



Owners Manual CrossAlps 3

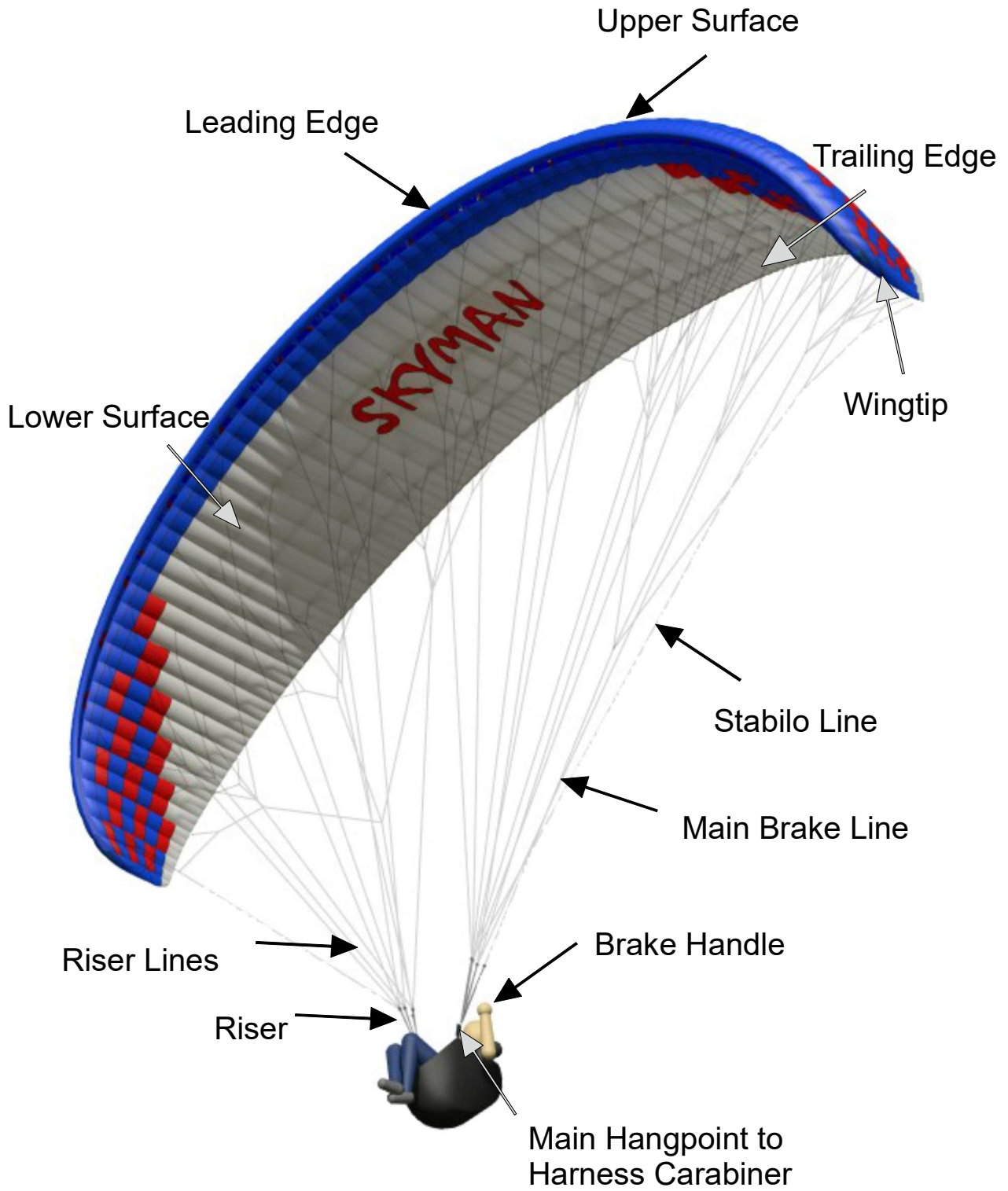
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Technical Drawing:





1. Dear Skyman Pilot

We are pleased to welcome you to the circle of Skyman paraglider pilots. The CrossAlps 3 has been developed for cross-country pilots seeking very high performance, a wide speed range, and excellent handling - without compromising on safety.

Like every paraglider, the CrossAlps 3 has its own character and prefers to be flown in its own way. To help you achieve maximum enjoyment in flight, we have created the following operating manual.

2. Important Notes:

Reading this operating manual is mandatory!

The paraglider must not be put into operation without carefully studying this manual in order to avoid incorrect use. We expressly point out that no liability can be accepted for any consequences resulting from improper handling.

This paraglider is a "light air sports device with an empty weight of less than 120 kg in the paraglider category." At the time of delivery, it complies with the requirements of the German airworthiness standard LTF NFL 2024-2-785 and the European standards EN 926-2:2013 + A1:2021 and EN 926-1:2015. Any unauthorized modification to the paraglider will result in the invalidation of the certification!

Paragliding is a potentially dangerous sport that can lead to serious injury or even death. The use of the paraglider is entirely at your own risk! The manufacturer and distributor assume no liability. It is assumed that the user's skills meet the requirements of the equipment.

It is presupposed that the abilities of the user correspond to the requirements of the device!

The pilot is responsible for the airworthiness of their aircraft! The pilot is also responsible for ensuring that all legal requirements necessary for operating this aircraft are met (e.g., pilot's license, insurance, etc.).

The following operating instructions have been prepared to the best of our knowledge and belief. However, due to (flight) technical developments or changes in certification tests and/or training methods, it is possible that certain aspects may change over time. Therefore, it is always advisable to obtain updates regarding any changes in training practices and tests, either from us or from the relevant authorities.

3. Target group:

The CrossAlps 3 is certified as a single-seater in category C according to LTF NFL 2024-2-785 and EN 926-2:2013 + A1:2021.

