
# HAWK

Please read this manual carefully and keep its instructions in mind when using your

Hawk paraglider

Thank you for flying Drift glider and becoming Drift team pilot! We wish you many beautiful flying experiences.

Please join us on Facebook and Instagram
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https://www.instagram.com/driftparagliders

**...Catch the drift!...**

User's manual version 3.1. (30.11. 2021)

## 1. INTRODUCTION

Our aim was to create a wing for pilots who continue to develop their cross-country flying skills. Forgiving, but with excellent flight characteristics at the same time.

The light construction of the Hawk is great for hike & fly! Hawk glider has high stability and very good glide even at the highest speeds.. An excellent choice for pilots who are interested in starting to fly serious distances in different conditions, such as in the mountains and flatland.

We recommend the Hawk paraglider to pilots who fly for at least 40 hours a year. Despite good passive safety, this wing is not suitable immediately after a paragliding course (for pilots who have just completed the course, we recommend our Carancho wing instead for your successful start.)

### 1.1 **WARNING**

Paragliding is considered a risky sport in which injuries, in the worst case, death, can occur if the appropriate weather conditions are not estimated or if a pilot error occurs. By using a Drift glider, you are aware of these risks.

Please note that any changes to the paraglider will invalidate the result of the certification. Correct usage of the glider is the pilot‘s responsibility. The manufacturer and distributor do not accept liability for loss or damage as a result of the misuse of this paraglider. It is the pilot’s responsibility to comply with legal regulations and to maintain the airworthiness of the aircraft.

## 2. YOUR PARAGLIDER

### 2.1 Technical description

The Hawk from Drift Paragliders is equipped with innovative 3-liner layout with the thinnest possible but strong lines allowing to reduce air drag, it has an optimal shape of inlet - which we call the “beak” for higher inner pressure especially for accelerated flight, profile reinforcements in cleverly placed tunnels, mini-ribs in the trailing edge helps to get a better handling and smoothness. The leading edge is spatially shaped by concave and convex seams to improve tension and smoothness. The agility, lift, performance and speed are backed up by a high level of passive safety. This wing provides pilots with direct, simple handling and the immediate feedback means pilots relax and quickly start to fly in harmony. In the air, the Hawk reacts immediately to weight shifting and has precise brakes with medium long brake travel with increasing strength to fit less experienced and advanced pilots as well. Balanced wing dynamics and a clear stall point gives you good response in the air.

The Hawk’s ground plan has an elliptical shape. The glider’s profile has been specially developed to deliver maximum stability over as wide a speed range as possible. This feature is supported by the position and size of the cell inlets. The leading edge is reinforced using integrated nylon plastics. This ensures optimal inflation of the canopy and helps to retain the leading edge’s clean shape at maximum speed. The Hawk is supplied with a modern three-riser speed-system with the “B” row movably transmitted by two Ronstan pulleys which results in great acceleration without much effort and angle of attack control at the highest level.

Drift team has paid special attention to the small details, including new low-drag attachment points. These points between the lines and the canopy are reinforced by elastic strings, optimising the distribution of forces across the glider. The upper and middle level lines have progressively differing diameters and are made from aramid, very strong unsheathed lines. The main lines are a selection of sheathed and unsheathed types with a very good ratio of strength and diameter and this combination helps to untangle any knots and get ready for the take off.  The connection between the risers and the lines is ensured by small carabiners and fastened with rubber bands. Upper and lower sails adjacent to certain openings are held by anti-fluttering lines (AF lines feature).

**2.2 Technical data**

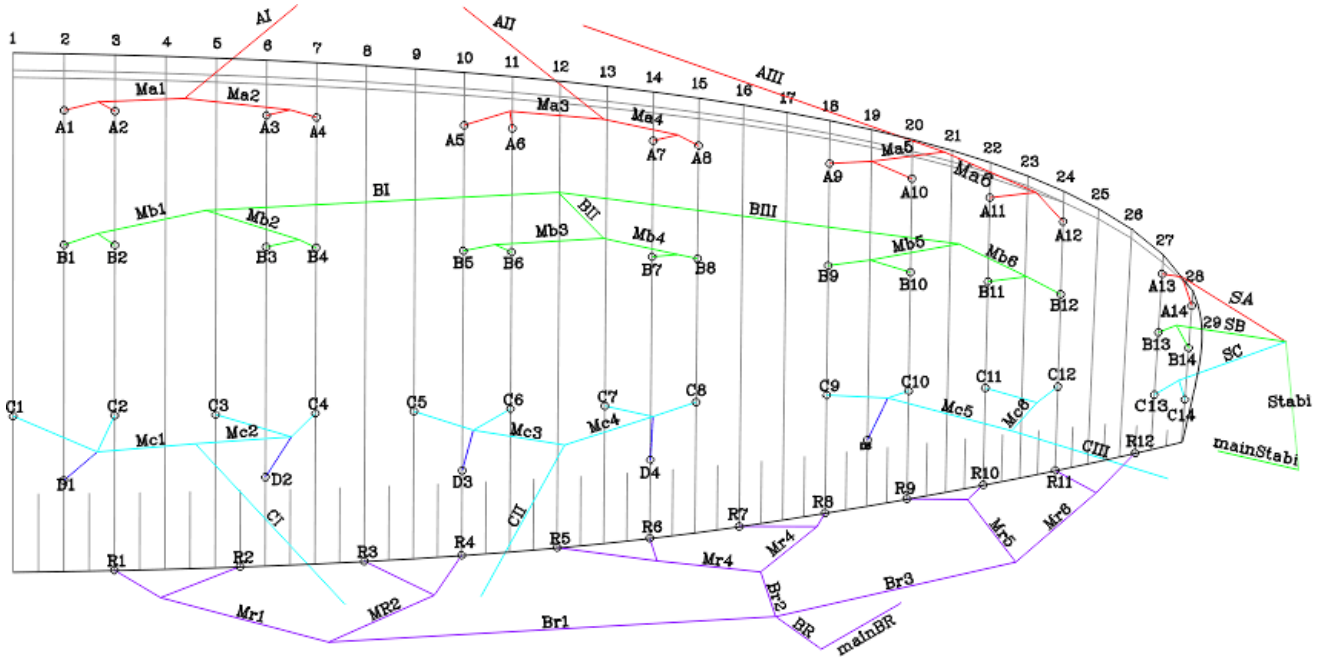
| **Hawk** | | | | | | |
|---|---|---|---|---|---|---|
| Size | Units | XS | S | M | L | XL |
| Zoom | % | 91,5 | 96 | 100 | 104 | 109 |
| Max. chord | m | 2,38 | 2,50 | 2,60 | 2,70 | 2,82 |
| Flat Area | m² | 21,68 | 23,75 | 25,80 | 27,90 | 30,40 |
| Projected Area | m² | 18,42 | 20,27 | 22,00 | 23,80 | 25,89 |
| Flat span | m | 11,23 | 11,78 | 12,27 | 12,76 | 13,31 |
| Projected span | m | 8,92 | 9,36 | 9,75 | 10,14 | 10,57 |
| Aspect Ratio | | 5,80 | 5,80 | 5,80 | 5,80 | 5,80 |
| Projected AR | | 4,32 | 4,32 | 4,32 | 4,32 | 4,32 |
| Number of Cells | № | 57 | 57 | 57 | 57 | 57 |
| Total bridle length | m | 222 | 233 | 243 | 253 | 264 |
| Glider weight (UL) | kg | 3,35 | 3,65 | 3,95 | 4,25 | 4,65 |
| Certification | EN, LTF | * | EN-B | EN-B | EN-B | * |
| Certified takeoff weight | kg | 57-78 | 70-92 | 82-105 | 95-119 | 108-133 |
| Ideal weight range | kg | 63-78 | 77-92 | 91-105 | 104-119 | 118-133 |

