TAKOO 6

User manual &
Technical data

AIVIUK BEYOND THE GLIDE

CATEGORIES

TANDEM

Wings *for two*

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 new TAKOO 6 dual wing is even easier to use, offering an efficient and enjoyable flying experience. The manoeuvrability and efficiency of the controls have been improved, allowing for smoother, more precise turning than ever before. It is an easy, intuitive and durable glider, making it ideal for endless professional and recreational tandem flying.

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.

USER MANUAL

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 TAKOO 6 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. CARACTERISTICS

1.1 WHO IS IT DESIGNED FOR?

Commercial tandem flights: The TAKOO 6 is a dual wing designed to meet the needs of the most demanding professional pilots. It is an ideal working companion for pilots, due to its durability and comfort in all situations. It suits any type of passenger, guaranteeing an unforgettable experience for both.

Recreational flying: Experience the tandem as you have never imagined and let yourself be enveloped by the supreme comfort and stability of this glider. Enjoy every flight with a tandem that adapts perfectly to your needs and those of your companion.

It is the perfect wing for our Sherlock and Watson 2 tandem harnesses and the Koli Pro rucksack.

1.2 CERTIFICATION

The TAKOO 6 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 1400 daN of force.

The flight test resulted in the following certification of the TAKOO 6 for all sizes (38, 41 and 44):

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 pilot skills required for 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 and passenger.

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.

Excellent manoeuvrability: flying is more intuitive, comfortable, and easier. Perfect for finishing your day without getting tired. Braking efficiency has been optimised, reducing pressure on the controls to improve turning, making it more direct, lighter and with less travel.

Launch and land easily: the TAKOO 6 is characterised by an exceptional progressive inflation and launch, with an immediate load take up, making take offs easy for any type of passenger.
Landing has been improved and it has excellent speed retention.

Stable and comfortable: it has high pitch stability and the feedback from the wing to the passenger has been reduced to ensure total comfort. The aerofoil is very stable, which helps to reduce turbulence in flight and maintain a constant speed. Passenger and pilot will enjoy much more comfortable and safer flights.

1.4 TECHNOLOGIES, CONSTRUCTION, MATERIALS

The TAKOO 6 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.

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.

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.

ELS Ear Lock System - this improved ear lock system provides a simple and effective solution to the needs of the tandem pilot when performing this rapid descent technique. Its innovations make it possible to pull or release ears in one simple, quick and easy action. It allows the ears to be locked and unlocked at the pilot’s will. The ears can stay on for as long as necessary, without physical effort, and the pilot can continue to use the brakes to steer the glider. The manoeuvre can still be performed in the classic way, without using the ELS.

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 TAKOO 6 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.

Different fabrics have been combined to balance the TAKOO 6 in durability and strength, without compromising its lightness. Dokdo 40 and 36g have been used for the top surface to make it more robust and the undersurface has been designed with Dokdo 32g. The ribs are a combination of Dokdo 40 and 32g. All lines are sheathed for durability and performance.

The lineset is made of sheathed Dyneema and Aramid.

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 TAKOO 6 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.
- Launch assistance pegs: a pack of metal pegs to fix the glider to the ground during take-off.
- A set of tandem spreader bars, either rigid (15 cm) or flexible, depending on the pilot's choice.
- The Koli Pro rucksack: this is not included scope of delivery, but is highly recommended. It is the ultimate solution for storing flight equipment quickly, perfect for tandem professionals. It allows efficient and safe packing, has very comfortable shoulder straps and an ergonomic design that makes it easy to carry. Designed with multiple compartments to secure and protect all the pilot's and passenger's belongings.
- The Kargo 220 backpack: this is not included in the scope of delivery, but its purchase is recommended. It allows you to carry all the equipment comfortably and without space problems. It is the most spacious backpack in the Kargo family, with full capacity for all flight equipment. Glider, harness and accessories fit into an ergonomic design that distributes the weight optimally, making it easy to carry and providing maximum comfort on any hike.

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 TAKOO 6.

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, C and D-lines, the brake lines and corresponding risers. Make sure that there are no knots.

2.3 CONNECTING THE HARNESS

The TAKOO 6 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.

2.4 HARNESS TYPE

The TAKOO 6 is certified EN B with a harness which conforms to the following standards:

- 2. DV LuftGerPV §1, Nr. 7 c (LTF)
- European Standard EN926-2
- European Standard EN926-1

This is why the TAKOO 6 accepts all current tandem harnesses. We recommend using it with the Niviuk tandem harnesses SHERLOCK and WATSON 2, for the pilot and passenger respectively.

2.5 TRIMMERS

The trimmers of the TAKOO 6 allow a wide range of speeds. They are located on the D-riser.

The travel of this acceleration system starts from the neutral position to the maximum speed when fully released and back to the neutral point. To release the trimmers, press the trim tab inwards until the tape moves and release the tab when it is in the correct position. To close the trimmers, pull the tape downwards by the handle and release when it reaches the chosen position. The trimmers must be symmetrical.

We have identified the trim positions with colours to make it easier to use:

- The neutral position, coloured green, is ideal for take off and for flying in thermals.
- As you open the trimmers, the speed increases. The red markings indicate the different speed positions and help you to find the right trimmer position.
- With the trimmers closed (by pulling the trimmer tab all the way out) the sink rate is improved and the pressure on the controls is reduced if flying with a high load.

We recommend taking off with the trimmers set to neutral. However, it is possible that the circumstances of take off may require the trimmers to be released to adjust the rate of climb of the wing in the inflation phase. The greater the amount of trimmers released, the faster the wing will rise and the more control the pilot will need to exert.

For landing, we recommend positioning trimmers on the first setting on the tape. The pilot must assess the circumstances and adapt the speed and trimmer opening to the conditions on each landing.

The TAKOO 6 always assists the pilot, allowing them to perform the launch and/or landing manoeuvre with total control.

TIP: in the neutral position there is excess tape which can flutter in flight, becoming annoying. This is why there is a clip at the end of the tape to hold it in place.

(!) WARNING: the trimmers should not be used to steer the glider, only to control the speed. The pilot must take into account that, when releasing the trimmers, the brake handle is raised the same distance as the travel of the trimmer. We recommend that the piloting of each flight should be adjusted according to the wing loading and the trimmer travel used.

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 TAKOO 6 as many times as necessary to familiarise yourself with its behaviour. Inflating the TAKOO 6 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 TAKOO 6.

TIP: the TAKOO 6 has two attachment points to fix the height of the brake pulley. Spaced 7 cm apart, they allow for improved handling depending on the pilot's height, type of harness used, or the pilot's preference; as they make it easier to locate the brake handles. If you wish to use any of these attachment points, it is necessary to move the attachment point from its original location and place it in the new one.