In accordance with EN 926-2:2015-06, the flight characteristics of this class are defined as follows: „Paragliders with moderate passive safety and with potentially dynamic reactions to turbulence and pilot errors. Recovery to normal flight may require precise pilot input.“

The required pilot skill is described as: „Designed for pilots familiar with recovery techniques, who fly “actively” and regularly, and understand the implications of flying a glider with reduced passive safety.“

Whether the CrossAlps 3 is ultimately suitable for your intended use and skill level should always be discussed personally with a specialist dealer.

We recommend that every pilot completes a safety training course and practices ground handling with their equipment as much as possible. Perfect control of the wing on the ground and in the air is the key to maximum flying enjoyment and the best assurance for accident-free flying.



4. Technical Description:

Canopy construction:

The CrossAlps 3 is made from lightweight, double-coated Dominico 10D / 20D nylon fabric and materials from NCV Industries. These synthetic fabrics incorporate a reinforcing ripstop structure that prevents tearing and increases tensile strength at the seams. The coating makes the fabric water-repellent, UV-resistant, and airtight.

The CrossAlps 3 consists of 63 cells, which are additionally subdivided in the leading and trailing edge areas by mini ribs. The wingtip (stabilizer) is pulled downward and seamlessly integrated into the canopy. The canopy is inflated through openings on the underside of the leading edge. Internal cross-ventilation is achieved through precisely dimensioned openings (cross ports) in the ribs. Each load-bearing rib is connected to the suspension lines.

Between the individual line groups, tension bands are sewn in to regulate the sail tension. Reinforcements are sewn into the leading edge to ensure high shape stability and structural integrity.

Suspension System:

The lines of the CrossAlps 3 are made of Aramid and PES / Dyneema, depending on their position. The strength of the individual lines varies according to their location and ranges from 65 to 260 daN.

The suspension lines are categorized according to their position as follows: gallery lines (upper canopy), cascade lines (mid-level), main lines (lower, connected to the risers), stabilizer lines (at the wingtip), and brake lines (at the trailing edge), as well as the main brake lines (connected to the brake handles).

The lines are divided into A / B / C / D levels and brake lines, and are color-coded to facilitate inspection.

The A riser is split into a main A riser, which carries two main lines per side, and an additional A' riser, which carries one main line.

The B riser carries three B main lines plus one stabilizer line per side, while the C riser carries three C main lines per side. The main brake line is routed through a pulley on the C riser to the brake handle.

The main brake line is guided to the brake handle via a pulley on the C riser.

There are no adjustable devices installed.

The line configuration and part designations are illustrated in the individual line plan.

Speed system:

The CrossAlps 3 is equipped with a foot-operated speed system that automatically returns to its original position after use.

The risers do not feature an adjustable trim system.

The speed system shortens the A and B risers, thereby reducing the angle of attack of the canopy. In normal flight, all risers are of equal length. When the speed system is activated, the A and B risers are shortened, while the C riser remains unchanged. The riser lengths can be found in section 17.5.

Function and Operation:

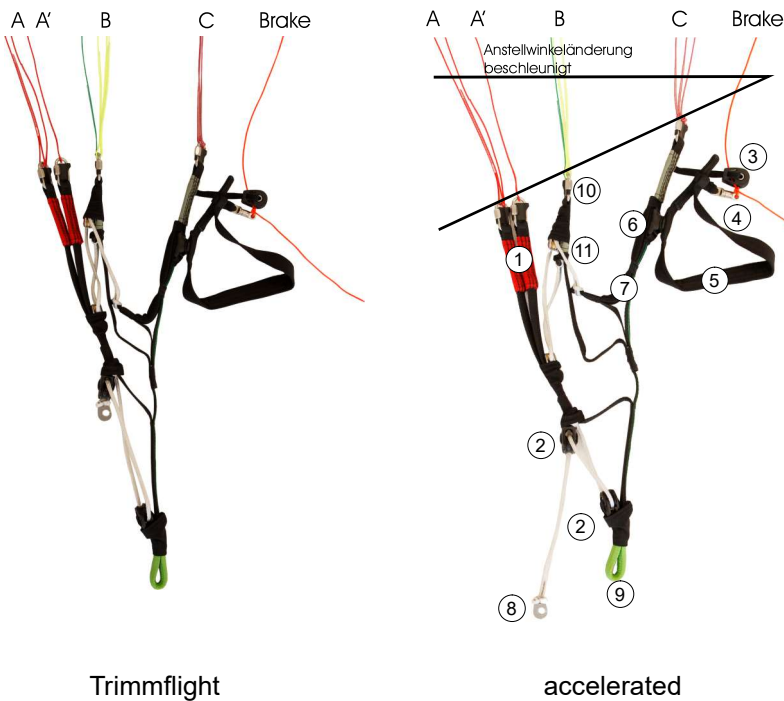
Before takeoff, the Brummel hooks of the harness foot accelerator must be connected to the Brummel hooks of the speed system. It is important to ensure that the connected accelerator line runs freely.

Before first use, the length of the foot accelerator must be correctly adjusted. This is best done using a simulator. The length is correctly set when the accelerator line still has slight slack when not engaged and is not under tension.

By pressing the foot accelerator, the pilot shortens the A and B risers via a pulley system, which reduces the required



Overview risers:



- 1 – A riser, splitted
- 2 – Speed system pulley
- 3 – Brake line pulley
- 4 – Brake line swivel
- 5 – Brake handle
- 6 – Magnetic holder for brake handle
- 7 – C steering handle
- 8 – Speed system Brummel hook
- 9 – Harness attachment point
- 10 – Line connectors with clip
- 11 – C steering deflection point

5. Technical Data:

size		22	24	26
cells		63	63	63
flat area	m ²	22,00	24,00	26,50
span	m ²	11,58	12,09	12,71
a/r		6,10	6,10	6,10
area projected	m ²	18,45	20,13	22,23
span projected	m ²	9,09	9,49	9,97
a/r projected		4,47	4,47	4,47
Chord center	m	2,30	2,41	2,53
Chord tip	m	0,46	0,48	0,50
Canopy height	m	7,14	7,46	7,84
Min. take off weight	kg	65	80	95
Max. take off weight	kg	90	105	119
Min recommended TOW	kg	70	85	95
Max recommended TOW	kg	85	100	119
LTF/EN Category	km/h	C	C	C

Changes of these data are possible!



force.