*not yet

**with standard risers +230g

## 2.3 Technical Drawings

Lines layout/names




Length of Hawk risers (mm) ; (excluded maillon carabinas/soft links)

| XS-XL size | | $A_1+A_2$ | B | C |
|---|---|---|---|---|
| non-accelerated | [mm] | 500 | 500 | 500 |
| accelerated | [mm] | 355 | 405 | 500 |

**Hawk has 3 main row of risers: A, B, C**.



- Length tolerance of risers is +/-5mm.
- Hawk has no trimmers
- Risers are delivered with removable rear steering plastic handles

### 2.4 Materials

### Materials description

| **Canopy** | |
|---|---|
| Upper sail: | Porcher Sport - Skytex 32 everlast<br>Porcher Sport - Skytex 27 double coated |
| Lower sail : | Porcher Sport - Skytex 27 double coated |
| Unsupported ribs: | Porcher Sport - Skytex 27 hard finish |
| Supported ribs: | Porcher Sport - Skytex 27 hard finish;<br>Skytex-patch white reinforcement |
| Reinforcement: | nylon rods ⌀ 2mm; ⌀ 1,5mm, Skytex-patch white,<br>Skyforce 160 |
| Thread: | Euronite nylon D60, D40 |
| Attachment points: | Mouka Tišnov PN 99 301 |

| **Suspension lines** | |
|---|---|
| Upper cascade: | Edelrid A-8000-U |
| Middle cascade: | Edelrid A-8000-U |
| Main lines: | Edelrid A-8000-U; PPSL Liros |

| | |
|---|---|
| Risers | Mouka Tišnov – PES 13x2mm (900 daN) |
| Pulleys | Harken 16mm |
| | Ronstan Orbit 20; Ronstan RF 13101-2 |
| Rapid links | Maillon rapide - (min 150 daN) |
| Rigifoils | Nylon rigifoils Spokar 2mm+1,6mm diameter |

## 3. CERTIFICATION

The Hawk is EN/LTF - B certified. The certification label on your glider is found on the first supported rib to the right in the middle of the canopy. You may only make adjustments to brake-line lengths or to the speed system of your Hawk – and only then in keeping with the recommendations of this manual. Other adjustments or changes to your Hawk lead to a loss of guarantee, airworthiness and validity of the Certification. Amateur modification may endanger yourself and other pilots.

## 4. BEFORE FLIGHT

### 4.1 Adjusting your glider

Every single paraglider goes through a final check and test-flight by a certified Drift team member. However if you use your Hawk for the very first time we recommend you to take your time to unpack, check and inflate the wing on the ground before first flight. You should inspect the top and bottom surfaces for any rips and tears or any other obvious signs of damage. Check the canopy carefully and continue to lines and risers. Lines shouldn't be twisted or knotted and all mailons must be properly closed. Practice of ground handling can help you to familiarize yourself with your wing.

### 4.1 **Harness**

As mentioned in section 3 - certification, our wings are certified with standard seated harnesses. It's important to set up your harness correctly before flying. Make sure you have a comfortable position. Don't put your chest strap too tight (below 42 cm) or too wide (over 48 cm) as this will affect the behaviour and feedback of the wing. Flying with the chest strap too tight increases the risk of asymmetrical collapses as well as slower regeneration from the deep spiral. Check the settings used during testing under the certification specimen section. Pod harnesses increase the risk of twists occurring during a large asymmetric collapse and should only be used by experienced pilots

### 4.2 **Accelerator settings**

Make sure you can use the whole range when you attach your speed bar. A basic set-up can be made on the ground. Find some-one who pulls the risers tight into flight position whilst you sit in the harness. Adjust the lengths of the lines so that the main bar sits just beneath your seat. You should be able to hook your heel into the lower loop of the accelerator. The length of the speed bar lines should be adjusted on the ground so that your legs are fully extended at the point of full accelerator travel

While setting the speed line lengths make sure they are long enough, so that the speed system does not accelerate the glider by itself.