(!) ATTENTION: when doing this, it will be necessary to move the brake knot the same distance as the handle. The two fixing points are marked at the factory. To move it, loosen the knot, slide the line along the brake handle to the desired point and tighten the knot firmly. This adjustment must be carried out by qualified personnel, always checking that the modification does not compromise the trailing edge, leaving it BRAKED and that both sides are symmetrical. A bowline is the most recommended knot to fix the brake handles.

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

It is necessary to make a flight plan in advance, to avoid possible errors in decision making.

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 LAUNCH ASSISTANCE PEGS

The TAKOO 6 offers the possibility to fix the glider to the ground with metal pegs that are anchored in the canopy. This is particularly useful on steep take-offs, on snowy terrain or slippery surfaces.

3.6 WING INFLATION, CONTROL AND TAKE OFF

For launch, a smooth and progressive inflation is recommended. The TAKOO 6 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 TAKOO 6 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.

3.7 LANDING

The TAKOO 6 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.

3.8 PACKING

The TAKOO 6 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 Koli Pro and Koli Bag especially for fast-packing.

4. IN FLIGHT

We recommend that you read the certification test report. The report contains all the necessary information on the TAKOO 6 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 TAKOO 6 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

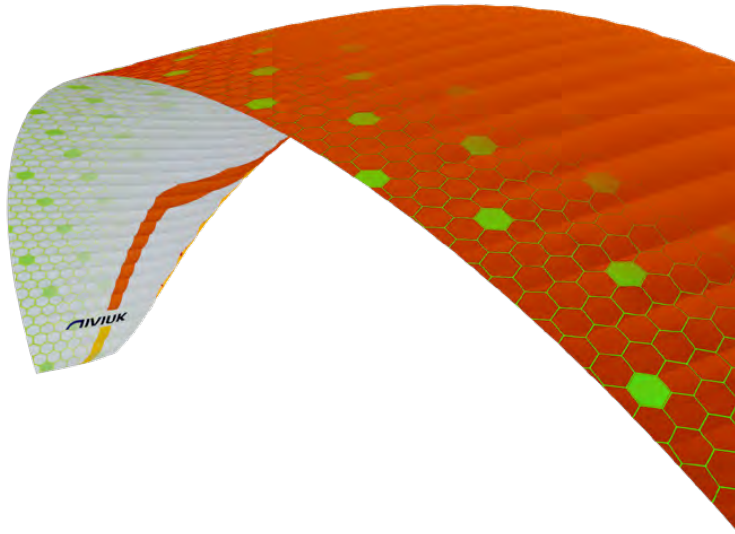
In spite of the TAKOO 6's profile stability, strong turbulent air may cause the wing to collapse asymmetrically in very strong turbulence, especially if you do not fly actively and prevent the collapse. In this case the glider conveys a loss of pressure through the brake lines and the harness. To prevent 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 TAKOO 6 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 TAKOO 6'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 TAKOO 6'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 TAKOO 6. 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 TAKOO 6 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%) 10 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 C-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 TAKOO 6 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 TAKOO 6's profile was designed for stable flight throughout its entire speed range.

Opening the trimmers to accelerate is useful in strong winds or very steep descents.

With the trimmers open, the profile of the glider is more exposed to turbulence and closer to a frontal collapse. If you notice a loss of pressure, you should release the trimmers and apply the brakes a little to increase the glider's angle of attack, remembering that you should always re-establish flying speed after correction.

It is NOT recommended to accelerate near obstacles or in very turbulent conditions.

4.4 FLYING WITHOUT BRAKE LINES

If, for any reason at all, the TAKOO 6's brake lines become disabled in flight, it will become necessary to pilot the wing gently using the D-risers and weight shifting until landing. These risers steer easily because 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 D-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.

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. When ears are applied the ground speed will be reduced by 3 to 5 km/h and in order to maintain this descent technique, the pilot must physically hold in the ears.

On a solo glider, it is only possible to steer using weight-shift once ears have been pulled. On a tandem wing, although it is possible to steer with the help of the passenger, in most cases, when required, this is insufficient. For this reason NIVIUK have improved the Ear Lock System (ELS). The TAKOO 6 comes with the ELS as standard.

Thanks to ELS technology, the size of the ears is adjustable in two positions (small or large ears) and it is much easier and quicker to pull and release the ears to control the descent. In addition, the pilot can still use the brakes to steer the glider.

To use the ELS simply pull the ear lock line downward until the knot passes through the ELS (lock system); then move it slightly horizontally forward, locking the knot in the V groove.

To release, pull the ear lock line down and release the knot from the V groove. Then guide it vertically as it goes upward and back through the ELS (Lock System) It is better to release the two ears separately (asymmetrically).

To perform big ears as a descent manoeuvre in the classic way, take the external A-line on both sides, as high as possible and pull them downward and outward. The wingtips will fold in. To release the ears, release the lines and they will reopen by without assistance. If this does not happen, brake progressively on one side and 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.

The advantages of the ELS system are:

- The pilot can lock and unlock the ears at will.
- The pilot has total freedom of operation, even with the ears on.
- The ears can stay on as long as necessary without any physical strain for the pilot.
- The pilot can use the trims in total comfort.
- It prevents the ears from opening unintentionally, as they are locked.
- If preferred, the manoeuvre can be continued in the classic way, without using the ELS.
- It can be removed without affecting the rest of the equipment.

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 or the passenger. 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 TAKOO 6 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 TAKOO 6 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.

(!) 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 60ºC.

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 TAKOO 6 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 TAKOO 6.

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

The TAKOO 6 is fitted with sheathed lines. Their durability conforms to sheathed line standards. Their strength is guaranteed and their resistance to UV is one of the highest in this type of lines.

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 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.

It is advisable to change the safety elements every time you renew your TAKOO 6. The intensive use of tandem equipment, with frequent daily launches and landings, causes more wear and tear compared to solo equipment.

Niviuk includes a set of tandem spreaders with each TAKOO 6. It is crucial to install this new set on the harnesses you use regularly, taking the opportunity to update this part of the equipment as well.

It is essential to periodically renew the carabiners and other safety elements that, although apparently undamaged, may have suffered internal micro-cracks that compromise their strength.

Carry out regular checks of all your tandem equipment to ensure safety in flight, always remembering that you are not flying alone.

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 to the paraglider or its components invalidates the guarantee and the certification.

If you notice a fault or defect on your paraglider, contact Niviuk immediately for a full inspection.