6. Harness

The CrossAlps 3 has been tested according to EN 926-2:2013 with harnesses of the following dimensions:

Weight range up to 80 kg:	40 (+/-2) cm chest strap width, 40 cm (+/- 1) cm suspension height
Weight range 80 to 100 kg:	44 (+/-2) cm chest strap width, 42 cm (+/- 1) cm suspension height
Weight range over 100 kg:	48 (+/-2) cm chest strap width, 44 cm (+/- 1) cm suspension height

7. Inspection:

Each paraglider is thoroughly inspected and measured several times prior to delivery. Nevertheless, we strongly recommend carrying out a comprehensive inspection of the new wing in accordance with the following points. This procedure should also be followed after intensive use, demanding flight manoeuvres, or tree landings.

- Check all stitching at the line attachment points, risers and canopy for damage.
- Ensure all lines are undamaged and correctly attached.
- Check that all maillons (line connectors) are properly tightened and secured with their plastic inserts.
- Inspect all panels, including ribs and V-tapes, for tears or damage.

Any damage, however minor, must be inspected and repaired by a qualified professional. A damaged paraglider must not be flown.

8. Brake Line Adjustment:

The two main brake lines lead to a cascaded line system attached to the trailing edge of the canopy. At the risers, the brake lines run through guide pulleys and are connected to the brake handles. During transport, the handles can be secured to the risers using press studs.

The brake line length is correctly set at the factory and normally does not require adjustment. The factory setting is permanently marked on the main brake line by an additional sheath.

In flight, the brakes must have a minimum free travel of 5 cm before engaging. This setting should not be altered.

Incorrect adjustment of the brake line length will change the flight characteristics and may significantly reduce safety.

9. Flight Operation:

The following sections are not intended to provide basic instruction in paragliding. They are intended to familiarise the pilot with the specific characteristics of the CrossAlps 3 and to provide important safety-related information. Special manoeuvres or non-standard configurations are not recommended.

9.1. Pre-flight Check:

A thorough pre-flight check must be carried out before every launch.

- Check risers, lines and canopy for damage.
- Ensure all maillons are securely tightened and locked.

The harness must be fitted with great care. After putting it on:

- Check that all buckles are properly closed.
- Verify that the reserve container is closed correctly.
- Ensure the reserve handle is correctly positioned (refer to harness manual).



If any defect is found, do not launch.

The CrossAlps 3 should be laid out in a slight arc, facing into the wind.

All line levels, including brake lines, must be carefully sorted. The risers must be correctly arranged. All lines must run freely without knots or tangles. No lines may be underneath the canopy.

Once ready:

- Connect the harness main carabiners to the risers and check they are closed.
- If using a speed system, connect the Brummel hooks.
- Ensure the speed system runs freely and is not twisted.

Checklist:

Paraglider:

- Canopy undamaged?
- Risers undamaged?
- Maillons properly secured?
- Lines undamaged?
- All lines (including brake lines) clear and untangled?

Harness:

- Rescue container closed?
- Rescue reserve handle correctly positioned?
- All buckles and main carabiners properly closed?

Take-off:

- Helmet on?
- Risers connected correctly and not twisted?
- Speed system connected and not twisted?
- Brake handles and correct risers in hand?
- Pilot positioned centrally (lines evenly tensioned)?
- Wind conditions suitable? Launch area clear of obstacles?
- Airspace clear?

9.2. Take-off:

The CrossAlps 3 is easy to launch. In general, both A-risers (A and A') should be used. Depending on technique, wind and terrain, it is also possible to use only the central A-risers.

The riser levels are colour-coded and labelled for clarity.

The pilot holds the A-risers and brake handles on each side and applies slight tension to the A-lines. In light wind or on flat terrain, a step backwards towards the canopy can help to initiate inflation.

During the launch run:

- Arms are initially extended backwards in line with the A-risers
- As the canopy rises, the arms move upwards

The key to inflation is a smooth and continuous pull, not force. Due to the easy inflation behaviour of the CrossAlps 3, slight brake input may be required in strong wind or on steep slopes to prevent overshooting.

During reverse launches in strong wind, premature lift-off can be avoided by moving with the canopy. Extensive ground handling practice is the best preparation for strong wind launches.

9.3. Straight Flight:

With brakes fully released, trim speed is approximately 37–39 km/h, depending on wing loading. Minimum sink is achieved with approximately 40–50 cm brake input (depending on wing loading).

In turbulent air, it is recommended to fly with 5–15 cm brake input. This increases the angle of attack and reduces the risk of frontal collapse.



The maximum symmetrical brake travel according to EN 926-2 is:

- up to 80 kg: ≥ 40 cm
- 80–100 kg: ≥ 45 cm
- above 100 kg: ≥ 50 cm

All values are measured from the point where the trailing edge starts to deflect (excluding free play).

9.4. Accelerated Flight:

When the speed system is activated using the feet, the angle of attack of the canopy is reduced and the CrossAlps 3 can achieve an increase in speed of up to 18 km/h (without a speed limiter). Due to the higher airspeed, the paraglider becomes less stable and is more prone to collapses, which may occur more easily and with greater intensity.

For safety reasons, accelerated flight should only be performed in calm air and with sufficient clearance from the ground. The brake handles must never be released during accelerated flight.

When entering turbulent air, the speed system must be released immediately.

Applying brake input while flying accelerated should also be avoided, as the increased drag at the trailing edge can cause the leading edge to pitch further downward momentarily. This increases the risk of airflow separation ("front tuck") and may result in a more severe collapse.

Warning: In the event of a collapse, the speed system must be released immediately. The canopy should then first be stabilized and reinflated using the brake lines.

9.5. Turning:

The high agility of the CrossAlps 3 is a result of its specific handling characteristics: it reacts very directly and without delay to control inputs.