### 4.3 **Brake lines**

Main brake lines on your wing have been set during the certification test and the usable brake travel meets the requirements for the category of gliders, which is more then 65 cms at maximum weight in flight. This length should suit most pilots however if you choose to adjust their length we recommend you to make any change wisely.

Make sure that main brake lines stay in equal length. Too short brakes can make more difficult recovery from certain unstable manoeuvres and can reduce speed range of your glider. There must be a minimum 5cms of free play before the brakes begin to deform the trailing edge. This prevents the trailing edge from being deformed when using the speed system. If the brakes are too long it may lead to loose control in extreme flying situations. It can also affect the pilot's control during takeoff and landing.

### 4.4 **Weight range**

Each size of the Hawk is certified for its own weight range. The above mentioned weight includes the weight of the pilot and complete paragliding equipment, together with the glider, harness, all accessories and optional ballast. Every glider changes its characteristics by changing the take-off weight. We recommend that you always fly your glider in the specified weight range.

## 5. OPERATION IN FLIGHT

This manual is intended as a guide to the characteristic features of your new Hawk paraglider. Under no circumstances should it be used as a ‘learn-to-fly’ manual for paragliding or as a substitute for a paragliding pilot’s training course.

### 5.1. Standard flight

#### 5.1.1 Pre-flight check

Before every flight you need to do a pre-flight check and the inspection of other equipment like the harness, reserve, speed system and all connections, it is essential for safe flying - pay special attention to it. You should have a consistent method of checking and preparing your equipment and doing the final pre-flight check. Above all, you should check that the canopy, lines and risers are free from damage and tangles.

#### 5.1.2. Launch

Starting the Hawk does not require any special skills and habits than you are used to from the basic PG course, either by front launch or by reverse launch. A dynamic pull of the front risers (AI,AII - coloured red) will bring the canopy simply and easily above the pilot’s head. The canopy inflates from the centre equally and smoothly. The Hawk has no tendency to outrun the pilot and quickly stabilises above the pilot. Once there, visually check the canopy and the lines before taking off. The Hawk paraglider is built for hill or tow launching. It is not built to withstand jumping from a plane, buildings or for any jumps where there is a belated opening of the canopy. There are no other special flying procedure and/or configuration Drift suggests to apply.

#### 5.1.3. Flight

**Speed to fly**

The Hawk is trimmed to fly at best glide when the brakes/hands are fully up. Best sink rate is achieved when both brakes are pulled down symmetrically to about 20% of their range. For better penetration into headwinds and improved glide performance in sinking air, crosswinds or headwinds, you should fly faster than trim speed using the accelerator system. Using up to half bar does not degrade the glide angle or stability significantly and will improve your flying performance, you will reach the next thermal faster and higher.

**Turbulent conditions**

When flying through severe turbulence stabilise the canopy by simultaneously applying a little brake to both sides. Flying with a little brake applied will also help to prevent deflations and give you more feedback about what the air is doing and how the glider is reacting. Responding correctly to the paraglider’s movement by means of the brakes and weight shift is known as ‘active flying’. A pilot demonstrating good active-flying skills will significantly reduce both the number and severity of collapses he or she experiences.

**Turning**

The Hawk is very comfortable and pleasant in turns. Handling characteristics are responsive and accurate and demand no special habits or non-standard procedures. Brake pressure is reassuringly progressive. In flight, brakes are firm but responsive and precise and allow for perfect communication

with the canopy. In an emergency (for example accidentally broken brake line) the glider can be steered with the rear risers or by weight shift.

**Using the speed system**

Using up to 50% of the speed bar does not degrade the glide angle or stability significantly and will improve your flying performance, you will reach the next thermal faster and higher, especially against the wind or in a huge sinking air areas.

Always keep both hands on the controls when flying fast in turbulence and be ready to release the speed system immediately at the first sign of a collapse. Use the speed system very carefully or not at all at low altitude.

**Active Rear Riser Control (RRC)**

It is possible to pilot the wing with the C risers, just grab blue plastic handles and push carefully downwards. The distance of C control travel is trimmed to keep flying even in the lowest position, but can lose the flight (deepstall appears) when the glider hits the thermal for example - which further increases the angle of attack. **So it is recommended to use only 0-90% of the BC risers control**.

This gives an improved feel and control over the wing enabling you to fly actively without using the brakes. Using the C risers increases the angle of attack more evenly across the chord and does not weaken the profile as much as using the brakes. Furthermore, this mechanism can be used for the most efficient ascent in thermals when pilot can slow down part of the wing.

At the same time it is the Control Procedure in case of failure of the primary controls or brake pulleys.

### 5.1.4. **Landing**

The Hawk has no unusual landing characteristics, is very simple and should offer no difficulty. On your first flights you may be surprised at how well it glides, so take account of this when making your landing approach! Into wind, at about one metre above the ground pull the brakes down all the way. In nil-wind conditions, or if forced to make an emergency landing downwind, you may prefer to take a wrap of each control line to enable a more dynamic flare.

### 5.1.5 **Towing**

The Hawk is certified for towing. It has no tendencies towards deep stall. Make sure you use proper equipment, experienced crew and all relevant safety precautions for towing.

### 5.1.6 **Motorised flight**

Hawk is not suitable for motorised flight due to its lightweight internal structure.

## 5.2. **Fast descent**

In order to descend, the paraglider must fly away from the areas of lift. In case any problems occur, the following techniques might be used to increase the sink rate.

Sooner or later every pilot will need to descend quickly. It might be because of a sudden and unexpected change in the weather, reaching the cloudbase and not wishing to enter the cloud, or simply because you need to finish your flight. If you don't have enough experience, practise following manoeuvres under the supervision of an instructor and with a reserve parachute.