ANNEXES

10. ANNEXES

10.1 Technical specifications

			38	41	44
Cells	Number		54	54	54
Aspect Ratio	Flat		5,5	5,5	5,5
	Projected		4,15	4,15	4,15
Area	Flat	m2	38	41	44
	Projected	m2	32,27	34,82	37,37
Span	Flat	m	14,46	15,02	15,56
Chord	Max	m	3,29	3,41	3,54
Lines	Total	m	379	395	408
	Main		2+1/3/3/3	2+1/3/3/3	2+1/3/3/3
Risers	Number	4+1	A+A'/B/C/D	A+A'/B/C/D	A+A'/B/C/D
	Speed-bar	mm	100	100	100
Glider weight		kg	7,36	7,78	8,28
Total weight in flight	Min-Max	kg	110-190	120-220	140-240
Certification			EN/LTF B & DGAC	EN/LTF B & DGAC	EN/LTF B & DGAC

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

10.2 Colours

	UPPER	LIME	**LOWER**	WHITE
SHAGGY	**TOP 1**	BLACK	**BOTTOM 1**	LIME
	TOP 2	DARK BRICK	**BOTTOM 2**	DARK BRICK

	UPPER	DARK BRICK	**LOWER**	WHITE
CINNAMON	**TOP 1**	WHITE	**BOTTOM 1**	DARK BRICK
	TOP 2	GOLD	**BOTTOM 2**	GOLD

	UPPER	SPECTRA GREEN	**LOWER**	WHITE
DROP	**TOP 1**	SLATE BLUE	**BOTTOM 1**	SPECTRA GREEN
	TOP 2	WHITE	**BOTTOM 2**	SLATE BLUE

	UPPER	PINK	**LOWER**	WHITE
CINDER	**TOP 1**	BLACK	**BOTTOM 1**	PINK
	TOP 2	SLATE BLUE	**BOTTOM 2**	SLATE BLUE

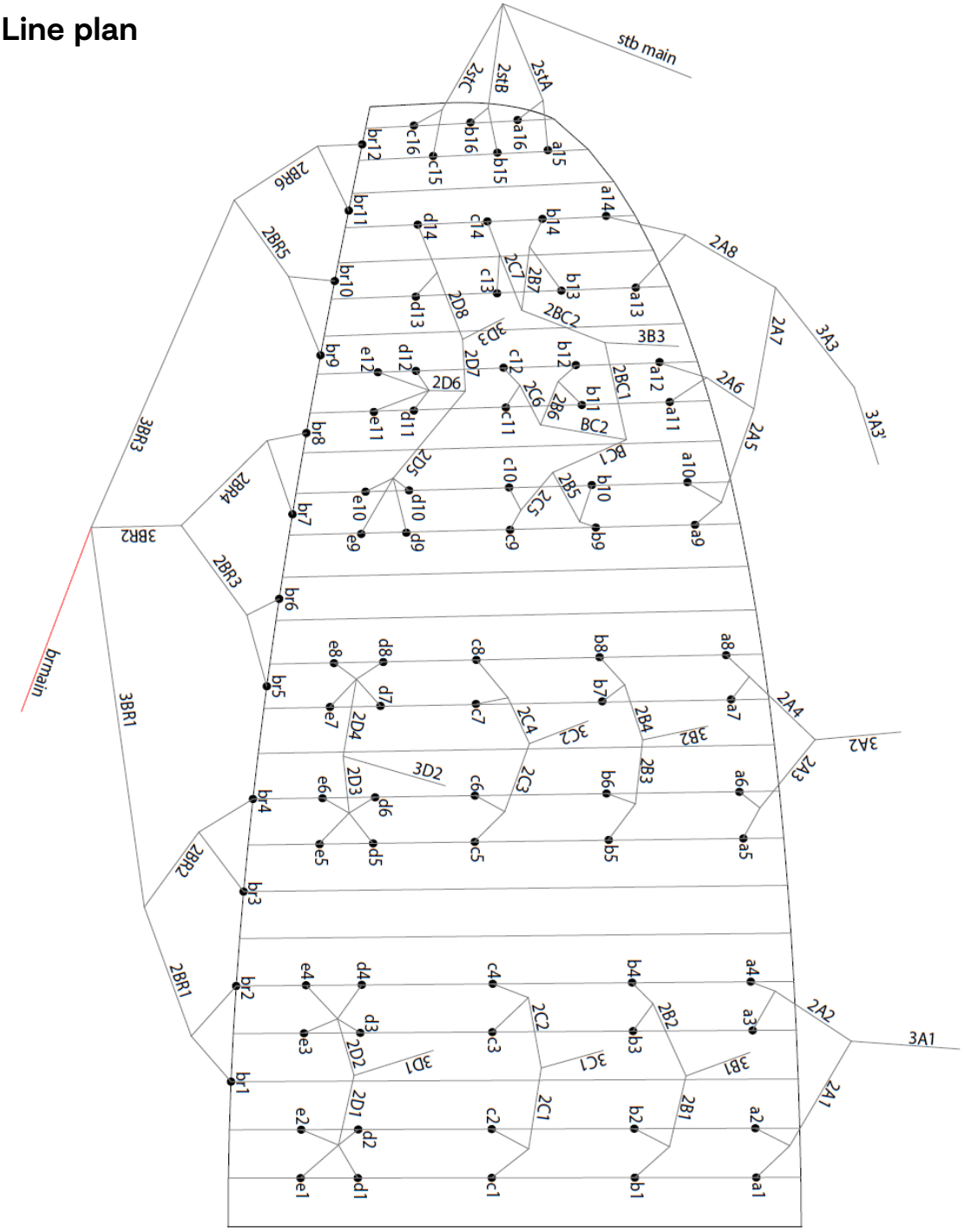
10.3 Materials

CANOPY	FABRIC CODE	SUPPLIER
UPPER SURFACE	HYPERAIRTEX-41 / HYPERAIRTEX-36	DOMINICO TEX CO (KOREA)
BOTTOM SURFACE	HYPERAIRTEX-36 / 2044 32 PS	DOMINICO TEX CO (KOREA)
PROFILES	30 DFM / 2044 32 FM	DOMINICO TEX CO (KOREA)
DIAGONALS	30 DFM / 2044 32 FM	DOMINICO TEX CO (KOREA)
LOOPS	LKI - 12	KOLON IND. (KOREA)
REIFORCEMENT LOOPS	W-420 / RIPSTOP FABRIC	D-P (GERMANY)
TRAILING EDGE REIFORCEMENT	MYLAR	D-P (GERMANY)
RIBS REIFORCEMNET	LTN-1/0.8 STICK	SPORTWARE CO.CHINA
THREAD	SERAFIL 60	AMAN (GERMANY)

