. If the chest strap is set too tightly, the wing feels more solid, but there is a loss of feedback and a risk of twisting in the case of a violent asymmetric collapse.

### 2.5 SPEED-BAR INSTALLATION


The speed-bar is a means of temporary acceleration by changing the flow over the profile. The speed system comes pre-installed on the risers and is not modifiable as it conforms to the measurements and limits stipulated in its certification.

The HIKO P includes a speed system with maximum travel depending on its size (see Full speed-bar). The speed system is engaged when the pilot pushes the speed-bar (not included as standard with this glider model) with their feet (see 2.5.1 Speed system assembly).

The speed system uses an action/reaction system. Released, the speed-bar is set to neutral. When the bar is pushed using the feet, the wing accelerates. The speed can be regulated by varying the pressure on the bar. Once the pressure on the bar is released, the speed system returns to the neutral setting.

The speed system is efficient, sensitive and precise. The pilot can use the system whenever they want during the flight. In the neutral position the glider will fly at the standard speed and glide. Using full speed-bar, the wing will fly at maximum speed, but the glide will be adversely affected.

- Released speed-bar: the A, B and C-risers are aligned.
- Full speed-bar: the difference between the A and C-risers is 145 mm (Size 20 and 22) and 180 mm for all other sizes (24, 26, 28 and 30).

 **PLEASE NOTE:** the use of the speed system results in changes to the speed and reactions of the wing. For more information, please see the certification report.

## 2.5.1 SPEED SYSTEM ASSEMBLY

The speed-bar consists of the bar that the pilot pushes with their feet, as well as the two cords that connect it to the speed system components on the risers. Once you have chosen the type of speed-bar you prefer, you must install it. Some considerations:

- You should use the type of speed-bar you consider appropriate, depending on the type of harness, personal preferences, etc.
- The speed-bar is detachable to facilitate its connection and/or disconnection to the risers as well as subsequent adjustment.
- To connect it to the harness, please follow the instructions of the harness manufacturer. The majority of harnesses have a speed system pre-installed.
- The standard connection is made by means of the Brummel hook where the two grooves face each other to interlock, securing their use and connection/disconnection. However, any safe connection system can be used.

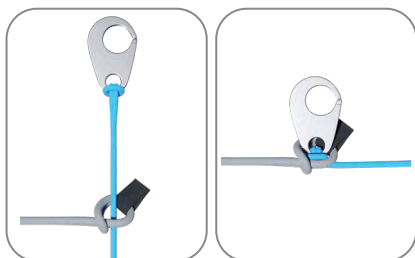


Diagram 1.  
Speed-bar  
connection by  
means of the  
Brummel hook.

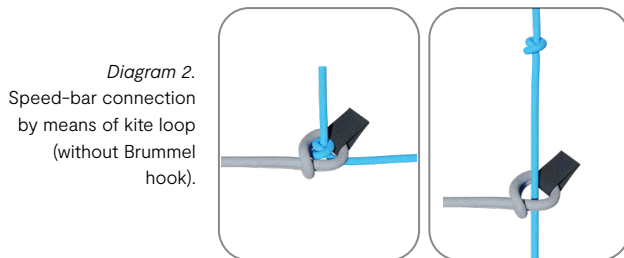


Diagram 2.  
Speed-bar connection  
by means of kite loop  
(without Brummel  
hook).

1. A knot is tied in the speed-bar cord and passed through the connector of the webbing cord.
2. Tension is applied to both sides of the system until the knot tightens against the riser connector.

It should be noted that the connection procedure is exactly the same for the Brummel hooks as for the loops, and would in turn be applicable to other systems or connecting elements.

## 2.5.2 CHANGING THE RISER CORDS

In spite of the speed system having pulleys with bearings to reduce friction to a minimum, the frequency with which the speed-bar is used causes the cord to wear and you may need to replace them.

In all Niviuk gliders the speed system cords on the risers are completely removable and easily replaceable. You can use the Brummel hooks, not use them, remove them, use another type of connector, etc. It is even possible to fix the speed-bar cords directly to the speed system on the risers. This last option makes the connection / disconnection more laborious, but means the cord has maximum travel without obstructions or restrictions which is very useful for some models of harnesses.

## 2.6 INSPECTION AND WING INFLATION ON THE GROUND

After your gear has been thoroughly checked and the weather conditions deemed favourable for flying, inflate your HIKO P as many times as necessary to familiarise yourself with its behaviour. Inflating the HIKO P is easy and should not require a great deal of physical effort. Inflate the wing with a little pressure from the body using the harness. This may be assisted by using the A-lines. Do not pull on them; just accompany the natural rising movement of the wing. Once the wing is inflated to the overhead position, appropriate control with the brakes will be sufficient to hold it there.

## 2.7 ADJUSTING THE BRAKES

The length of the main brake lines are adjusted at the factory and conform to the length stipulated during certification. However, they can be changed to suit your flying style. It is advisable to fly with the original setting for a period of time to get used to the actual behaviour of the HIKO P. In case it is necessary to modify the brake length, loosen the knot, slide the line through the brake handle to the desired point and re-tighten the knot firmly. Only qualified personnel should carry out this adjustment. You must ensure that the modification does not affect the trailing edge and slow the glider down without pilot input. Both brake lines should be symmetrical and the same length. We recommend using a clove hitch or bowline knot.

When changing the brake length, it is necessary to check that they do not engage when the speed-bar is used. When we accelerate, the glider rotates over the C-riser and the trailing edge elevates. It is important to check that the brake is adjusted to take into consideration this extra distance during acceleration. With this profile deformation there is a risk of generating turbulence and causing a frontal or asymmetric collapse.





## 3. THE FIRST FLIGHT

### 3.1 CHOOSING THE RIGHT LOCATION

For the first flight we recommend going to your usual flying area and that a qualified instructor is present and supervising the entire procedure.

### 3.2 PREPARATION

Repeat the procedures detailed in section 2 UNPACKING AND ASSEMBLY to prepare your equipment.

### 3.3 FLIGHT PLAN

Planning a flight before taking off to avoid possible problems later is always a good idea.