Flat turns with minimal height loss can be achieved by weight shift (the pilot leaning to the inside of the turn). Weight shifting and pulling on the inner steering line is suitable for fast changes of direction.

For thermalling, the most effective technique is a combination of weight shift, braking on the inside of the turn, and a controlled additional brake input on the outside wing. By alternately applying and releasing brake input on both the inside and outside of the turn (active flying), the turn radius and bank angle can be adjusted, allowing optimal centering in the thermal.

Attention: Pulling the brake lines too far or too quickly may result in a stall!

A unilateral stall is clearly indicated: the inside of the turn becomes soft, and the inner third of the wing may almost stop flying. If this condition occurs, the inside brake must be released immediately.

9.6. C-Handle Control:

The CrossAlps 3 is equipped with a C-handle system integrated into the risers. When applied, both the C and B levels are shortened simultaneously; however, due to the pulley geometry, the B level is only slightly shortened, resulting in an increase in the angle of attack.

Use of the system is not mandatory, but it provides an effective means for fine course corrections and flat turns. In particular, when thermalling, the wing can be steered efficiently and flat without deforming the trailing edge via the brake lines, thereby avoiding a loss of performance.

The C-handles are also a valuable tool for active flying—especially in accelerated flight. They provide very direct feedback on the condition of the canopy, allowing turbulence and disturbances to be detected early and often corrected at an early stage.



For use, the pilot places the hand around the C-riser and positions it on the C-bridge. The brake lines should not be wrapped, in order to avoid excessive or unintended changes to the angle of attack. The C-handles should be applied smoothly downward (not backward), so that the B level is shortened in the intended proportion.

Warning: Excessive or abrupt input on the C-handles may result in a stall.

9.7. Active Flying:

Active flying can prevent many collapses before they occur.

Active flying means controlling the paraglider as efficiently and stably as possible through coordinated weight shift and brake input.

In turbulent conditions and strong thermals, the canopy should be kept as consistently as possible above the pilot by applying smooth and controlled brake inputs.

When entering strong lift, the angle of attack increases. By releasing the brakes as the wing enters the thermal, the canopy can accelerate and remain positioned above the pilot.

In contrast, when entering sink, the brakes should be applied in a controlled manner.

9.8. Landing:

The CrossAlps 3 is easy to land. On final approach into the wind, the wing should be flown with slight brake input to allow it to glide out. At approximately 1 m above ground, the angle of attack is increased progressively by applying more brake in order to flare and arrest the descent. The touchdown should coincide with full brake application.

In strong headwind conditions, brake input must be applied very carefully to avoid a stall prior to landing.

We strongly advise against attempting to lose excess height by the risky practice of “pumping” the brakes.

Landings involving steep turns or changes of direction on final approach must also be strictly avoided.

After landing, the canopy should not be allowed to fall forward onto the leading edge. This can damage the airfoil and, over time, negatively affect the material in the leading edge area.

10. Winch Launch:

The CrossAlps 3 is suitable for winch launching. In general, we recommend the use of a towing aid for all paragliders that activates the speed system during the towing process.

Such a towing aid accelerates the wing during the tow, thereby not only simplifying the launch procedure but also reducing the risk of parachutal stall and allowing higher release altitudes.

Warning: Paragliders that are wet and/or whose line lengths or air permeability are outside the permitted tolerances have a significantly increased risk of parachutal stall during winch launch.

Winch launching is only permitted with a valid winch launch certification.

All specific aspects of the towing site and the equipment used (winch, release system, etc.) must be discussed in advance with the winch operator and launch supervisor.

We expressly point out that all equipment required for towing must be properly certified and inspected.

11. Powered flight:

The CrossAlps 3 is not certified for powered flight.



12. Extreme Flight Conditions:

12.1. Asymmetric Collapse:

An asymmetric collapse is the most common disturbance encountered in paragliding. If the CrossAlps 3 collapses in turbulent air, it will usually occur at the outer wing section.

To maintain heading in this situation, apply brake input on the opposite, open side of the wing. If the collapse is significant, brake input on the open side must be applied carefully to avoid a stall.

Once the turning tendency has been controlled, the collapsed side can be reinflated by pumping the brake on the affected side.

If no corrective input is made, the CrossAlps 3 will usually reopen on its own within less than half a turn.

If the canopy does not reopen due to strong turbulence or other factors (e.g. a cravat), the wing may enter a spiral dive.

12.2. Cravat:

In the event of large collapses or other extreme situations, any paraglider may experience a so-called cravat. In this case, parts of the collapsed wingtip become caught in the lines. Without pilot intervention, the wing may enter a stable spiral dive.

If this occurs, the first action is to stop the rotation by applying controlled counter-brake.

If the rotation continues to increase despite corrective input and altitude is low, the reserve parachute must be deployed immediately.

If sufficient altitude is available, the following methods may be used to attempt to clear the cravat:

- Apply controlled counter-brake and use a fast, decisive and deep pump on the brake line of the affected side to reopen the canopy.
- Pull the colour-marked stabilo line.

If these measures are unsuccessful and sufficient altitude remains, a full stall may be used as a last resort to clear the cravat.

Warning: The manoeuvres described above are demanding and may result in significant loss of altitude. If the pilot feels unable to manage the situation or if there is insufficient altitude, the reserve parachute must be deployed immediately.

12.3. Frontal Collapse:

A frontal collapse (collapse of the entire leading edge) is typically caused by strong pulling on the A-risers, accelerated flight, or sudden strong sink or turbulences.

Although this type of disturbance may appear dramatic, it is usually not critical if the collapse is shallow. In most cases, there is little or no turning tendency, the wing reopens quickly on its own, and rapidly regains airspeed.

The reopening can be assisted by applying moderate, symmetrical brake input.

Early recognition of the situation and prompt, symmetrical brake input help to minimise altitude loss and prevent the situation from escalating.