SUSPENSION LINES	FABRIC CODE	SUPPLIER
UPPER CASCADES	MATRIX - 80	EDELRID (GERMANY)
UPPER CASCADES	PPSL - 120	LIROS GMHB (GERMANY)
MIDDLE CASCADES	PPSL - 120	LIROS GMHB (GERMANY)
MIDDLE CASCADES	PPSL - 200	LIROS GMHB (GERMANY)
MIDDLE CASCADES	TNL - 280	TEIJIM LIMITED (JAPAN)
MIDDLE CASCADES	MATRIX - 80	EDELRID (GERMANY)
MAIN	TNL - 140	TEIJIM LIMITED (JAPAN)
MAIN	TNL - 280	TEIJIM LIMITED (JAPAN)
MAIN	TNL - 400	TEIJIM LIMITED (JAPAN)
MAIN BREAK	TARAX 240	EDELRID (GERMANY)
THREAD	SERAFIL 60	AMAN (GERMANY)

RISERS	FABRIC CODE	SUPPLIER
MATERIAL	G-R 22	TECNI SANGLES (FRANCE)
COLOR INDICATOR	210D	TECNI SANGLES (FRANCE)
THREAD	V138	COATS (ENGLAND)
MAILLONS	MRI4	ANSUNG PRECISION (KOREA)
PULLEYS	RF25109	RONSTAN (AUSTRALIA)

10.4 Line plan



LINE REPLACEMENT

The use of new high performance materials in modern wings is now common. The advantages of using these materials in terms of performance are widely acknowledged as part of our sport's evolution. However, along with those technological advances come additional responsibilities which cannot be avoided. As a result, line inspection and replacement must be carried out more frequently. That increased frequency appears to be encouraging some pilots to try to perform line replacement themselves.

WE STRONGLY RECOMMEND ANY LINE REPLACEMENT IS PERFORMED BY AN AUTHORISED SPECIALIST ONLY.

Ultimately, if the pilot decides to perform any line replacement without professional oversight they therefore assume all responsibility. In this case, these guidelines will have to be followed.

BEFORE REMOVING ANY LINES, CHECK:

- That the line plan is correct according to the glider model and size.
- That the line kit is complete and correct.
- Never assume but always check each individual line for the correct specification.

AFTER CONFIRMING THAT ALL LINES ARE CORRECT:

- Fit the new line(s) WITHOUT removing the label.
- Once replaced, measure each line length to confirm the correct measurement.
- Inflate the wing to check for any irregularities.
- The line labels may then be removed but NOT BEFORE completion of the line replacement.

Niviuk strongly recommends for any line replacement to be carried out by an authorised professional only, and will not accept responsibility for any damage or injury caused as a result of incorrect re-assembly.

10.5 Riser plan

10.6 Line measurements by size

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ref.	mat.	kg	color	mm
		A		
a1	PPSL	120	GREEN	563
a2	PPSL	120	GREEN	495
a3	PPSL	120	GREEN	527
a4	PPSL	120	GREEN	541
a5	PPSL	120	GREEN	535
a6	PPSL	120	GREEN	479
a7	PPSL	120	GREEN	494
a8	PPSL	120	GREEN	500
a9	PPSL	120	GREEN	463
a10	MATRIX	80	BLUE	380
a11	MATRIX	80	BLUE	365
a12	MATRIX	80	BLUE	353
a13	MATRIX	80	BLUE	1099
a14	MATRIX	80	BLUE	1048
a15	MATRIX	80	BLUE	515
a16	MATRIX	80	BLUE	417
2A1	PPSL	200	GREEN	1747
2A2	PPSL	200	GREEN	1674
2A3	PPSL	200	GREEN	1692
2A4	**PPSL**	**200**	**GREEN**	**1622**
2A5	PPSL	200	GREEN	1370
2A6	PPSL	120	GREEN	1273
2A7	TNL	280	GREEN	1444
2A8	PPSL	120	GREEN	1841
3A1	TNL	400	GREEN	6071
3A2	TNL	400	GREEN	5987
3A3	TNL	400	GREEN	4236
3A3'	TNL	400	GREEN	500

ref.	mat.	kg	color	mm
		B		
b1	PPSL	120	BLUE	559
b2	PPSL	120	BLUE	485
b3	PPSL	120	BLUE	520
b4	PPSL	120	BLUE	538
b5	PPSL	120	BLUE	531
b6	PPSL	120	BLUE	470
b7	PPSL	120	BLUE	485
b8	PPSL	120	BLUE	498
b9	PPSL	120	BLUE	444
b10	MATRIX	80	BLUE	366
b11	MATRIX	80	BLUE	400
b12	MATRIX	80	BLUE	389
b13	MATRIX	80	BLUE	1025
b14	MATRIX	80	BLUE	976
b15	MATRIX	80	BLUE	493
b16	MATRIX	80	BLUE	430
2B1	TNL	280	BLUE	1566
2B2	TNL	280	BLUE	1487
2B3	TNL	280	BLUE	1511
2B4	**PPSL**	**200**	**BLUE**	**1444**
2B5	PPSL	120	BLUE	1158
2B6	PPSL	120	BLUE	981
2B7	PPSL	120	BLUE	438
BC1	PPSL	200	BLUE	207
BC2	PPSL	200	BLUE	244
2BC1	TNL	280	BLUE	1377
2BC2	PPSL	200	BLUE	1414
3B1	TNL	400	BLUE	6167
3B2	TNL	400	BLUE	6081
3B3	TNL	400	BLUE	4773

ref.	mat.	kg	color	mm
		C		
c1	PPSL	120	BLUE	560
c2	PPSL	120	BLUE	487
c3	PPSL	120	BLUE	520
c4	PPSL	120	BLUE	539
c5	PPSL	120	BLUE	531
c6	PPSL	120	BLUE	472
c7	PPSL	120	BLUE	484
c8	PPSL	120	BLUE	499
c9	PPSL	120	BLUE	444
c10	MATRIX	80	BLUE	368
c11	MATRIX	80	BLUE	396
c12	MATRIX	80	BLUE	390
c13	MATRIX	80	BLUE	1006
c14	MATRIX	80	BLUE	970
c15	MATRIX	80	BLUE	446
c16	MATRIX	80	BLUE	410
2C1	TNL	280	BLUE	1565
2C2	TNL	280	BLUE	1491
2C3	TNL	280	BLUE	1510
2C4	**PPSL**	**200**	**BLUE**	**1448**
2C5	PPSL	120	BLUE	1159
2C6	PPSL	120	BLUE	995
2C7	PPSL	120	BLUE	469
2stA	MATRIX	80	BLUE	984
2stB	MATRIX	80	BLUE	952
2stC	MATRIX	80	BLUE	1045
stb main	TNL	140	RED	5880
3C1	TNL	400	BLUE	6165
3C2	TNL	400	BLUE	6088