### 3.4 PRE-FLIGHT CHECK

Once ready, but before taking off, conduct another equipment inspection. Conduct a thorough visual check of your gear with the wing fully open, the lines untangled and properly laid out on the ground to ensure that all is in working order. Be certain the weather conditions are suited to your flying skill level.

### 3.5 WING INFLATION, CONTROL AND TAKEOFF

For launch, a smooth and progressive inflation is recommended. The HIKO P is easy to inflate and does not require a great deal of physical effort. It has no tendency to overshoot, which allows a smooth inflation phase, giving way to a control phase with enough time to make the decision to accelerate and take off when the pilot wishes to do so.

If the wind permits, we recommend a reverse launch, as this allows a better visual inspection of the wing during inflation. In "strong" winds, the HIKO P is especially easy to control using this launch technique. Winds of 25 to 30 km/h are considered strong for paragliding.

Correctly setting up the wing on the ground before takeoff is especially important. Choose an appropriate location facing the wind. Position the paraglider in a crescent configuration to facilitate inflation. A clean wing layout will ensure a trouble-free take off.

### 3.6 LANDING

The HIKO P lands excellently, it converts the wing speed into lift at your demand, allowing an enormous margin of error. Wrapping the brake lines around your hand to get greater braking efficiency is not necessary.

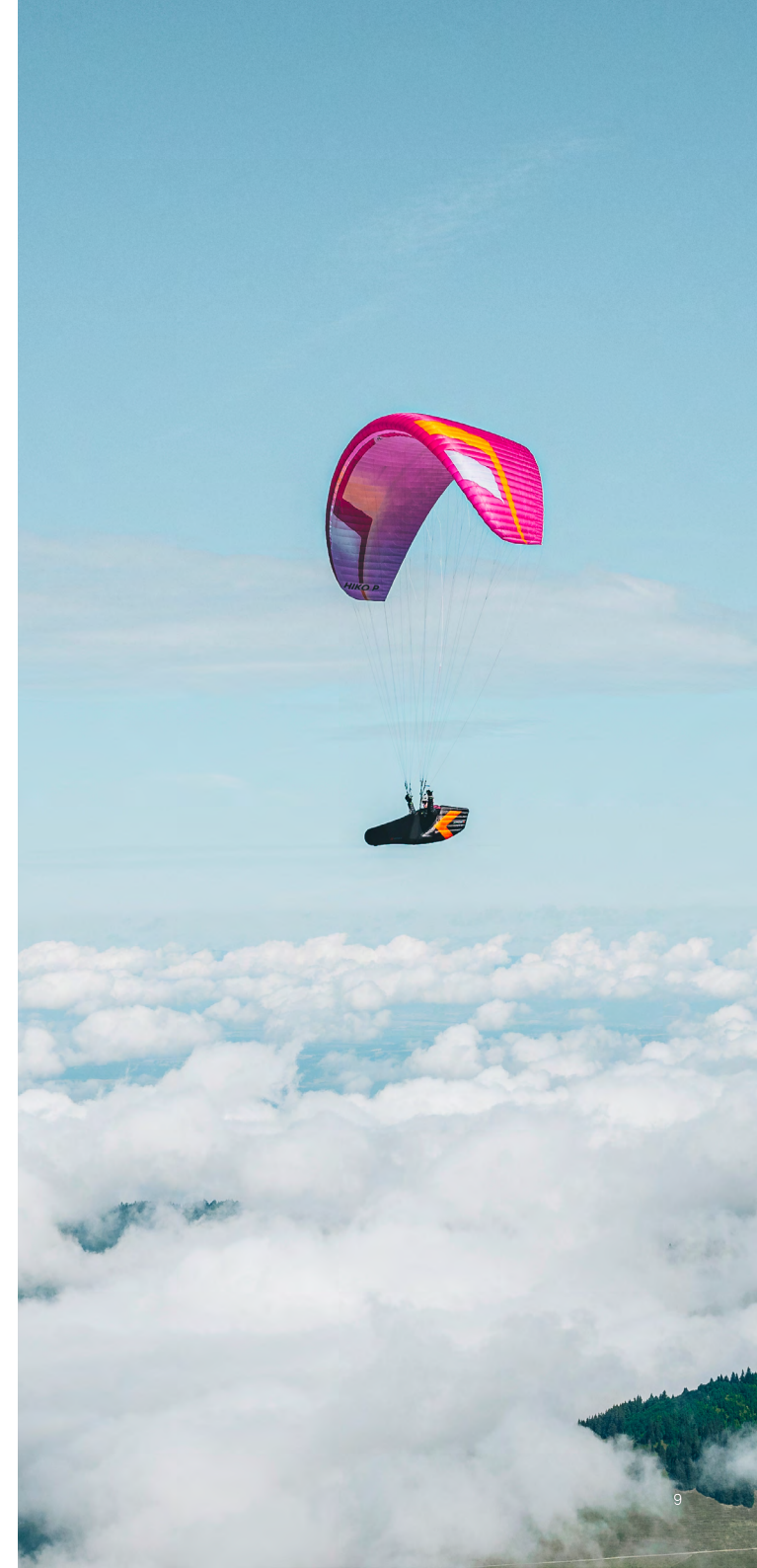
### 3.7 PACKING

The HIKO P has a complex leading edge, manufactured using a variety of different materials and it must be packed carefully. A correct folding method is very important to extend the useful life of your paraglider.

It should be concertina-packed, with the leading edge reinforcements flat and the flexible rods stacked one on top of the other. This method will keep the profile in its original shape and protect the integrity of the wing over time. Make sure the reinforcements are not bent or folded. It should not be folded too tightly to avoid damage to the cloth and/or lines.

Niviuk have designed the NKare Bag. This will assist you in quickly folding the paraglider, keeping the profile and integrity of the internal structures in perfect condition.

The NKare Bag will guide you through the folding process by allowing you to place the rods one on top of the other on the longitudinal axis to "concertina" pack the glider. Then you can easily make the sectional folds that each model requires. This folding system guarantees that both the cloth and the reinforcements of the internal structure of your HIKO P remain in perfect condition.



## 4. IN FLIGHT

We recommend that you read the certification test report. The report contains all the necessary information on the HIKO P reacts during each of the tested manoeuvres.