12.4. Parachutal Stall:

In a parachutal stall, the paraglider has no forward speed while exhibiting a significantly increased sink rate. This condition may be caused, among other factors, by releasing the B-risers too slowly after a B-stall, aged or porous fabric, damaged lines or ribs, pulling on the C-risers, or an incorrect take-off weight. The tendency for parachutal stall also increases when the canopy is wet or at very low air temperatures.

Flying in rain should be avoided whenever possible, as raindrops on the canopy increase the minimum speed (V_{min}), thereby increasing the tendency for parachutal stall. Very low temperatures can have a similar effect, especially when combined with brake input and/or an incorrect trim of the line geometry.

A parachutal stall can be recognised by the significantly reduced airflow noise despite released brakes, and by the canopy sitting in an unusual position above the pilot. In this situation, it is essential to fully release the brakes.

If the canopy and lines are in proper condition, the CrossAlps 3 will normally recover and regain forward speed within 2 to 3 seconds. If this does not occur, the A-risers should be pushed forward or the speed system should be applied.

If a prolonged parachutal stall occurs without an obvious reason (e.g. wet canopy, flight in rain, or incorrect take-off weight), the glider must be inspected before the next flight.

Warning: During a parachutal stall, the brakes must not be applied, as this will immediately lead to a full stall. Close to the ground, a stable parachutal stall must not be actively recovered due to the risk of pendulum movement. Instead, the pilot should prepare for a hard landing, ideally using a proper landing fall.

12.5. Full stall:

To initiate a full stall, both brake lines must be pulled fully down. Upon reaching the stall point, the canopy rapidly loses internal pressure and drops abruptly backwards.

Despite the strong and uncomfortable reaction of the wing, it is essential to keep the brakes fully applied until the deflated canopy returns above the pilot (approx. 3–6 seconds) and stabilises in this position.

Recovery should only be initiated once the wing is stabilised above the pilot. The brakes must then be released symmetrically and at a moderate rate (release time ≥ 2 seconds).

The optimal recovery is performed in two phases:

- Re-inflation phase: Gradually release the brakes to approximately shoulder level until the canopy has fully re-inflated across the entire span.
- Recovery phase: Fully release the brakes to return to normal flight.

Releasing the brakes too quickly or asymmetrically may result in a large collapse or a frontal collapse.

Warning: An incorrect recovery (too early, too fast, or asymmetric) may cause a strong forward surge of the canopy, in extreme cases passing in front of and below the pilot.

12.6. Spin (Negative Turn):

A spin (negative turn) occurs when one side of the wing is over-braked, causing airflow separation on one half of the wing. This results in a reversal of airflow direction: the deeply braked trailing edge is then airflowed from behind and moves backwards, while the wing rotates around its vertical axis.

There are two main causes for a spin:

- One brake line is pulled too quickly and too far (e.g. when initiating a spiral dive)
- Excessive brake input on one side during slow flight (e.g. when thermalling)



If an unintentionally initiated spin is released immediately, the wing will return to normal flight without significant altitude loss.

If the spin is maintained for longer, the wing may accelerate and surge forward asymmetrically during recovery. This can lead to a dynamic collapse or a cravat.

12.7. Wingover:

Wingovers consist of alternating steep turns to the left and right, with progressively increasing bank angle.

If the manoeuvre becomes too dynamic or the bank angle too high, the outer wing may become unloaded. Further increase in bank angle combined with incorrect pilot input can result in a sudden and large-area collapse.

Warning: Full stalls, spins, and wingovers can lead to life-threatening situations on any paraglider.

12.8. Emergency Steering:

In the event of brake line failure, the CrossAlps 3 can be controlled using the rear risers (C-risers).

The control travel to stall is significantly shorter when steering with the rear risers compared to brake lines. On the CrossAlps 3, this range is approximately 10–15 cm.

Gentle turns can also be achieved by pulling the stabilo lines or by weight shift.

13. Decent Techniques:

13.1. Spiral Dive:

The spiral dive is the most effective method for rapid descent. However, it involves high loads on both pilot and equipment.

It must be taken into account that, depending on physical condition, ambient temperature (especially cold), and achieved sink rate, loss of consciousness may occur. Many pilots tend to reduce their breathing or switch to so-called “pressure breathing” during a spiral dive, which further increases the risk of losing control. At the first signs of nausea, reduced awareness, or impaired vision, the spiral must be exited immediately.

The spiral dive is initiated by gradually increasing brake input on one side, combined with weight shift to the inside of the turn. Due to the direct handling of the CrossAlps 3, the wing will quickly achieve a high bank angle and enter a steep turn.

As soon as the wing moves in front of the pilot (pitches forward), an impulse is generated which the pilot should follow by shifting weight to the outside of the turn.

Sink rate and bank angle are increased by progressively applying more brake on the inside of the turn. Light brake input on the outside helps prevent collapse of the outer wingtip.

To exit the spiral dive, the inside brake must be released gradually.

A rapid exit may convert the high airspeed (up to over 100 km/h) into a strong pendulum movement, resulting in a significant climb followed by a sharp dive. It is also possible to encounter the wing’s own wake turbulence (rotor).

Due to the high rate of descent, sufficient safety altitude must always be maintained.

Warning: Almost every paraglider can reach a sink rate at which the canopy aligns nose-down (“locks into a spiral”) and continues the spiral even after the brakes are released (stable spiral).

The CrossAlps 3 was classified according to EN 926-2:2013 (depending on size and weight) as B or C in this manoeuvre. However, under certain conditions, the behaviour may be more demanding than indicated by this



classification. Possible influencing factors include harness geometry (suspension height), chest strap setting, turbulence, holding the risers, or weight shift to the inside of the turn.

If a stable spiral occurs, it can be exited by shifting weight to the outside and applying controlled counter-brake.

Warning: Stable spiral dives can generate extremely high G-forces and require considerable physical effort.

13.2. Big Ears:

The so-called “big ears” manoeuvre is a simple, though not very effective, descent technique in which forward speed remains higher than the sink rate. It is therefore more suitable for reducing glide performance and increasing horizontal distance from hazards than for rapid descent.