ref.	mat.	kg	color	mm
		D		
d1	MATRIX	80	BLUE	923
d2	MATRIX	80	BLUE	829
d3	MATRIX	80	BLUE	860
d4	MATRIX	80	BLUE	901
d5	MATRIX	80	BLUE	841
d6	MATRIX	80	BLUE	757
d7	MATRIX	80	BLUE	808
d8	MATRIX	80	BLUE	843
d9	MATRIX	80	BLUE	791
d10	MATRIX	80	BLUE	680
d11	MATRIX	80	BLUE	745
d12	MATRIX	80	BLUE	732
d13	MATRIX	80	BLUE	733
d14	MATRIX	80	BLUE	717
2D1	PPSL	200	BLUE	779
2D2	PPSL	200	BLUE	697
2D3	PPSL	200	BLUE	795
2D4	**PPSL**	**200**	**BLUE**	**691**
2D5	PPSL	120	BLUE	714
2D6	PPSL	120	BLUE	520
2D7	PPSL	200	BLUE	923
2D8	PPSL	120	BLUE	1381
3D1	TNL	280	BLUE	6715
3D2	TNL	280	BLUE	6602
3D3	TNL	280	BLUE	5644

ref.	mat.	kg	color	mm
		E		
e1	MATRIX	80	BLUE	1015
e2	MATRIX	80	BLUE	929
e3	MATRIX	80	BLUE	956
e4	MATRIX	80	BLUE	989
e5	MATRIX	80	BLUE	931
e6	MATRIX	80	BLUE	847
e7	MATRIX	80	BLUE	888
e8	MATRIX	80	BLUE	911
e9	MATRIX	80	BLUE	858
e10	MATRIX	80	BLUE	745
e11	MATRIX	80	BLUE	800
e12	MATRIX	80	BLUE	778

ref.	mat.	kg	color	mm
		BRAKE		
br1	MATRIX	80	RED	973
br2	MATRIX	80	RED	678
br3	MATRIX	80	RED	911
br4	MATRIX	80	RED	841
br5	MATRIX	80	RED	875
br6	MATRIX	80	RED	706
br7	MATRIX	80	RED	682
br8	MATRIX	80	RED	811
br9	MATRIX	80	RED	715
br10	MATRIX	80	RED	680
br11	MATRIX	80	RED	735
br12	MATRIX	80	RED	794
2BR1	MATRIX	80	RED	1.300
2BR2	MATRIX	80	RED	811
2BR3	MATRIX	80	RED	840
2BR4	MATRIX	80	RED	826
2BR5	MATRIX	80	RED	642
2BR6	MATRIX	80	RED	566
3BR1	PPSL	120	RED	2648
3BR2	PPSL	120	RED	2301
3BR3	PPSL	120	RED	2474
BRMAIN	TARAX	240	RED	4660
		KNOT POINT:		4460

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ref.	mat.	kg	color	mm
	A			
a1	PPSL	120	GREEN	585
a2	PPSL	120	GREEN	515
a3	PPSL	120	GREEN	547
a4	PPSL	120	GREEN	562
a5	PPSL	120	GREEN	556
a6	PPSL	120	GREEN	497
a7	PPSL	120	GREEN	513
a8	PPSL	120	GREEN	520
a9	PPSL	120	GREEN	481
a10	MATRIX	80	BLUE	395
a11	MATRIX	80	BLUE	379
a12	MATRIX	80	BLUE	367
a13	MATRIX	80	BLUE	1141
a14	MATRIX	80	BLUE	1088
a15	MATRIX	80	BLUE	535
a16	MATRIX	80	BLUE	434
2A1	PPSL	200	GREEN	1814
2A2	PPSL	200	GREEN	1740
2A3	PPSL	200	GREEN	1757
2A4	PPSL	200	GREEN	1685
2A5	PPSL	200	GREEN	1423
2A6	PPSL	120	GREEN	1323
2A7	TNL	280	GREEN	1499
2A8	PPSL	120	GREEN	1914
3A1	TNL	400	GREEN	6321
3A2	TNL	400	GREEN	6238
3A3	TNL	400	GREEN	4441
3A3'	TNL	400	GREEN	500

ref.	mat.	kg	color	mm
	B			
b1	PPSL	120	BLUE	581
b2	PPSL	120	BLUE	504
b3	PPSL	120	BLUE	540
b4	PPSL	120	BLUE	559
b5	PPSL	120	BLUE	551
b6	PPSL	120	BLUE	489
b7	PPSL	120	BLUE	503
b8	PPSL	120	BLUE	518
b9	PPSL	120	BLUE	462
b10	MATRIX	80	BLUE	380
b11	MATRIX	80	BLUE	415
b12	MATRIX	80	BLUE	404
b13	MATRIX	80	BLUE	1064
b14	MATRIX	80	BLUE	1014
b15	MATRIX	80	BLUE	512
b16	MATRIX	80	BLUE	446
2B1	TNL	280	BLUE	1626
2B2	TNL	280	BLUE	1546
2B3	TNL	280	BLUE	1569
2B4	PPSL	200	BLUE	1502
2B5	PPSL	120	BLUE	1202
2B6	PPSL	120	BLUE	1020
2B7	PPSL	120	BLUE	456
BC1	PPSL	200	BLUE	215
BC2	PPSL	200	BLUE	254
2BC1	TNL	280	BLUE	1430
2BC2	PPSL	200	BLUE	1469
3B1	TNL	400	BLUE	6421
3B2	TNL	400	BLUE	6336
3B3	TNL	400	BLUE	4980

ref.	mat.	kg	color	mm
	C			
c1	PPSL	120	BLUE	581
c2	PPSL	120	BLUE	506
c3	PPSL	120	BLUE	539
c4	PPSL	120	BLUE	560
c5	PPSL	120	BLUE	551
c6	PPSL	120	BLUE	490
c7	PPSL	120	BLUE	503
c8	PPSL	120	BLUE	518
c9	PPSL	120	BLUE	461
c10	MATRIX	80	BLUE	382
c11	MATRIX	80	BLUE	411
c12	MATRIX	80	BLUE	405
c13	MATRIX	80	BLUE	1044
c14	MATRIX	80	BLUE	1008
c15	MATRIX	80	BLUE	464
c16	MATRIX	80	BLUE	426
2C1	TNL	280	BLUE	1625
2C2	TNL	280	BLUE	1550
2C3	TNL	280	BLUE	1568
2C4	PPSL	200	BLUE	1505
2C5	PPSL	120	BLUE	1204
2C6	PPSL	120	BLUE	1033
2C7	PPSL	120	BLUE	488
2stA	MATRIX	80	BLUE	1022
2stB	MATRIX	80	BLUE	989
2stC	MATRIX	80	BLUE	1086
stb main	TNL	140	RED	6131
3C1	TNL	400	BLUE	6419
3C2	TNL	400	BLUE	6342