It is important to point out that the appropriate response to each adverse manoeuvre can vary from size to size; even within the same size at maximum or minimum load the behaviour and reactions of the wing may vary. Having the knowledge that the testing house provides through the test report is fundamental to learning how to deal with possible situations.

To become familiar with the manoeuvres described below, we recommend practising within the auspices of a licensed training outfit.

### 4.1 FLYING IN TURBULENCE

The HIKO P has an excellent profile to deal with incidents; it is very stable in all conditions and has a high degree of passive safety, even in turbulent conditions.

All paragliders must be piloted for the prevailing conditions and the pilot is the ultimate safety factor.

We recommend active flying in turbulent conditions, always taking measures to maintain control of the wing, preventing it from collapsing and restoring the speed required by the wing after each correction.

Do not correct the glider (braking) for too long in case this provokes a stall. If you have to take corrective action, make the input then re-establish the correct flying speed.

### 4.2 POSSIBLE CONFIGURATIONS

To become familiar with the manoeuvres described below, we recommend practising within the environment of a licensed training outfit. You must adapt your use of the brakes depending on the wing-loading and avoid over-steering.

It is important to note that the type of reaction to a manoeuvre can vary from one size of wing to another, and even within the same size the behaviour and reactions may be different depending on the wing-loading.

In the test report, you will find all the necessary information on how to handle your new wing during each of the tested manoeuvres. Having this information is crucial to know how to react during these manoeuvres in real flight, so you can deal with these situations as safely as possible.

#### Asymmetric collapse

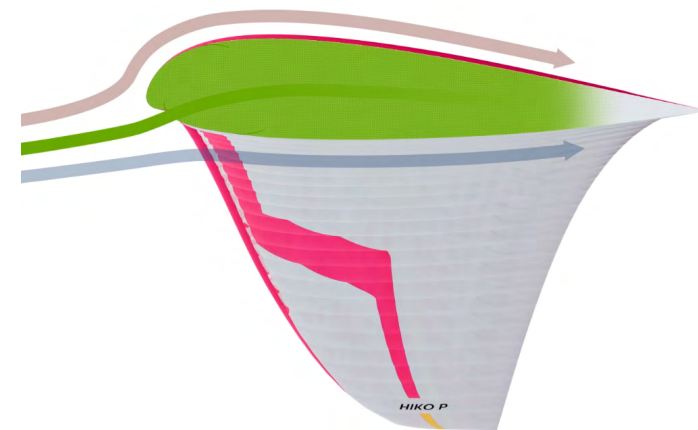
In spite of the HIKO P's profile stability, strong turbulent air may cause the wing to collapse asymmetrically in very strong turbulence, especially if you do not fly actively and prevent the collapse. In this case the glider conveys a loss of pressure through the brake lines and the harness. To prevent the collapse from happening, pull the brake handle on the affected side of the wing. It will increase the incidence of the wing (angle of attack). If the collapse does happen, the HIKO P will not react violently, the turning tendency is gradual and easily controlled. Weight-shift toward the open, flying side (the opposite side of the collapse) to keep the wing flying straight, while applying light brake pressure to that side if necessary. Normally, the collapsed side of the wing should then recover and reopen by itself. If it does not, try to weight-shift towards the collapsed side. If this does not resolve the issue, pull the brake handle on the collapsed side decisively and quickly all the way (100%) down and release it back up immediately. You may have to repeat this action to provoke the re-opening of the collapsed glider side. Do not over-brake or slow down the flying side of the wing (control the turn). Once the collapsed side is open make sure you return to normal flying speed.

#### Frontal collapse

Due to the HIKO P's design, in normal flying conditions frontal collapses are unlikely to take place. The wing's profile has great buffering abilities when dealing with extreme incidence changes. A frontal collapse may occur in strong turbulent conditions, entering or exiting powerful thermals. Frontal collapses usually re-inflate without the glider turning, but a symmetrically applied quick braking action with a quick deep pump of both brakes will accelerate the re-inflation if necessary. Release the brake lines immediately to return to default glider air speed.

#### Negative spin

A negative spin does not conform to the HIKO P's normal flight behaviour. Certain circumstances however, may provoke a negative spin (such as trying to turn when flying at very low air speed whilst applying a lot of brake). It is not easy to give any specific recommendation about this situation other than quickly restoring the wing's default air speed.



#### Parachutal stall

The possibility of entering or remaining in a parachutal stall have been eliminated from the HIKO P. A parachutal stall is virtually impossible with this wing. If it did enter into a parachutal stall, the wing loses forward motion, becomes unstable and there is a lack of pressure on the brake lines, although the canopy appears to be fully inflated. To regain normal air speed, release brake line tension symmetrically and manually push on the A-lines or weight-shift your body to any side WITHOUT PULLING ON THE BRAKE LINES.

#### Deep Stall

The possibility of the HIKO P stalling during normal flight is very unlikely. It could only happen if you are flying at a very low air speed, whilst over-steering or performing dangerous manoeuvres in turbulent air.

To provoke a deep stall, the wing has to be slowed down to its minimum air speed by symmetrically pulling the brake lines all the way (100%) down until the stall point is reached and held there. The glider will first pitch rearward and then reposition itself overhead, rocking slightly, depending on how the manoeuvre is done.



When entering a stall, remain clear-headed and ease off the brake lines until reaching the half-way point of the total brake travel. The wing will then surge violently forward and could reach a point below you. It is most important to maintain brake pressure until the glider has returned to its default overhead flying position.

To resume normal flight conditions, progressively and symmetrically release the brake line tension to regain air speed. When the wing reaches the overhead position, the brakes must be fully released. The wing will then surge forward to regain full air speed. Do not brake excessively at this moment as the wing needs to accelerate to pull away from the stall configuration. If you have to control a possible frontal collapse, briefly pull both brake handles down to bring the wing back up and release them immediately while the glider is still in transition to reposition itself overhead.

#### **Cravat**

A cravat may happen after an asymmetric collapse, when the end of the wing is trapped between the lines. Depending on the nature of the tangle, this situation could rapidly cause the wing to spin. The corrective manoeuvres to use are the same as those applied in case of an asymmetric collapse: control the turn/spin by applying tension on the opposite brake and weight shift opposite to the turn. Then locate the stabilo line (attached to the wing tip) trapped between the other lines. This line has a different colour and is located on the outside position of the B-riser.