### 5.2.1. **Big Ears**

Pull down the outer A-lines (riser A2, coloured blue) on both sides as high as possible and pull them down smoothly. Hold them firmly. The effective area of the glider is reduced equally on both sides of the wing. The size of the deflated area depends on how deeply the lines are pulled down. Be sure to pull both sides equally. Under normal circumstances the Hawk will open automatically when the A-lines are released

This is the easiest technique for a rapid descent. Depending on how much of the wing tip you deflate, 3 m/s to 5 m/s sink rate can be achieved. While in Big Ears your sink rate and forward speed can be further increased by using the speed system. But always do the big ears first and then accelerate; not the other way around as you will risk getting a frontal collapse. The Hawk can be steered while Big Ears are in by means of weight shift.

### 5.2.2. **B-line Stall**

Enter the B-stall reach for the B risers just below the maillons and pull both B line risers symmetrically for about 20 cm. Your sink rate will increase considerably while your forward speed will decrease to practically zero. Don’t be startled when the airflow over the top surface is interrupted and the canopy enters a parachutal stall without moving forward. It will soon stabilise above your head. Do everything symmetrically and at the same time. Exit the B-line stall raise both hands together in a single, positive movement so that the risers are at full extension. If the B-risers are released unevenly the canopy can enter a turn. If the risers are released slowly and very unevenly you could enter a spin.

Depending on how much the B-risers are pulled down, the sink rate is between 5 and 8 m/s.

### 5.2.3. **Spiral Dive**

Smoothly pull on one brake so that the glider goes from a normal 360-degree turn into a steep turn and from there into a spiral dive. The transition into a spiral dive can be made easier by weight shifting to the inner side of the turn. The Hawk recovers from a spiral dive automatically as soon as the brakes are released. Release them smoothly and always finish a spiral dive with safe altitude! Recovery from a spiral dive can be delayed if you are weight shifting to the inner side of the turn.

The spiral dive is the most effective way to make a fast descent. Every pilot should be able to perform a spiral dive and one day you may need to. When in a spiral dive always stay aware of your altitude, which decreases very rapidly. Warnings: There is a possibility of losing consciousness while in the spiral dive, so never make a spiral with more than 16-18m/s sinking speed. During the manoeuvre the pilot and glider will experience strong centrifugal forces. Forces of greater than 3G are possible – a great strain on the pilot as well as the glider.

## 5.3. **SIV maneuvers**

No matter what category of canopy you fly or what level of certification it has, in turbulence or in strong thermals you may experience all kinds of collapses. The Hawk behaves comfortably in these situations. Even so, you must follow all safety rules when practising SIV and always pay attention to your altitude.

Practise SIV manoeuvres only under the supervision of an instructor and with a reserve parachute.

WARNING: Whenever a paraglider is not in normal flight and airflow is disrupted there is always a rapid increase in sink rate and therefore a substantial loss of altitude.

Remember: You are also exposing your glider to forces that may damage it.

### 5.3.1. **Asymmetric Collapse**

Pull down the A riser (coloured red) on one side. Half of the wing collapses depending on the depth of the lines pull and on the force. Both in simulation and in real conditions, you can stop any turn tendency by applying the opposite brake and by weight shifting onto the inflated side of the canopy (be careful not to overreact and stall the inflated side). Under normal conditions the Hawk will re-inflate spontaneously when the pulled lines are released. If the collapse remains then re-inflate the collapsed side by ‘pumping’ the brake on the collapsed side.

### 5.3.2. **Frontal Collapse**

Pull down both A-risers at the top smoothly until the leading edge collapses and full wingspan occurs. Applying the brakes on both sides simultaneously can help re-open the paraglider.

After a symmetric collapse always consider your airspeed. Make sure the glider is not in parachutal stall before making any further inputs.

### 5.3.3. **Deep Stall**

Pull both brakes smoothly until the sink rate increases markedly and the forward speed reaches almost zero. The pull on the brakes should be controlled so that the canopy stays inflated and doesn’t fall back into a full stall. After the brakes are released the glider automatically returns to normal flight with a gentle forward move. If you need to, you can accelerate recovery by pulling on both brakes,

followed by a fast release. With the Hawk it is very unlikely to get into this situation unintentionally. This could possibly happen if you are flying at a very low speed in turbulent conditions. Also the porosity of the material and line stretch on a very old glider can increase the possibility of the deep stall tendency.

### 5.3.4 **Full Stall**

Wind the control lines once around your hands and pull both of them down smoothly. Hold them down until the canopy falls behind the pilot and deforms into a characteristic U shape. Releasing the brakes improperly in the moment the wing is far behind the pilot may lead to massive surge of the glider with danger of falling into the canopy. Hold your hands firmly and be careful that you do not release the brakes prematurely or asymmetrically. To exit full stall smoothly and slowly release the brakes.

### 5.3.5 **Negative Spin**

Slow down by braking to nearly minimum speed. Then pull a brake on one side all the way down while simultaneously releasing the brake on the other side. Because the stalled side falls back, the canopy suffers airflow disruption over one half of the wing which results in a spin and a rapid loss of altitude. The Hawk is capable of recovering from a negative spin automatically when the brakes are released.

### 5.3.6. **Cravats**

During SIV training or, very rarely normal flying, a situation called a “cravat” can happen. It means the tip of your wing gets stuck in the lines and due to the large amount of drag, cravats can turn your wing into a spiral dive very quickly, which is difficult to control.

The first reaction should be to stop the rotation by adequately applying the brake on the non-cravated side. Once you have control of the rotation, apply strong deep pumps of the brake on the cravated side whilst weight shifting away from the cravat. Small cravats can be re-inflated by pulling down the stabilo line, which is the orange line on the outer side of a C carabiner. In the case the cravat is too big to fly straight in a controlled manner, full stal can be the next option. You still need to be aware of your altitude and if you can't get the situation under control, use a reserve parachute.

## 6. MAINTAINING YOUR GLIDER

If you handle your glider with care and store it in a suitable place it can last you a very long time. On the other hand, neglecting maintenance, bad storage and the use of unsuitable cleaning products can reduce the lifespan of your glider significantly or may even make it dangerous.