ref.	mat.	kg	color	mm
	D			
d1	MATRIX	80	BLUE	958
d2	MATRIX	80	BLUE	862
d3	MATRIX	80	BLUE	893
d4	MATRIX	80	BLUE	936
d5	MATRIX	80	BLUE	873
d6	MATRIX	80	BLUE	787
d7	MATRIX	80	BLUE	839
d8	MATRIX	80	BLUE	876
d9	MATRIX	80	BLUE	821
d10	MATRIX	80	BLUE	706
d11	MATRIX	80	BLUE	774
d12	MATRIX	80	BLUE	760
d13	MATRIX	80	BLUE	762
d14	MATRIX	80	BLUE	745
2D1	PPSL	200	BLUE	808
2D2	PPSL	200	BLUE	725
2D3	PPSL	200	BLUE	825
2D4	PPSL	200	BLUE	719
2D5	PPSL	120	BLUE	741
2D6	PPSL	120	BLUE	540
2D7	PPSL	200	BLUE	959
2D8	PPSL	120	BLUE	1435
3D1	TNL	280	BLUE	6991
3D2	TNL	280	BLUE	6878
3D3	TNL	280	BLUE	5885

ref.	mat.	kg	color	mm
	E			
e1	MATRIX	80	BLUE	1054
e2	MATRIX	80	BLUE	965
e3	MATRIX	80	BLUE	993
e4	MATRIX	80	BLUE	1027
e5	MATRIX	80	BLUE	967
e6	MATRIX	80	BLUE	880
e7	MATRIX	80	BLUE	922
e8	MATRIX	80	BLUE	946
e9	MATRIX	80	BLUE	892
e10	MATRIX	80	BLUE	774
e11	MATRIX	80	BLUE	831
e12	MATRIX	80	BLUE	808

ref.	mat.	kg	color	mm
	BRAKE			
br1	MATRIX	80	RED	1011
br2	MATRIX	80	RED	705
br3	MATRIX	80	RED	945
br4	MATRIX	80	RED	874
br5	MATRIX	80	RED	909
br6	MATRIX	80	RED	734
br7	MATRIX	80	RED	708
br8	MATRIX	80	RED	843
br9	MATRIX	80	RED	743
br10	MATRIX	80	RED	706
br11	MATRIX	80	RED	763
br12	MATRIX	80	RED	825
2BR1	MATRIX	80	RED	1.350
2BR2	MATRIX	80	RED	844
2BR3	MATRIX	80	RED	872
2BR4	MATRIX	80	RED	860
2BR5	MATRIX	80	RED	666
2BR6	MATRIX	80	RED	589
3BR1	PPSL	120	RED	2747
3BR2	PPSL	120	RED	2391
3BR3	PPSL	120	RED	2575
BRMAIN	TARAX	240	RED	4838
		KNOT POINT:		4638

TAKOO 6 - 44

ref.	mat.	kg	color	mm
		A		
a1	PPSL	120	GREEN	606
a2	PPSL	120	GREEN	534
a3	PPSL	120	GREEN	567
a4	PPSL	120	GREEN	582
a5	PPSL	120	GREEN	576
a6	PPSL	120	GREEN	516
a7	PPSL	120	GREEN	531
a8	PPSL	120	GREEN	539
a9	PPSL	120	GREEN	498
a10	MATRIX	80	BLUE	409
a11	MATRIX	80	BLUE	393
a12	MATRIX	80	BLUE	381
a13	MATRIX	80	BLUE	1182
a14	MATRIX	80	BLUE	1128
a15	MATRIX	80	BLUE	554
a16	MATRIX	80	BLUE	449
2A1	PPSL	200	GREEN	1878
2A2	PPSL	200	GREEN	1804
2A3	PPSL	200	GREEN	1820
2A4	PPSL	200	GREEN	1747
2A5	PPSL	200	GREEN	1474
2A6	PPSL	120	GREEN	1372
2A7	TNL	280	GREEN	1553
2A8	PPSL	120	GREEN	1984
3A1	TNL	400	GREEN	6562
3A2	TNL	400	GREEN	6480
3A3	TNL	400	GREEN	4640
3A3'	TNL	400	GREEN	500

ref.	mat.	kg	color	mm
		B		
b1	PPSL	120	BLUE	602
b2	PPSL	120	BLUE	523
b3	PPSL	120	BLUE	559
b4	PPSL	120	BLUE	579
b5	PPSL	120	BLUE	571
b6	PPSL	120	BLUE	507
b7	PPSL	120	BLUE	521
b8	PPSL	120	BLUE	536
b9	PPSL	120	BLUE	478
b10	MATRIX	80	BLUE	394
b11	MATRIX	80	BLUE	430
b12	MATRIX	80	BLUE	419
b13	MATRIX	80	BLUE	1102
b14	MATRIX	80	BLUE	1051
b15	MATRIX	80	BLUE	531
b16	MATRIX	80	BLUE	462
2B1	TNL	280	BLUE	1683
2B2	TNL	280	BLUE	1603
2B3	TNL	280	BLUE	1625
2B4	PPSL	200	BLUE	1557
2B5	PPSL	120	BLUE	1246
2B6	PPSL	120	BLUE	1056
2B7	PPSL	120	BLUE	473
BC1	PPSL	200	BLUE	223
BC2	PPSL	200	BLUE	264
2BC1	TNL	280	BLUE	1481
2BC2	PPSL	200	BLUE	1523
3B1	TNL	400	BLUE	6665
3B2	TNL	400	BLUE	6581
3B3	TNL	400	BLUE	5180

ref.	mat.	kg	color	mm
		C		
c1	PPSL	120	BLUE	602
c2	PPSL	120	BLUE	525
c3	PPSL	120	BLUE	558
c4	PPSL	120	BLUE	580
c5	PPSL	120	BLUE	571
c6	PPSL	120	BLUE	508
c7	PPSL	120	BLUE	521
c8	PPSL	120	BLUE	537
c9	PPSL	120	BLUE	478
c10	MATRIX	80	BLUE	396
c11	MATRIX	80	BLUE	426
c12	MATRIX	80	BLUE	420
c13	MATRIX	80	BLUE	1082
c14	MATRIX	80	BLUE	1045
c15	MATRIX	80	BLUE	480
c16	MATRIX	80	BLUE	441
2C1	TNL	280	BLUE	1682
2C2	TNL	280	BLUE	1607
2C3	TNL	280	BLUE	1624
2C4	PPSL	200	BLUE	1560
2C5	PPSL	120	BLUE	1247
2C6	PPSL	120	BLUE	1070
2C7	PPSL	120	BLUE	506
2stA	MATRIX	80	BLUE	1059
2stB	MATRIX	80	BLUE	1024
2stC	MATRIX	80	BLUE	1125
stb main	TNL	140	RED	6372
3C1	TNL	400	BLUE	6664
3C2	TNL	400	BLUE	6588