Pull this line until it is taut. This action will help to release the cravat. If ineffective, fly down to the nearest possible landing spot, controlling the direction with both weight-shift and the use of the brake opposite to the tangled side. Be cautious when attempting to undo a tangle while flying near terrain or other paragliders; it may not be possible to continue on the intended flight path.

#### **Over-controlling**

Most flying problems are caused by wrong pilot input, which then escalates into a cascade of unwanted and unpredicted incidents. We should note that the wrong inputs can lead to loss of control of the glider. The HIKO P was designed to recover by itself in most cases. Do not try to over-correct it!

Generally speaking, the reactions of the wing, which are caused by too much input, are due to the length of time the pilot continues to over-control the wing. You have to allow the glider to re-establish normal flying speed and attitude after any type of incident.

### **4.3 ACCELERATED FLIGHT**

The HIKO P's profile was designed for stable flight throughout its entire speed range. The speed-bar can be used in strong winds or significant sink.

When accelerating the wing, the profile becomes more sensitive to turbulence and closer to a possible frontal collapse. If a loss in internal wing pressure is felt, tension on the speed-bar should be reduced to a minimum and a slight pull on the brake lines is recommended to increase the wing's incidence angle. Remember to re-establish the air speed after correcting the angle of attack.

It is NOT recommended to accelerate near obstacles or in very turbulent conditions. If necessary, constantly adjust the movements and pressure on the speed-bar whilst doing the same to the brake lines. This balance is considered to be 'active piloting'.

### **4.4 FLYING WITHOUT BRAKE LINES**

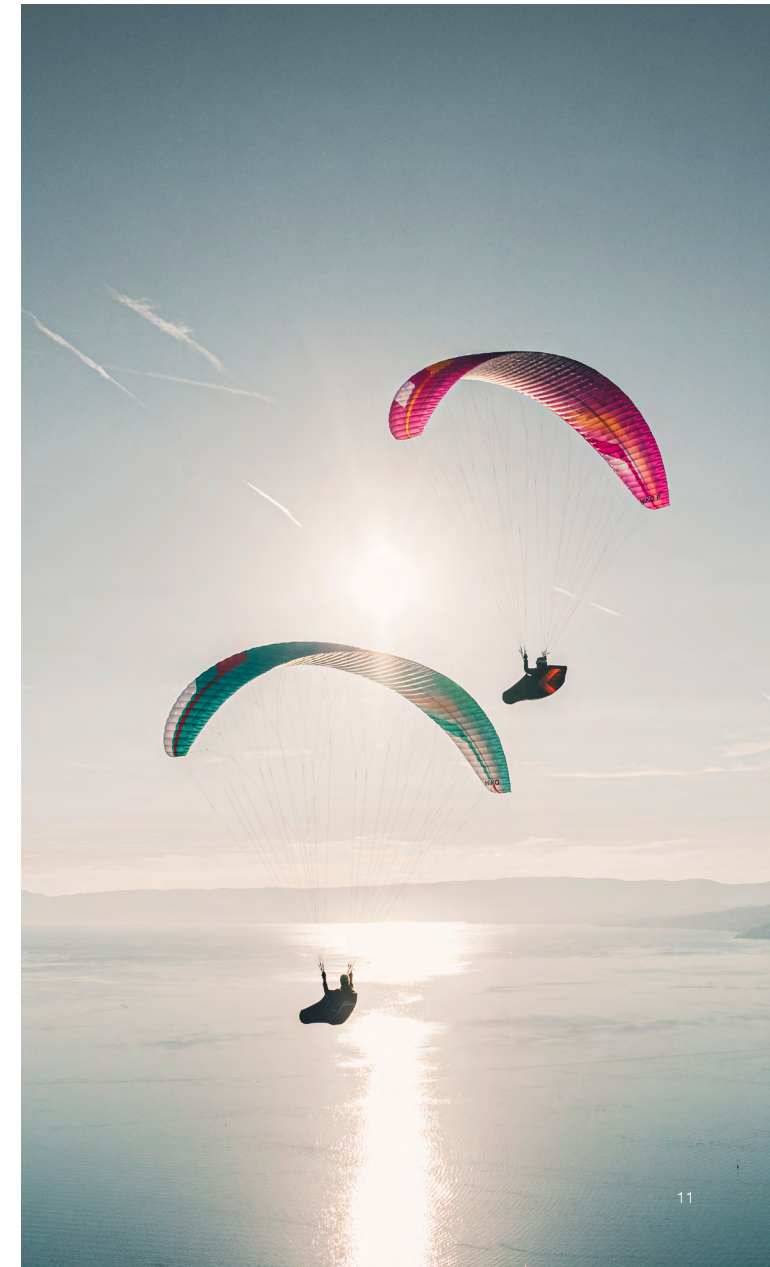
If, for any reason at all, the HIKO P's brake lines become disabled in flight, it will become necessary to pilot the wing gently using the C-risers and weight shifting until landing. These risers steer easily because they are not under significant tension. You will have to be careful and not handle them too heavily in case this causes a stall or negative spin. The wing must be flown at full speed (not accelerated) during the landing approach, and the C-risers should be pulled symmetrically shortly before contact with the ground. This braking method is not as effective as using the brake lines, and hence the wing will land with a higher ground speed.

### **4.5 LINE KNOT(S) IN FLIGHT**

The best way to avoid knots and tangles is to thoroughly inspect the lines as part of a systematic pre-flight check. If a knot is spotted during the take off phase, immediately abort the launch sequence and stop.

If inadvertently taking off with a knotted line, the glider drift will need to be compensated by weight-shifting to the opposite side and applying a slight brake pull to that side. Gently pull the brake line to see if the knot can be undone or try to locate the problem line. Try pulling it to see if the knot can be undone. Beware of trying to clear a knotted line or untangle a line in flight when close to the terrain. If the knot is too tight and cannot be undone, carefully and safely fly to the nearest landing zone. Be careful: do not pull too hard on the brake handles because

there will be an increased risk of stalling the wing or entering a negative spin. Before attempting to clear a knot, make sure there are no other pilots flying in the vicinity. 11 Knowledge of different descent techniques could become vital in certain situations. The most suitable descent method will depend on the particular situation. To become familiar with the manoeuvres described below, we recommend practising within the environment of a licensed training outfit.