To perform big ears, the outer wing sections are folded in symmetrically by pulling down the outer A-risers (A').

This manoeuvre can increase the sink rate to approximately 5 m/s while reducing glide performance. By applying the speed system, both sink rate and forward speed can be further increased.

Recovery is achieved by simply releasing the outer A-risers. The CrossAlps 3 will usually reopen automatically. Gentle brake input can be used to assist reopening if necessary.

Warning: Never perform a spiral dive with big ears applied, as this can overload the central A-lines.

13.3. B-Stall:

The B-line stall is easy to initiate with the CrossAlps 3. The B-risers are pulled down slowly and symmetrically by approximately 20 cm. The airflow separates and the wing enters a vertical descent.

Recovery is achieved by returning the B-risers to their original position within approximately 1 second.

If the wing starts to rotate during the B-line stall or forms a rosette (cravat-like deformation), the manoeuvre must be terminated immediately. Possible causes include: Rotation: asymmetric input on the B-risers or pulling one B-riser together with a C-riser; Rosette: excessive pull on the B-risers

Summary:

All descent techniques should only be practised in calm air and at sufficient safety altitude, preferably as part of a safety training course, in order to be able to apply them safely in emergency situations.

The following applies to all extreme flight manoeuvres and descent techniques:

- Initial practice should only be carried out under the supervision of a qualified instructor or within a safety training programme.
- Before initiating any manoeuvre, ensure that the airspace below the pilot is clear.
- During all manoeuvres, the pilot must maintain visual contact with the canopy and continuously monitor altitude.

14. Packing, Care, Storage, Repairs, Maintenance, Disposal

The condition of the paraglider is directly related to flight safety. A well-maintained and properly handled wing can achieve a significantly longer service life. To ensure that the CrossAlps 3 carries its pilot safely for as long as possible, please observe the following points:

Packing:

To maximise the lifespan of the wing and to avoid unnecessary deformation of the Nitinol rods in the leading edge, we recommend packing the canopy cell-to-cell (accordion packing). Improper packing and prolonged storage may lead to deformation of internal components.



Care:

- UV radiation gradually damages the paraglider fabric. Therefore, the wing should not be exposed to direct sunlight unnecessarily.
- When laying out the wing, ensure that neither the canopy nor the lines become excessively dirty. Embedded dirt particles can damage the material.
- After tree or water landings, the line lengths should be checked.
- Do not drag the paraglider across the ground, as this can damage the fabric coating.
- Moisture negatively affects the coating and reduces the service life of the wing.
- If lines become snagged on the ground, they may be overstretched or damaged during launch.
- Do not step on the lines.
- When packing, use the supplied inner bag underneath the canopy to prevent mechanical abrasion and damage to the sail.

Storage:

- The paraglider must always be stored dry. If it becomes wet, it must be dried as soon as possible by spreading it out - however, not in direct sunlight.
- Do not store the paraglider near chemical fumes or gases.
- During transport and storage, especially in vehicles, ensure that the paraglider is not exposed to excessively high temperatures.

Repairs:

- Small tears in the fabric that do not run along a seam may be temporarily repaired using adhesive repair tape available from specialist paraglider suppliers.
- All other types of damage - such as large tears, seam damage, torn line attachment points, or damaged lines - must only be repaired by an authorized service center or the manufacturer.
- Only original spare parts may be used. A list of the lines used in this model can be found in section 16 "Line Lengths."
 - Spare parts may only be obtained from the manufacturer.
- Any modification to the glider, other than those approved by the manufacturer, will invalidate the certification.

Maintenance:

- The CrossAlps 3 must be inspected by an authorized service center or the manufacturer at least every two years or after 100 flight hours, whichever comes first.
- A line check (measurement) should be carried out every 20 flight hours and compared with the official specifications.

Disposal:

The materials used in the paraglider require appropriate disposal. The CrossAlps 3 must be disposed of in accordance with the applicable national regulations implementing the EU Waste Framework Directive.

At the end of its service life, the components should be separated as far as possible: metal parts should be recycled, while textiles, plastics and composite materials must be disposed of through authorized waste management companies or municipal collection facilities.

Disposal via household waste should be avoided. Please follow the applicable local disposal regulations.

15. Environmentally Responsible Behaviour:

Although self-evident, we would like to emphasize the importance of practising our sport in a way that respects and protects nature and the environment.

Please stay on marked paths, do not leave any litter, avoid unnecessary noise, and respect the sensitive ecological balance of mountain areas.

Particular care and consideration are required at launch sites.



16. Line lengths

16.1. Line Ageing and Trim Adjustment

It was previously assumed that lines generally stretch during use. This is indeed the case for the central A and B lines, which carry the highest loads.

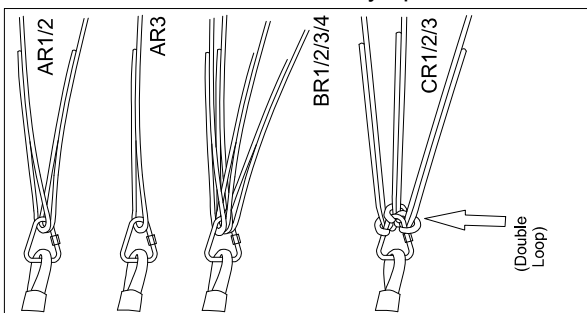
However, all lines—both aramid (Kevlar) and Dyneema—develop micro-fractures in their fine fibres over time, causing them to effectively thicken. The rear C-lines and the outer A, B and C lines are only lightly loaded during flight. This can lead to gradual shrinkage, as the load is insufficient to maintain their original length under tension.

This effect is difficult to counteract technically. Therefore, the CrossAlps 3 is delivered with a slightly faster trim from the factory (a few millimetres shorter on the C-level) to compensate for this tendency.

Lightly loaded lines are equipped with trim knots from the factory, allowing their length to be adjusted if necessary.