ref.	mat.	kg	color	mm
		D		
d1	MATRIX	80	BLUE	992
d2	MATRIX	80	BLUE	893
d3	MATRIX	80	BLUE	925
d4	MATRIX	80	BLUE	971
d5	MATRIX	80	BLUE	904
d6	MATRIX	80	BLUE	816
d7	MATRIX	80	BLUE	869
d8	MATRIX	80	BLUE	908
d9	MATRIX	80	BLUE	851
d10	MATRIX	80	BLUE	732
d11	MATRIX	80	BLUE	801
d12	MATRIX	80	BLUE	788
d13	MATRIX	80	BLUE	789
d14	MATRIX	80	BLUE	772
2D1	PPSL	200	BLUE	836
2D2	PPSL	200	BLUE	752
2D3	PPSL	200	BLUE	854
2D4	PPSL	200	BLUE	745
2D5	PPSL	120	BLUE	768
2D6	PPSL	120	BLUE	560
2D7	PPSL	200	BLUE	993
2D8	PPSL	120	BLUE	1488
3D1	TNL	280	BLUE	7257
3D2	TNL	280	BLUE	7143
3D3	TNL	280	BLUE	6117

ref.	mat.	kg	color	mm
		E		
e1	MATRIX	80	BLUE	1092
e2	MATRIX	80	BLUE	1000
e3	MATRIX	80	BLUE	1028
e4	MATRIX	80	BLUE	1065
e5	MATRIX	80	BLUE	1001
e6	MATRIX	80	BLUE	912
e7	MATRIX	80	BLUE	955
e8	MATRIX	80	BLUE	981
e9	MATRIX	80	BLUE	924
e10	MATRIX	80	BLUE	802
e11	MATRIX	80	BLUE	860
e12	MATRIX	80	BLUE	837

ref.	mat.	kg	color	mm
		BRAKE		
br1	MATRIX	80	RED	1047
br2	MATRIX	80	RED	731
br3	MATRIX	80	RED	979
br4	MATRIX	80	RED	906
br5	MATRIX	80	RED	941
br6	MATRIX	80	RED	762
br7	MATRIX	80	RED	733
br8	MATRIX	80	RED	873
br9	MATRIX	80	RED	769
br10	MATRIX	80	RED	732
br11	MATRIX	80	RED	790
br12	MATRIX	80	RED	854
2BR1	MATRIX	80	RED	1.398
2BR2	MATRIX	80	RED	876
2BR3	MATRIX	80	RED	902
2BR4	MATRIX	80	RED	892
2BR5	MATRIX	80	RED	689
2BR6	MATRIX	80	RED	611
3BR1	PPSL	120	RED	2843
3BR2	PPSL	120	RED	2478
3BR3	PPSL	120	RED	2672
BRMAIN	TARAX	240	RED	5008
		KNOT POINT:		4808

10.7 Total line length

TAKOO 6 – 38

LINES HEIGHT + RISER mm

	A	B	C	D	E	br
1	8741	8653	8647	8779	8869	9441
2	8673	8579	8574	8685	8783	9146
3	8632	8535	8533	8634	8728	8890
4	8646	8553	8552	8675	8761	8820
5	8574	8484	8486	8600	8688	8536
6	8518	8423	8427	8516	8604	8367
7	8463	8373	8379	8463	8541	8329
8	8469	8386	8394	8498	8564	8458
9	8349	8299	8300	8423	8490	8351
10	8265	8221	8224	8312	8377	8316
11	8154	8115	8125	8183	8238	8295
12	8142	8104	8119	8170	8216	8284
13	8025	8003	8015	8113		
14	7974	7954	7979	8097		
15	7733	7679	7725			
16	7635	7616	7689			

RISERS LENGHT mm

	A	B	C	D	
	350	350	350	350	STANDARD
	350	375	400	450	TRIMMER OPENED

TAKOO 6 – 41

LINES HEIGHT + RISER mm

	A	B	C	D	E	br
1	9082	8989	8985	9120	9216	9796
2	9012	8912	8910	9024	9127	9490
3	8970	8868	8868	8972	9072	9224
4	8985	8887	8889	9015	9106	9153
5	8913	8817	8821	8939	9033	8860
6	8854	8755	8760	8853	8946	8685
7	8798	8704	8712	8799	8882	8647
8	8805	8719	8727	8836	8906	8782
9	8683	8629	8630	8760	8831	8672
10	8596	8547	8551	8645	8713	8635
11	8481	8439	8448	8512	8569	8615
12	8469	8428	8442	8498	8546	8607
13	8348	8322	8334	8440		
14	8295	8272	8298	8423		
15	8045	7989	8038			
16	7944	7923	8000			

RISERS LENGHT mm

	A	B	C	D	
	350	350	350	350	STANDARD
	350	375	400	450	TRIMMER OPENED

TAKOO 6 – 44

LINES HEIGHT + RISER mm

	A	B	C	D	E	br
1	9409	9315	9307	9449	9549	10146
2	9337	9236	9230	9350	9457	9830
3	9296	9192	9188	9298	9401	9556
4	9311	9212	9210	9344	9438	9483
5	9239	9142	9142	9265	9362	9179
6	9179	9078	9079	9177	9273	9000
7	9121	9026	9030	9121	9207	8961
8	9129	9041	9046	9160	9233	9101
9	9006	8952	8953	9084	9157	8988
10	8916	8868	8871	8965	9035	8951
11	8799	8755	8765	8826	8885	8931
12	8787	8744	8759	8813	8862	8925
13	8660	8635	8648	8753		
14	8606	8584	8611	8736		
15	8341	8283	8333			
16	8236	8214	8294			

LRISERS LENGHT mm

	A	B	C	D	
	350	350	350	350	STANDARD
	350	375	400	450	TRIMMER OPENED

10.8 Minimum strength of suspension lines

LINE REFERENCE	SIZE		
	38	**41**	**44**
TNL-140	61	70	77
TNL-280	118	136	149
TNL-400	142	164	179
PPSL-120	71	82	90
PPSL-200	106	123	134
Matrix-80	46	53	58

Minimum resistance values in daN

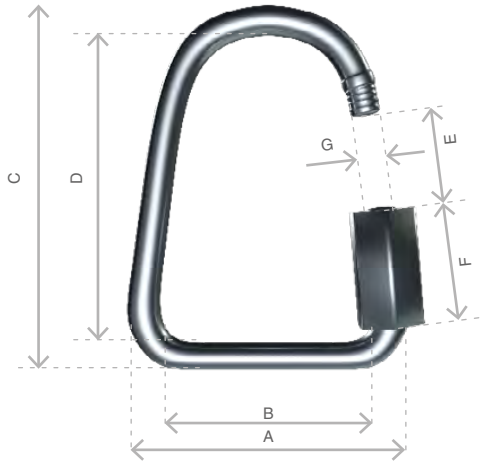
Based on the original experimental resistance values of each suspension line material obtained in certification tests, a correction factor is applied depending on the material and its aging, resulting in the reference values shown in the table.