## 5. LOSING ALTITUDE

Knowledge of different descent techniques could become vital in certain situations. The most suitable descent method will depend on the particular situation. To become familiar with the manoeuvres described below, we recommend practising within the environment of a licensed training outfit.

### 5.1 BIG EARS

“Big Ears” is a moderate descent technique, able to increase the sink rate to  $-3$  or  $-4$  m/s and reduces the ground speed by 3 to 5 km/h. The angle of attack and effective wing-loading will also increase due to the smaller surface area of the wing.

To perform the Big Ears manoeuvre, take outermost line on both A-risers as high as you can and simultaneously, smoothly pull them outward and downward. The wingtips will fold in.

To re-establish forward speed and the correct angle of attack, accelerate once the ears are pulled.

Keep the ears pulled in until you have lost the desired altitude.

Let go of the lines to re-inflate the tips automatically. If they do not, try progressively pulling one brake then the other. Asymmetric reopening is recommended in order to avoid compromising the angle of attack, particularly flying near the ground or in turbulent conditions.

### 5.2 SPIRAL DIVE

This is a more effective way to rapidly lose altitude. Beware that the wing will experience and be subjected to a tremendous amount of descending and rotating speed (g-force), which can cause a loss of orientation and consciousness (blackout). This manoeuvre must therefore be done gradually to increase one's capacity to resist the g-force exerted on the body. With practise, you will fully appreciate and understand it. Only practise this manoeuvre at high altitude and with enough ground clearance.

To start the manoeuvre, first weight shift and pull the brake handle located on the inner side of the turn. The intensity of the turn can be controlled by braking slightly using the outer brake handle.

A paraglider flying at its maximum rotating speed can reach  $-20$  m/s, or the equivalent of a 70 km/h vertical descent, and will stabilise in a spiral dive from 15m/s onwards.

Good enough reasons to familiarise yourself with the manoeuvre and understand how to exit it.

To exit this manoeuvre, the inner brake handle (down side of the turn) must progressively be relaxed while momentarily applying tension to the outer brake handle opposite to the turn.

The pilot must also weight shift and lean towards the opposite side of the turn at the same time. The exit should be performed gradually and smoothly so that the changes in pressure and speed can be noted.

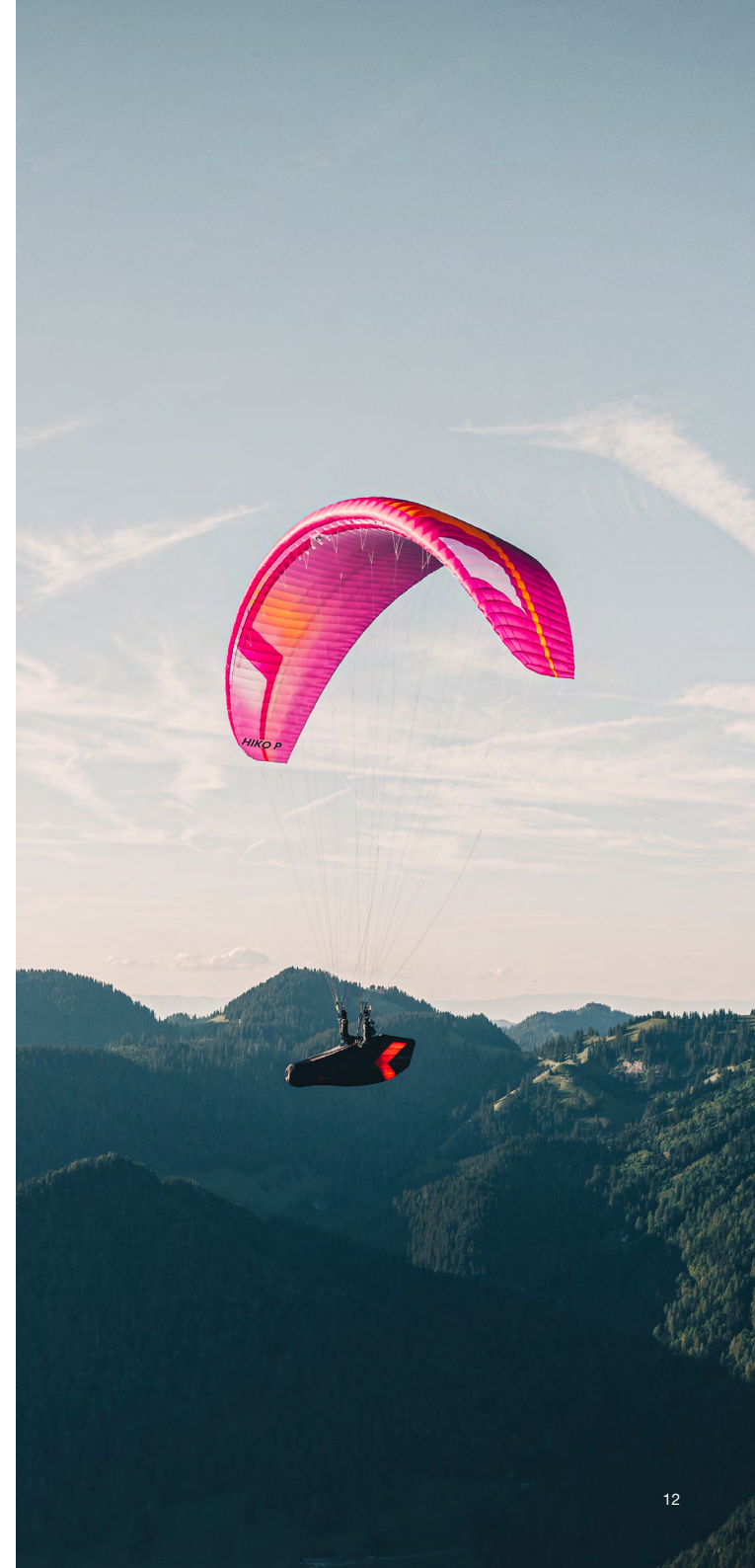
When exiting the spiral, the glider will briefly experience an asymmetrical acceleration and dive, depending on how the manoeuvre was carried out.