**You must keep to these rules:**

- Choose a suitable area for your launches. Lines caught on roots or rocks lead to unnecessary strain
- on the attachment tabs during inflation. Snagging the lines may rip the canopy tissue or damage lines.
- When preparing the paraglider for a launch or when ground handling, be sure not to step on any of the lines or the canopy.
- Protect the canopy from unnecessary strain. Inconsiderate handling of your glider – pulling it over grass, soil, sand or rocks – will significantly reduce its lifetime and increase porosity.
- Protect your canopy and lines from unnecessary exposure to sunlight and don't keep your glider on the car in hot conditions. UV-rays can damage many parts of a paraglider and deformation lines. When storing or during transport make sure your glider isn't exposed to temperatures higher than 50 degrees Celsius.
- Try not to pack your glider when wet. If it’s unavoidable then dry it as soon as possible but away from direct sunlight. Be careful to avoid storing your canopy wet - this is the most common reason for cloth degradation and is easily preventable.
- Don't let your glider come into contact with seawater. If it does, rinse the lines, canopy and risers with fresh water and dry before storing.
- For long-term storage don't pack the glider too tightly. Store it in a cold, dry and well-ventilated room.
- Never let the paraglider come into contact with chemicals. Clean the glider with clean lukewarm water only.

*Please note If you have the extra light version, the material is thinner and takes more care for use.*

6.1 **Checking your glider**

After *100 flying hours or 24 months* of usage your Hawk must be thoroughly checked and tested by the manufacturer or by a Drift Paragliders authorised service centre. This check is primarily focused on:

- measuring of porosity
- measuring of tear strength of fabric
- sewing  of panels, attachment points, cell openings, etc.
- condition of lines and risers
- line strength
- laser check - geometry of the suspension system

All data are recorded in the test report. On the basis of the real wing's condition, authorized technicians will define the next check interval: under normal circumstances it is two years.

*Please note* that the condition of the glider can vary considerably depending on the type of usage and environment. For more information please visit our website or contact your dealer.

***Respect the environment and look after your flying sites. If you need to dispose the wing, do so in an environmentally responsible manner. Do not dispose it with the normal household waste.***

6.2 **Repairing your glider**

To repair small damages up to 10 cm on the canopy cloth, may be done by the user using the ripstop tape. Greater damages, including stitches and lines must be repaired by a specialized repair shop. Damaged lines should be replaced by Drift Paragliders dealers.

## 7. Packing glider

It is important to correctly pack your glider as this prolongs its lifespan. We recommend that you fold the glider like a harmonica, neatly aligning the profiles with the leading edge reinforcements side by side. The wing should then be folded in three parts or two folds. The wing should be packed as loosely as possible. While packing be careful not to trap any grasshoppers inside your canopy as they will tear the canopy cloth. This technique will make your glider last longer and ensure its best performance.

### 7.1. Into the Drift Compress bag

Step 1 Open your compression bag (CB)

Step 2 put your glider to the middle of CB in “harmonica” style with leading edge´s ribs one on each other

Step 3 Put the risers in the bag intended for them

Step 4 Start fastening the straps

Step 5 Fold the wing in the middle so that the colored markings at the bottom and top fits together

Step 6 Fold the wing in half again

Step 7 Zip it around and put into your backpack

## 8. CUSTOMER CARE

Please contact your nearest Drift Paragliders dealer for any questions concerning your equipment.
You can find the list of all Drift Paragliders dealers on our website driftgliders.com
For all other questions or requests please email us at info@driftgliders.com

## 9. CONTACT

Our production and development centre is located in the Czech Republic.

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**Online resources**
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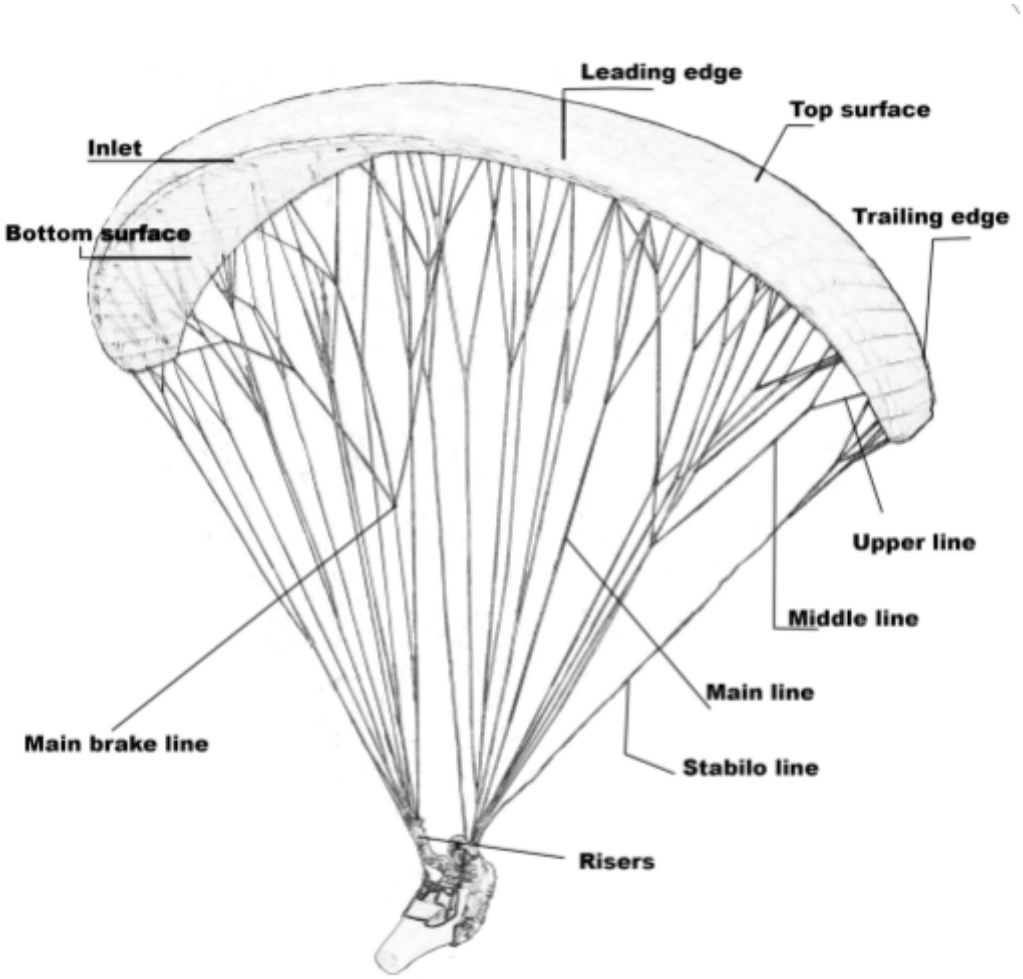
## 10. DIAGRAM & DIMENSIONS