10.9 Maillon & Pulley

DESCRIPTION MAILLON

MAILLON	DELTA
CODE	3.5
MATERIAL	STAINLESS STEEL
SIZE	3 mm
WEIGHT	5 G/PIECE
QUANTITY	8 PIECES
INSERTS	2 GREEN / 6 BLACK

TECHNICAL SPECIFICATIONS



DIMENSIONS	mm
A	22
B	14
C	37
D	29
E	5
F	12
G	4
LOAD	KG
WORKING LIMIT	110
BREAKING	550

DESCRIPTION MAILLON

MATERIAL	
AISI 304 STAINLESS STEEL	STANDARD

CLOSING APPLIED BY MANUAL & ENTIRE SCREWING OF THE NUT TO GUARANTEE THE HIGHEST SAFETY (NO THREAD SHOULD BE OBVIOUS)
SYSTEMATIC CONTROL OF MAILLON QUICK-LINKS BEFORE EVERY FLIGHT

DESCRIPTION PULLEY

PULLEY	20 mm
CODE	RF25109
MATERIALS	STAINLESS STEEL
	NYLON
	CARBON ACETAL
BEARING	DELRIN®
WEIGHT	14 G/PIECE

TECHNICAL SPECIFICATIONS

DIMENSIONS	mm
A	20
B	33
Ø	5 max
LOAD	kg
WORKING LIMIT	200
BREAKING	400

10.10 Certification

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test laboratory for paragliders, paraglider harnesses
and paraglider reserve parachutes

paragliding by air turquoise

NIVIUK

Classification: **B**

In accordance with standards: EN926-1:2015, EN926-2:2013+A1:2021 and NfL 2-565-20	PG_2455.2024
Date of issue (DMY):	20.11.2024
Manufacturer:	Niviuk Gliders / Air Games S.L.
Model:	Takoo 6 38
Serial number:	TAKOO6338

Configuration during flight tests

Paraglider		**Accessories**	
Maximum weight in flight [kg]	**190**	Range of speed system [cm]	**n/a**
Minimum weight in flight [kg]	**110**	Speed range using brakes [km/h]	**12**
Glider's weight [kg]	**7.4**	Total speed range with accessories [km/h]	**17**
Number of risers	**4+1**	Range of trimmers [cm]	**9.7**
Projected area [m²]	**32.27**		

Harness used for testing (max weight)	
Harness type	**ABS**
Harness brand	**Advance Thun AG**
Harness model	**Bi-pro 2**
Harness to risers distance [cm]	**44**
Distance between risers [cm]	**55**

Inspections (whichever happens first)
every 100 hours of use or every 24 months

Person or company having presented the glider for testing: **None**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
B	**A**	**A**	**A**	**0**	**0**	**A**	**A**	**B**	**A**	**A**	**A**	**A**	**B**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**0**

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paragliding by air turquoise

NIVIUK

Classification: **B**

In accordance with standards: EN926-1:2015, EN926-2:2013+A1:2021 and NfL 2-565-20	PG_2444.2024
Date of issue (DMY):	15.11.2024
Manufacturer:	Niviuk Gliders / Air Games S.L.
Model:	Takoo 6 41
Serial number:	TAKOO63141

Configuration during flight tests

Paraglider		**Accessories**	
Maximum weight in flight [kg]	**220**	Range of speed system [cm]	**n/a**
Minimum weight in flight [kg]	**120**	Speed range using brakes [km/h]	**12**
Glider's weight [kg]	**7.9**	Total speed range with accessories [km/h]	**17**
Number of risers	**4+1**	Range of trimmers [cm]	**9.5**
Projected area [m²]	**34.82**		

Harness used for testing (max weight)	
Harness type	**ABS**
Harness brand	**Advance Thun AG**
Harness model	**Bi-pro 3 M**
Harness to risers distance [cm]	**42**
Distance between risers [cm]	**55**

Inspections (whichever happens first)
every 100 hours of use or every 24 months

Person or company having presented the glider for testing: **None**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	**A**	**B**	**A**	**0**	**0**	**A**	**A**	**B**	**B**	**A**	**A**	**A**	**B**	**A**	**A**	**A**	**B**	**A**	**A**	**0**	**A**	**0**

The validation of this test report is given by the signature of the test manager on inspection certificate 91.20 // Rev 07 | 04.03.2022 // ISO | 91.21 // Page 1 of 1

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and paraglider reserve parachutes

paragliding by air turquoise

NIVIUK

Classification: **B**

In accordance with standards: EN926-1:2015, EN926-2:2013+A1:2021 and NfL 2-565-20	PG_2450.2024
Date of issue (DMY):	15.11.2024
Manufacturer:	Niviuk Gliders / Air Games S.L.
Model:	Takoo 6 44
Serial number:	TAKOO6344

Configuration during flight tests

Paraglider

Maximum weight in flight [kg]	**240**
Minimum weight in flight [kg]	**140**
Glider's weight [kg]	**8.3**
Number of risers	**4+1**
Projected area [m²]	**37.37**

Accessories

Range of speed system [cm]	**n/a**
Speed range using brakes [km/h]	**12**
Total speed range with accessories [km/h]	**17**
Range of trimmers [cm]	**9.4**

Harness used for testing (max weight)

Harness type	**ABS**
Harness brand	**Advance Thun AG**
Harness model	**Bi-pro 3 M**
Harness to risers distance [cm]	**42**
Distance between risers [cm]	**55**

Inspections (whichever happens first)
every 100 hours of use or every 24 months

Person or company having presented the glider for testing: **None**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
B	**A**	**B**	**A**	**0**	**0**	**A**	**A**	**B**	**A**	**A**	**A**	**A**	**B**	**A**	**A**	**A**	**B**	**0**	**A**	**0**	**A**	**0**

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