Practise these manoeuvres at sufficient altitude and carefully.

### 5.3 SLOW DESCENT TECHNIQUE

This technique allows descent without straining the wing or taxing the pilot. Glide normally while searching for descending air and begin to turn as if climbing in a thermal, but with the intention to sink.

Common sense has to be used to avoid dangerous areas of rotor when looking for descending air. Safety first!





## 6. SPECIAL METHODS

### 6.1 TOWING

The HIKO P does not experience any problem whilst being towed. Only qualified winch personnel should handle the certified equipment to carry out this operation. The wing must be inflated similarly as during a normal take off.

It is important to use the brakes to correct the flight path alignment, especially in the first phase of the tow. Since the wing is subject to a slow airspeed and with a high positive angle of attack, we must make any corrections with a high degree of feel and delicacy, in order to avoid a stall.

### 6.2 ACROBATIC FLIGHT

Although the HIKO P was tested by expert acrobatic pilots in extreme situations, it was not designed for it. We do not recommend using this glider for acrobatic flying!!!

We consider acrobatic flights to be any form of piloting different than standard flights. Learning acrobatic manoeuvres should be conducted under the supervision of qualified instructors within a school environment and over water with all safety/rescue elements in place. Centrifugal forces as high as 4 to 5 g can be exerted on the body and wing during extreme manoeuvres.



## 7. CARE AND MAINTENANCE


### 7.1 MAINTENANCE

Careful maintenance of your equipment will ensure continued top performance. Apart from the general checks, we recommend actively maintaining your equipment.

A pre-flight check is obligatory before each flight. If there is any damage to the equipment or you suspect any areas of the wing are susceptible to wear, you should inspect these and act accordingly.

Niviuk we are firmly committed to make technology accessible to all pilots. Therefore, our wings are equipped with the latest technological advances gained from the experience of our R&D team. Thanks to these new technologies, paragliders are gaining more safety and performance, which requires greater care of the materials.

The HIKO P is part of our P Series (featherlight) range. In all the lightweight and ultra-light materials we use, there is a good compromise between performance and durability. The weight of the materials is minimised by reducing the amount and type of yarn and by modifying the surface induction, i.e. their strength. Therefore, care must be taken in the use of the product, and care must be taken to avoid increasing the natural wear and tear of the material itself.

 **IMPORTANT:** it is critical to avoid any kind of impact or dragging the leading edge on the ground. This part is reinforced with very durable and strong Nitinol rods that can be easily replaced. Dragging and/or hitting the leading edge can cause serious damage to the fabric, which is much more complicated and costly to repair.

The fabric and the lines do not need to be washed. If they become dirty, clean them with a soft damp cloth, using only water. Do not use detergents or other chemicals.

If your wing is wet from contact with water, place it in a dry area, air it and keep it away from direct sunlight.

Direct sunlight may damage the wing's materials and cause premature aging. After landing, do not leave the wing exposed to the sun. Pack it properly and stow it away in its backpack.

If you fly in sandy areas, avoid getting sand in the cells or down into the trailing edge. At the end of the flight, empty any sand that is in your wing. The openings at the end of the wingtips make this much easier.

If your wing is wet from contact with salt water, immerse it in fresh water and dry it away from direct sunlight.

### 7.2 STORAGE

It is important for the wing to be correctly folded when stored. Keep it in the in a cool, dry place away from solvents, fuels, oils.

Do not leave your gear inside a car boot, as cars left in the sun can become very hot. A rucksack can reach temperatures up to 60°C.

Weight should not be laid on top of the equipment. It is very important to pack the wing correctly before storage.

In case of long-term storage, it is advisable, if possible, that the wing is not compressed and it should be stored loosely without direct contact with the ground. Humidity and heating can have an adverse effect on the equipment.

### 7.3 CHECKS AND INSPECTIONS

The HIKO P must be periodically serviced. An inspection must be scheduled every 100 flying hours or every two years whichever comes first (EN/LTF norm).

We strongly recommend that any repairs should be done in a specialist repair shop by qualified personnel.

This will guarantee the airworthiness and continued certification of your HIKO P.

A thorough pre-flight check must be performed before every flight.

The HIKO P is fitted with sheathed and unsheathed lines. Their durability conforms to unsheathed line standards. Their strength is guaranteed and their resistance to UV is one of the highest in this type of lines.

The unsheathed Aramid lines are made of a new waterproof coated material (Magix Pro Dry), which makes it easier to untangle knots and simplifies line sorting before flying.

However, to maintain the wing's standard performance, it is necessary to keep the trim constantly adjusted. Generally speaking, line lengths

change as the glider is used. For this reason we recommend a trim check after approximately the first 30 hours of flight. The hours or actions to be taken to repair the lines may vary for each glider, depending on the conditions of each flying area, climatic conditions, temperature, humidity, type of terrain, wing loading, etc.

Thanks to the experience acquired and the thorough inspections that our R+D team carry out on our gliders, we have the necessary information to be able to know the real behaviour of the lines. With this knowledge we can keep our gliders in the optimum condition for more flights without any loss of performance due to use.

The most important detail to check and/or repair on the lines are the so called "loops" (knots). These loops must be released or readjusted according to the current line length.

Never adjust a paraglider according to the parameters of another paraglider. Each adjustment must be performed individually for each wing concerned, as a result of an analysis carried out by specialised and authorised personnel.

### 7.4 REPAIRS

In the case of small tears, you can temporarily repair these by using the Ripstop tape included in the repair kit, as long as no stitching is required to mend the fabric.

Any other tears or repairs should be done in a specialist repair shop by qualified personnel.

Damaged lines must be repaired or exchanged immediately.

Please refer to the line plan at the end of this manual. We recommend any inspection or repair is performed by a Niviuk professional in our [official workshop](#).

Any modification of the glider made in an external workshop will invalidate the guarantee of the product. Niviuk cannot be held responsible for any issues or damage resulting from modifications or repairs carried out by unqualified professionals or who are not approved by the manufacturer.



## 8. SAFETY AND RESPONSIBILITY

It is well known that free-flying with a paraglider is considered a high-risk sport, where safety depends on the person who is practicing it.