This enables both the service centre and the pilot to re-trim the wing without replacing the lines. A line measurement should be carried out every 20 flight hours and compared with the official specification sheet.

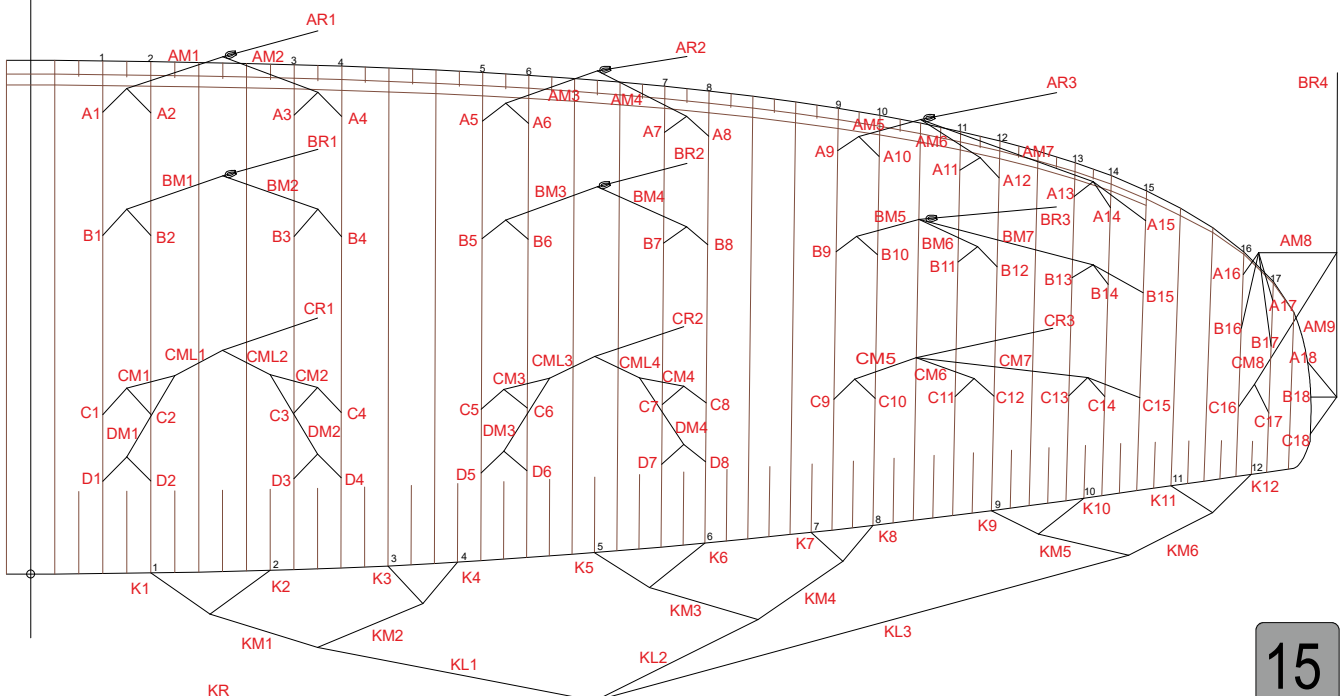
It is normal for lines to shrink by up to 30 mm under intensive use.



Factory configuration with double loop on BR4 and CR lines for trimming during ageing

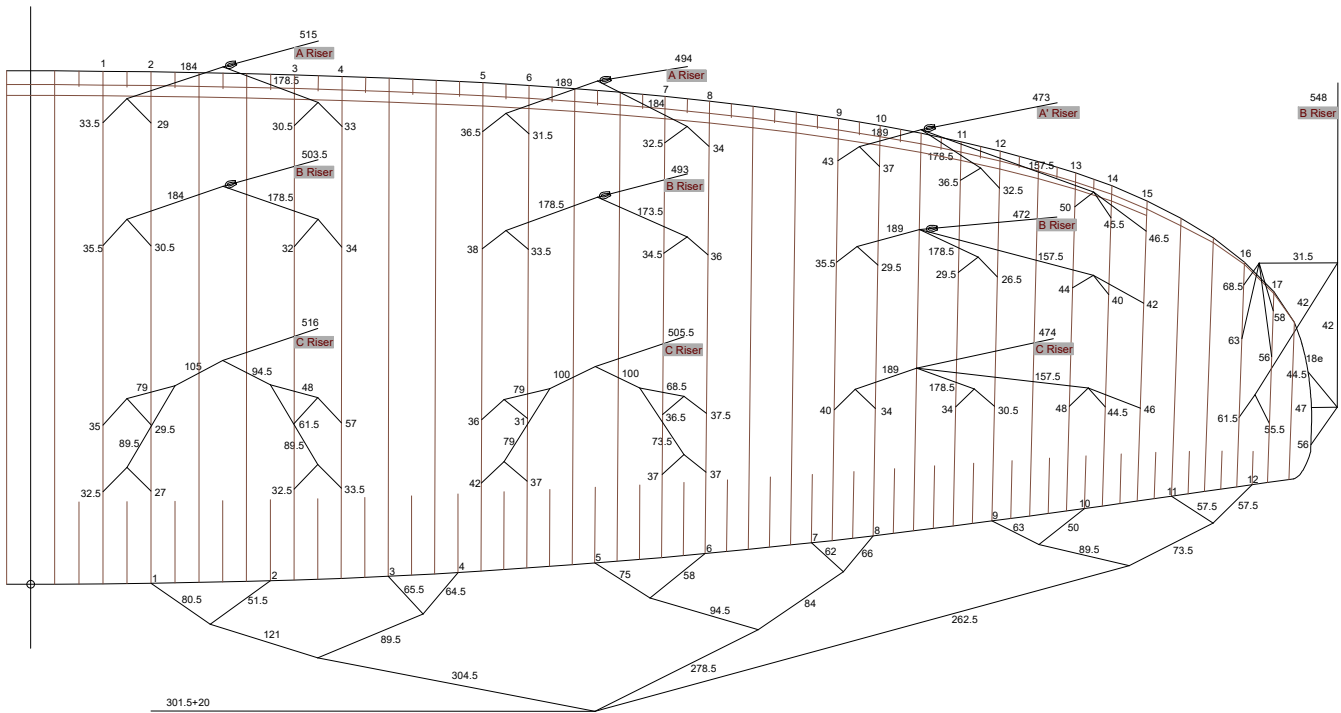
16.2. Line Coding

All lines used in Skyman paragliders follow a standardized coding system. When ordering replacement lines, please always determine the correct line code according to the explanation below and specify the glider model and size.