## LINES TYPE

Lines made by : EDELRID A-8000; LIROS PPSL, DSL

| Group A | | | Group B | | | Group C | | |
|---|---|---|---|---|---|---|---|---|
| NAME | QUANTITY | MATERIAL | NAME | QUANTITY | MATERIAL | NAME | QUANTITY | MATERIAL |
| A1 | 2 | U90 | B1 | 2 | U70 | C1 | 2 | U50 |
| A2 | 2 | U70 | B2 | 2 | U50 | C2 | 2 | U50 |
| A3 | 2 | U70 | B3 | 2 | U50 | C3 | 2 | U50 |
| A4 | 2 | U90 | B4 | 2 | U70 | C4 | 2 | U50 |
| A5 | 2 | U90 | B5 | 2 | U70 | C5 | 2 | U50 |
| A6 | 2 | U70 | B6 | 2 | U50 | C6 | 2 | U50 |
| A7 | 2 | U70 | B7 | 2 | U50 | C7 | 2 | U50 |
| A8 | 2 | U70 | B8 | 2 | U50 | C8 | 2 | U50 |
| A9 | 2 | U70 | B9 | 2 | U50 | C9 | 2 | U50 |
| A10 | 2 | U50 | B10 | 2 | U50 | C10 | 2 | U50 |
| A11 | 2 | U50 | B11 | 2 | U50 | C11 | 2 | U50 |
| A12 | 2 | U50 | B12 | 2 | U50 | C12 | 2 | U50 |
| MA1 | 2 | U130 | MB1 | 2 | U130 | MC1 | 2 | U90 |
| MA2 | 2 | U130 | MB2 | 2 | U130 | MC2 | 2 | U90 |
| MA3 | 2 | U130 | MB3 | 2 | U130 | MC3 | 2 | U90 |
| MA4 | 2 | U130 | MB4 | 2 | U90 | MC4 | 2 | U90 |
| MA5 | 2 | U90 | MB5 | 2 | U70 | MC5 | 2 | U70 |
| MA6 | 2 | U70 | MB6 | 2 | U70 | MC6 | 2 | U50 |
| AI | 2 | PPSL 200 | BI | 2 | PPSL 191 | CI | 2 | U130 |
| AII | 2 | PPSL 191 | BII | 2 | PPSL 191 | CII | 2 | U130 |
| AIII | 2 | U130 | BIII | 2 | U130 | CIII | 2 | U90 |

| Group D | | | Group Stabilo | | | Group Brakes | | |
|---|---|---|---|---|---|---|---|---|
| NAME | QUANTITY | MATERIAL | NAME | QUANTITY | MATERIAL | NAME | QUANTITY | MATERIAL |
| D1 | 2 | U50 | A13 | 2 | U50 | R1 | 2 | U50 |
| D2 | 2 | U50 | A14 | 2 | U50 | R2 | 2 | U50 |
| D3 | 2 | U50 | B13 | 2 | U50 | R3 | 2 | U50 |
| D4 | 2 | U50 | B14 | 2 | U50 | R4 | 2 | U50 |
| D5 | 2 | U50 | C13 | 2 | U50 | R5 | 2 | U50 |
| | | | C14 | 2 | U50 | R6 | 2 | U50 |
| | | | SA | 2 | U50 | R7 | 2 | U50 |
| | | | SB | 2 | U50 | R8 | 2 | U50 |
| | | | SC | 2 | U50 | R9 | 2 | U50 |
| | | | Stabi | 2 | U50 | R10 | 2 | U50 |
| | | | St main | 2 | PPSL 120 | R11 | 2 | U50 |
| | | | | | | R12 | 2 | U50 |
| | | | | | | MR1 | 2 | U50 |
| | | | | | | MR2 | 2 | U50 |
| | | | | | | MR3 | 2 | U50 |
| | | | | | | MR4 | 2 | U50 |
| | | | | | | MR5 | 2 | U50 |
| | | | | | | MR6 | 2 | U50 |
| | | | | | | BR1 | 2 | U70 |
| | | | | | | BR2 | 2 | U70 |
| | | | | | | BR3 | 2 | U70 |
| | | | | | | BR | 2 | PPSL 120 |
| | | | | | | BR main | 2 | TSL220 |

## TOTAL LINES LENGTH MEASUREMENT in millimeters (measured under a tension of 50 N, this tension being slowly and gradually applied before taking the measurement)