Incorrect use of this equipment may cause severe, life-changing injuries to the pilot, or even death. Manufacturers and dealers cannot be held responsible for your decisions, actions or accidents that may result from participating in this sport.

You must not use this equipment if you have not been properly trained to use it. Do not take advice or accept any informal training from anyone who is not properly qualified as a flight instructor.

## 9. GUARANTEE

The equipment and components are covered by a 2-year warranty against any manufacturing defect.

The warranty does not cover misuse of the equipment.

Any modification of the paraglider or its components invalidates the guarantee and its certification.

If you notice any defects in your harness, please contact Niviuk immediately for a more thorough inspection.



# 10. ANNEXES

## 10.1 TECHNICAL SPECIFICATIONS

			20	22	24	26	28
Cells	Number		55	55	55	55	55
Aspect Ratio	Flat		5,5	5,5	5,5	5,5	5,5
	Projected		4,18	4,18	4,18	4,18	4,18
Area	Flat	m2	20,5	21,8	23,8	25,8	27,8
	Projected	m2	17,51	18,62	20,33	22,04	23,75
Span	Flat	m	10,62	10,95	11,44	11,91	12,37
Chord	Max	m	2,38	2,45	2,56	2,66	2,77
Lines	Total	m	220	227	238	248	258
	Main		2-1/3/2	2-1/3/2	2-1/3/2	2-1/3/2	2-1/3/2
Risers	Number		A-A'/B/C	A-A'/B/C	A-A'/B/C	A-A'/B/C	A-A'/B/C
	Speed-bar	mm	145	145	180	180	180
Glider weight		kg	2,99*	3,14*	3,32	3,51*	3,67*
Total weight in flight	Min-Max	kg	50-75	65-85	75-95	85-105	95-115
Certification			EN/LTF B	EN/LTF B	EN/LTF B	EN/LTF B	EN/LTF B

\* To be confirmed.  
The total weight of the wing may differ ±2% due to variations in the weight of the fabric supplied by the manufacturers.

## COLOURS



Tekno



Citrik



Flamingo



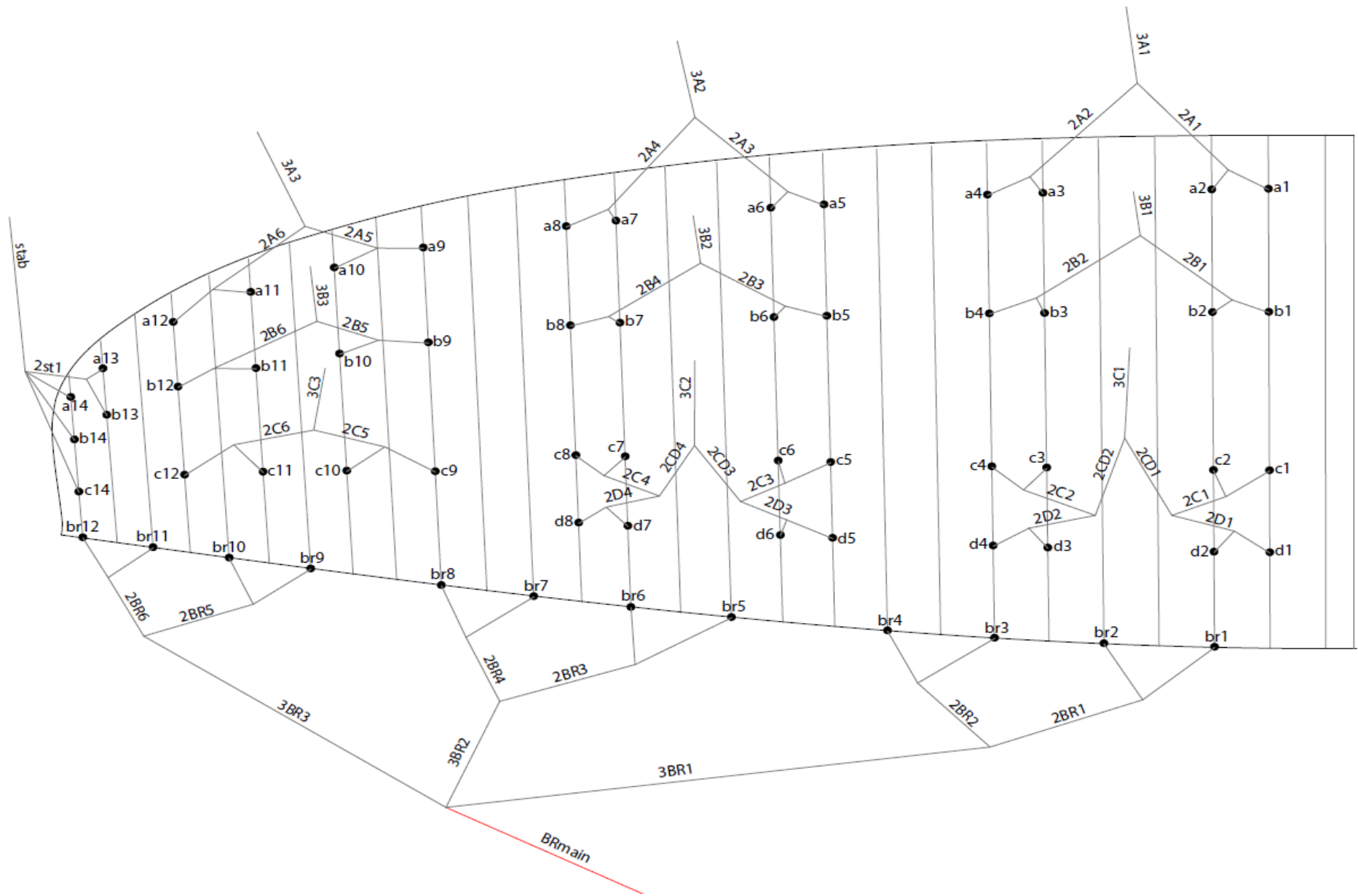
## 10.2 MATERIALS

CANOPY	FABRIC CODE	SUPPLIER
UPPER SURFACE	2044 32 PS / N10	DOMINICO TEX CO (KOREA)
BOTTOM SURFACE	N10	DOMINICO TEX CO (KOREA)
PROFILES	70000 E91 / 2044 32 FM	PORCHER IND (FRANCE)/ DOMINICO TEX CO (KOREA)
DIAGONALS	70000 E91 / 2044 32 FM	PORCHER IND (FRANCE)/ DOMINICO TEX CO (KOREA)
LOOPS	LKI - 12	KOLON IND. (KOREA)
REINFORCEMENT LOOPS	RIPSTOP FABRIC	DOMINICO TEX CO (KOREA)
TRAILING EDGE REINFORCEMENT	MYLAR	D-P (GERMANY)
RIBS REINFORCEMENT	LTN-0.8/0.5 STICK	SPORTWARE CO.CHINA
THREAD	SERAFIL 60	AMAN (GERMANY)

SUSPENSION LINES	FABRIC CODE	SUPPLIER
UPPER CASCADES	A-8001/U 50	EDELRIID (GERMANY)
UPPER CASCADES	A-8001/U 70	EDELRIID (GERMANY)
UPPER CASCADES	DC - 40	LIROS GMHB (GERMANY)
UPPER CASCADES	DC - 60	LIROS GMHB (GERMANY)
UPPER CASCADES	DC - 100	LIROS GMHB (GERMANY)
MIDDLE CASCADES	A-8001/U 50	EDELRIID (GERMANY)
MIDDLE CASCADES	A-8001/U 70	EDELRIID (GERMANY)
MIDDLE CASCADES	A-8001/U 90	EDELRIID (GERMANY)
MIDDLE CASCADES	A-8001/U 130	EDELRIID (GERMANY)
MIDDLE CASCADES	DC - 60	LIROS GMHB (GERMANY)
MAIN	A-8001/U 90	EDELRIID (GERMANY)
MAIN	A-8001/U 130	EDELRIID (GERMANY)
MAIN	A-8001/U 190	EDELRIID (GERMANY)
MAIN	A-8001/U 230	EDELRIID (GERMANY)
MAIN BREAK	TARAX-240	EDELRIID (GERMANY)
THREAD	SERAFIL 60	AMAN (GERMANY)

RISERS	FABRIC CODE	SUPPLIER
MATERIAL	3455	COUSIN (FRANCE)
COLOR INDICATOR	210D	TECNI SANGLES (FRANCE)
THREAD	V138	COATS (ENGLAND)
PULLEYS	SB15	RONSTAN (AUSTRALIA)

10.3 LINE PLAN





10.4 RISER PLAN



## 10.5 LINE MEASUREMENTS

### HIKO P – 20

LINES HEIGHT + RISER MM

	A	B	C	D	br
1	6561	6473	6567	6656	6833
2	6513	6427	6504	6598	6537
3	6480	6391	6473	6562	6419
4	6504	6415	6517	6597	6421
5	6457	6375	6472	6555	6254
6	6416	6336	6418	6497	6124
7	6371	6293	6375	6444	6081
8	6386	6310	6406	6453	6143
9	6289	6221	6280		5998
10	6194	6136	6192		5931
11	6107	6060	6115		5915
12	6085	6050	6082		5997
13	5892	5872	5883		
14	5819	5820			

RISERS LENGHT MM

A	A'	B	C	
530	530	530	530	STANDARD
380	380	430	530	ACCELERATED

### HIKO P – 22

LINES HEIGHT + RISER MM

	A	B	C	D	br
1	6770	6668	6774	6865	7060
2	6721	6622	6710	6806	6755
3	6686	6588	6676	6769	6634
4	6710	6614	6722	6805	6636
5	6662	6576	6672	6760	6465
6	6619	6536	6619	6703	6331
7	6572	6495	6582	6652	6288
8	6587	6513	6620	6678	6351
9	6486	6418	6484		6204
10	6387	6332	6394		6135
11	6295	6256	6314		6118
12	6272	6246	6280		6204
13	6073	6054	6067		
14	5999	6001			

RISERS LENGHT MM

A	A'	B	C	
530	530	530	530	STANDARD
380	380	430	530	ACCELERATED

### HIKO P – 24

LINES HEIGHT + RISER MM

	A	B	C	D	br
1	7069	6977	7078	7174	7405
2	7020	6928	7012	7112	7087
3	6987	6893	6980	7076	6960
4	7014	6920	7029	7114	6963
5	6966	6880	6976	7067	6786
6	6922	6838	6921	7008	6647
7	6875	6794	6884	6957	6604
8	6891	6812	6924	6984	6671
9	6792	6716	6779		6516
10	6690	6626	6685		6445
11	6595	6545	6601		6428
12	6573	6534	6571		6518
13	6370	6349	6364		
14	6292	6293			

RISERS LENGHT MM

A	A'	B	C	
530	530	530	530	STANDARD
350	350	410	530	ACCELERATED



## HIKO P - 26

LINES HEIGHT + RISER MM

	A	B	C	D	br
1	7358	7261	7368	7467	7717
2	7307	7211	7299	7404	7386
3	7274	7177	7268	7368	7256
4	7303	7205	7319	7409	7260
5	7255	7165	7265	7360	7075
6	7210	7122	7207	7299	6930
7	7162	7075	7170	7246	6885
8	7179	7095	7212	7274	6956
9	7073	6994	7060		6797
10	6966	6900	6962		6723
11	6868	6815	6874		6707
12	6845	6804	6839		6801
13	6629	6607	6618		
14	6547	6548			

RISERS LENGHT MM

A	A'	B	C	
530	530	530	530	STANDARD
350	350	410	530	ACCELERATED

## HIKO P - 28

LINES HEIGHT + RISER MM

	A	B	C	D	br
1	7640	7540	7648	7752	8025
2	7588	7489	7578	7686	7682
3	7555	7454	7548	7651	7547
4	7585	7484	7601	7694	7552
5	7536	7444	7553	7650	7362
6	7489	7399	7492	7584	7213
7	7440	7353	7445	7526	7167
8	7459	7373	7483	7538	7241
9	7347	7269	7337		7077
10	7237	7171	7235		7001
11	7135	7084	7145		6983
12	7111	7072	7108		7081
13	6889	6866	6877		
14	6804	6805			

RISERS LENGHT MM

A	A'	B	C	
530	530	530	530	STANDARD
350	350	410	530	ACCELERATED



**Niviuk Paragliders**

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