- distance from the bottom of a risers to the canopy included attachment points

| S size | | | | |
|---|---|---|---|---|
| A(1-14) | B(1-14) | C(1-14) | D(1-5) | Brake(1-12) |
| 7060 | 6997 | 7171 | 7158 | 7525 |
| 7017 | 6948 | 7052 | 7102 | 7225 |
| 6989 | 6916 | 7030 | 7064 | 6953 |
| 7018 | 6952 | 7085 | 7014 | 6891 |
| 6983 | 6918 | 7068 | 6864 | 6818 |
| 6948 | 6880 | 6981 | | 6678 |
| 6923 | 6856 | 6962 | | 6600 |
| 6948 | 6884 | 7000 | | 6661 |
| 6868 | 6813 | 6881 | | 6559 |
| 6779 | 6730 | 6798 | | 6519 |
| 6703 | 6660 | 6731 | | 6557 |
| 6668 | 6628 | 6711 | | 6641 |
| 6411 | 6401 | 6510 | | |
| 6372 | 6376 | 6479 | | |

| M size | | | | |
|---|---|---|---|---|
| A(1-14) | B(1-14) | C(1-14) | D(1-5) | Brake(1-12) |
| 7356 | 7285 | 7462 | 7457 | 7854 |
| 7307 | 7236 | 7333 | 7397 | 7541 |
| 7281 | 7209 | 7316 | 7367 | 7261 |
| 7315 | 7242 | 7371 | 7315 | 7199 |
| 7271 | 7205 | 7360 | 7155 | 7121 |
| 7233 | 7163 | 7272 | | 6968 |
| 7210 | 7143 | 7254 | | 6897 |
| 7237 | 7173 | 7292 | | 6959 |
| 7162 | 7098 | 7167 | | 6858 |
| 7063 | 7014 | 7078 | | 6817 |
| 6983 | 6941 | 7009 | | 6852 |
| 6943 | 6918 | 6988 | | 6933 |
| 6677 | 6673 | 6786 | | |
| 6643 | 6648 | 6754 | | |

| Large size | | | | |
|---|---|---|---|---|
| A(1-14) | B(1-14) | C(1-14) | D(1-5) | Brake(1-12) |
| 7620 | 7551 | 7733 | 7736 | 8178 |
| 7573 | 7497 | 7604 | 7678 | 7850 |
| 7545 | 7468 | 7586 | 7637 | 7560 |
| 7578 | 7502 | 7649 | 7585 | 7488 |
| 7537 | 7466 | 7622 | 7418 | 7411 |
| 7500 | 7424 | 7532 | | 7251 |
| 7472 | 7400 | 7516 | | 7186 |
| 7499 | 7429 | 7555 | | 7247 |
| 7414 | 7354 | 7424 | | 7141 |
| 7317 | 7265 | 7330 | | 7098 |
| 7232 | 7186 | 7260 | | 7123 |
| 7190 | 7162 | 7239 | | 7211 |
| 6917 | 6916 | 7037 | | |
| 6873 | 6887 | 7001 | | |

1.) **compliance of the test samples' suspension lines, control lines and risers with the dimensions given in the user's manual are checked by the testing laboratory after the test flights have been completed.**

2.) **difference in lengths shall not be more than ±10 mm from user's manual and reality**

## Each suspension lines dimensions

| NAME | QUANTITY | MATERIAL | XS | S | M | L |
|---|---|---|---|---|---|---|
| | | | 91,5% | 96% | 100,0% | 104% |
| a1 | 2 | U 90 | 318 | 333 | 347 | 361 |
| a2 | 2 | U 70 | 272 | 285 | 297 | 309 |
| a3 | 2 | U 70 | 276 | 290 | 302 | 314 |
| a4 | 2 | U 90 | 307 | 322 | 335 | 348 |
| a5 | 2 | U 90 | 298 | 313 | 326 | 339 |
| a6 | 2 | U 70 | 261 | 274 | 285 | 296 |
| a7 | 2 | U 70 | 250 | 262 | 273 | 284 |
| a8 | 2 | U 70 | 276 | 290 | 302 | 314 |
| a9 | 2 | U 70 | 513 | 539 | 561 | 583 |
| a10 | 2 | U 50 | 426 | 447 | 466 | 485 |
| a11 | 2 | U 50 | 445 | 467 | 486 | 505 |
| a12 | 2 | U 50 | 410 | 430 | 448 | 466 |
| a13 | 2 | U 50 | 225 | 236 | 246 | 256 |
| a14 | 2 | U 50 | 185 | 194 | 202 | 210 |
| | | | | | | |
| MA1 | 2 | U 130 | 1787 | 1875 | 1953 | 2031 |
| MA2 | 2 | U 130 | 1760 | 1846 | 1923 | 2000 |
| MA3 | 2 | U 130 | 1645 | 1726 | 1798 | 1870 |
| MA4 | 2 | U 130 | 1632 | 1713 | 1784 | 1855 |
| MA5 | 2 | U 90 | 1228 | 1288 | 1342 | 1396 |
| MA6 | 2 | U 70 | 1136 | 1191 | 1241 | 1291 |
| SA | 2 | U 50 | 603 | 633 | 659 | 685 |
| | | | 0 | 0 | | 0 |
| AI | 2 | PPSL | 4118 | 4320 | 4500 | 4680 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 200 | | | | |
| AII | 2 | PPSL 200 | 4209 | 4416 | 4600 | 4784 |
| AIII | 2 | U 130 | 4301 | 4512 | 4700 | 4888 |
| | | | 0 | 0 | | 0 |
| b1 | 2 | U 70 | 316 | 331 | 345 | 359 |
| b2 | 2 | U 50 | 268 | 281 | 293 | 305 |
| b3 | 2 | U 50 | 274 | 287 | 299 | 311 |
| b4 | 2 | U 70 | 305 | 320 | 333 | 346 |
| b5 | 2 | U 70 | 296 | 311 | 324 | 337 |
| b6 | 2 | U 50 | 258 | 271 | 282 | 293 |
| b7 | 2 | U 50 | 247 | 259 | 270 | 281 |
| b8 | 2 | U 50 | 275 | 289 | 301 | 313 |
| b9 | 2 | U 50 | 505 | 530 | 552 | 574 |
| b10 | 2 | U 50 | 426 | 447 | 466 | 485 |
| b11 | 2 | U 50 | 435 | 456 | 475 | 494 |
| b12 | 2 | U 50 | 409 | 429 | 447 | 465 |
| b13 | 2 | U 50 | 217 | 228 | 237 | 246 |
| b14 | 2 | U 50 | 192 | 202 | 210 | 218 |
| | | | 0 | 0 | | 0 |
| MB1 | 2 | U 130 | 1728 | 1813 | 1889 | 1965 |
| MB2 | 2 | U 130 | 1696 | 1780 | 1854 | 1928 |
| MB3 | 2 | U 130 | 1582 | 1660 | 1729 | 1798 |
| MB4 | 2 | U 90 | 1571 | 1648 | 1717 | 1786 |
| MB5 | 2 | U 90 | 1182 | 1240 | 1292 | 1344 |
| MB6 | 2 | U70 | 1107 | 1162 | 1210 | 1258 |
| SB | 2 | U 50 | 606 | 636 | 662 | 688 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 0 | 0 | | 0 |
| BI | 2 | PPSL 200 | 4118 | 4320 | 4500 | 4680 |
| BII | 2 | PPSL 191 | 4209 | 4416 | 4600 | 4784 |
| BIII | 2 | U 130 | 4301 | 4512 | 4700 | 4888 |
| | | | 0 | 0 | | 0 |
| c1 | 2 | U 50 | 632 | 663 | 691 | 719 |
| c2 | 2 | U 50 | 518 | 543 | 566 | 589 |
| c3 | 2 | U 50 | 557 | 585 | 609 | 633 |
| c4 | 2 | U 50 | 610 | 640 | 667 | 694 |
| c5 | 2 | U 50 | 597 | 627 | 653 | 679 |
| c6 | 2 | U 50 | 519 | 544 | 567 | 590 |
| c7 | 2 | U 50 | 512 | 538 | 560 | 582 |
| c8 | 2 | U 50 | 548 | 575 | 599 | 623 |
| c9 | 2 | U 50 | 506 | 531 | 553 | 575 |
| c10 | 2 | U 50 | 426 | 447 | 466 | 485 |
| c11 | 2 | U 50 | 435 | 456 | 475 | 494 |
| c12 | 2 | U 50 | 415 | 436 | 454 | 472 |
| c13 | 2 | U 50 | 214 | 225 | 234 | 243 |
| c14 | 2 | U 50 | 183 | 192 | 200 | 208 |
| | | | 0 | 0 | | 0 |
| MC1 | 2 | U 90 | 1485 | 1558 | 1623 | 1688 |
| MC2 | 2 | U 90 | 1426 | 1497 | 1559 | 1621 |
| MC3 | 2 | U 90 | 1422 | 1492 | 1554 | 1616 |
| MC4 | 2 | U 90 | 1409 | 1478 | 1540 | 1602 |
| MC5 | 2 | U 70 | 1157 | 1213 | 1264 | 1315 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MC6 | 2 | U 50 | 1082 | 1136 | 1183 | 1230 |
| SC | 2 | U 50 | 714 | 749 | 780 | 811 |
| | | | 0 | 0 | | 0 |
| CI | 2 | U 130 | 4209 | 4416 | 4600 | 4784 |
| CII | 2 | U 130 | 4209 | 4416 | 4600 | 4784 |
| CIII | 2 | U 90 | 4392 | 4608 | 4800 | 4992 |
| | | | 0 | 0 | | 0 |
| d1 | 2 | U 50 | 630 | 661 | 689 | 717 |
| d2 | 2 | U 50 | 636 | 667 | 695 | 723 |
| d3 | 2 | U 50 | 608 | 638 | 665 | 692 |
| d4 | 2 | U 50 | 572 | 600 | 625 | 650 |
| d5 | 2 | U 50 | 499 | 523 | 545 | 567 |
| | | | 0 | 0 | | 0 |
| r1 | 2 | U 50 | 779 | 817 | 851 | 885 |
| r2 | 2 | U 50 | 490 | 515 | 536 | 557 |
| r3 | 2 | U 50 | 522 | 548 | 571 | 594 |
| r4 | 2 | U 50 | 466 | 489 | 509 | 529 |
| r5 | 2 | U 50 | 520 | 545 | 568 | 591 |
| r6 | 2 | U 50 | 382 | 401 | 418 | 435 |
| r7 | 2 | U 50 | 395 | 415 | 432 | 449 |
| r8 | 2 | U 50 | 452 | 474 | 494 | 514 |
| r9 | 2 | U 50 | 403 | 422 | 440 | 458 |
| r10 | 2 | U 50 | 350 | 367 | 382 | 397 |
| r11 | 2 | U 50 | 331 | 348 | 362 | 376 |
| r12 | 2 | U 50 | 423 | 444 | 462 | 480 |
| | | | 0 | 0 | | 0 |
| MR1 | 2 | U 50 | 1257 | 1319 | 1374 | 1429 |

| | | | | | | |
|---|---|---|---|---|---|---|
| MR2 | 2 | U 50 | 970 | 1018 | 1060 | 1102 |
| MR3 | 2 | U 50 | 844 | 885 | 922 | 959 |
| MR4 | 2 | U 50 | 786 | 825 | 859 | 893 |
| MR5 | 2 | U 50 | 597 | 627 | 653 | 679 |
| MR6 | 2 | U 50 | 654 | 686 | 715 | 744 |
| | | | 0 | 0 | | 0 |
| BRI | 2 | U 70 | 2013 | 2112 | 2200 | 2288 |
| BRII | 2 | U 70 | 2013 | 2112 | 2200 | 2288 |
| BRIII | 2 | U 70 | 2105 | 2208 | 2300 | 2392 |
| | | | 0 | 0 | | 0 |
| BRmain | 2 | U 90 | 1830 | 1920 | 2000 | 2080 |
| br5.1 | 2 | TSL 220 | 1373 | 1440 | 1500 | 1560 |
| | | | 0 | 0 | | 0 |
| Stabilo | 2 | U 50 | 3861 | 4051 | 4220 | 4389 |
| StabiloMain | 2 | DSL 70 | 915 | 960 | 1000 | 1040 |