16.5. Individual Line Lengths CrossAlps 3 - 26



* = main lines with double loop

16.6. Line Material Codes

Line	A1 - A8	A9 - A18	B1 - B8	B9 - B18	C1 - C18	D1 - D8
Material code	8000-090	8000-070	8000-090	8000-070	8000-070	8000-070
Line	AM1 - AM4	AM5 - AM9	BM1 - BM4	BM5 - BM7	CML1 - CML4	CM1 - CM4
Material code	8000-135	8000-090	8000-135	8000-090	8000-135	8000-090
Line	CM5 - CM8	DM1 - DM4*	AR1, BR1	AR2/3, BR2/3	CR4	CR1 - CR3
Material code	8000-090	8000-090	PPSL260	PPSL200	7343-140	8000-190
Line	K Riser	KL	KM	KTop		
Material code	7850-240	PPSL-065	PPSL-065	PPSL-065		



17. Total line lengths

All line and riser lengths listed below are in accordance with EN 926-2:2013 and correspond to the certified test sample. The specified lengths have been verified by the certification authority and are within the tolerances permitted by the standard.

All lengths are measured from the riser attachment point to the lower surface of the canopy; brake lines are measured to the end of the main brake line, under a load of 50 N.

17.1. Total Line Lengths CrossAlps 3 - 22

in mm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Stab
A	7195	7150	7125	7145	7080	7040	6995	7010	6960	6905	6805	6770	6730	6690	6700	6420	6325	6305
B	7115	7070	7040	7055	6995	6955	6915	6930	6880	6830	6735	6705	6675	6635	6655	6375	6310	6325
C	7220	7170	7125	7135	7085	7040	6990	7000	6940	6885	6790	6760	6725	6690	6705	6460	6405	6410
D	7290	7240	7200	7205	7145	7095	7045	7045										
Brake	7445	7185	7025	7015	6920	6765	6705	6740	6625	6505	6425	6425						

17.2. Total line lengths CrossAlps 3 - 24

in mm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Stab
A	7505	7459	7426	7448	7382	7337	7294	7308	7241	7183	7078	7041	7004	6961	6974	6680	6580	6555
B	7422	7375	7341	7358	7296	7252	7213	7229	7166	7112	7013	6980	6951	6913	6932	6630	6565	6575
C	7520	7468	7418	7429	7376	7328	7278	7291	7215	7159	7059	7025	6992	6957	6974	6715	6660	6665
D	7595	7543	7496	7504	7435	7386	7335	7335										
Brake	7805	7531	7363	7352	7253	7091	7028	7066	6941	6817	6735	6735						

17.3. Total line lengths CrossAlps 3 - 26

in mm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Stab
A	7855	7810	7770	7795	7725	7675	7635	7650	7585	7525	7415	7375	7340	7295	7305	6975	6870	6840
B	7760	7710	7670	7690	7625	7580	7540	7555	7500	7440	7335	7305	7270	7230	7250	6920	6850	6865
C	7875	7820	7770	7780	7730	7680	7630	7640	7560	7500	7395	7360	7325	7290	7305	7010	6950	6955
D	7955	7900	7850	7860	7790	7740	7685	7685										
Brake	8165	7875	7700	7690	7585	7415	7350	7390	7255	7125	7040	7040						

17.4. Riser Lengths CrossAlps 3

mm	Trim	Accelerated
A	525	365
A`	525	365
B	525	425
C	525	525

Lengths are measured from the riser attachment point to the lower edge of the quick link (maillon).



18. Inspection Instructions for the Paraglider Model CrossAlps 3

These inspection instructions are intended to ensure the continued airworthiness of the paraglider. In Germany, they are based on the Regulation for the Certification and Inspection of Aeronautical Equipment (LuftGerPV) and define the minimum technical requirements for the equipment as well as the scope of inspection.

Additional national requirements may apply depending on the country of operation. However, the minimum requirements defined herein shall not be undercut.

Warning: Fly market GmbH & Co. KG assumes no liability for inspections carried out by the responsible person or inspection facility. All inspections are performed under the sole responsibility of the person conducting them.

In the event of any uncertainty regarding the inspection procedure or the airworthiness of the equipment, the manufacturer shall be consulted.

18.1. Scope of Inspection

- In accordance with §13(2) of the German LuftGerPV, paragliders are subject to mandatory continuing airworthiness inspections:

“For air sports equipment as defined in §1(4) of the Air Traffic Licensing Regulations, airworthiness shall be verified by the owner, or on behalf of the owner, in accordance with the manufacturer’s instructions.

The owner is responsible for the timely and complete performance of the required inspections.

Any defects in the aircraft or in the inspection instructions shall be reported to the manufacturer without undue delay.”

- Inspections shall be carried out by the manufacturer, by persons authorized by the manufacturer, or by a suitably qualified person meeting the minimum personnel requirements specified in section 18.3.
- Although §13(2) LuftGerPV permits the owner to carry out inspections independently, this is expressly not recommended by the manufacturer, as the owner will generally not meet the required personnel and technical qualifications (e.g. expertise, calibrated measuring equipment).
- If any defect is identified during inspection, the paraglider shall be considered unairworthy and must not be operated.
- Corrective maintenance shall be carried out exclusively by the manufacturer or by personnel authorized by the manufacturer.

18.2. Inspection Intervals

The inspection interval shall be:

- 12 months for training equipment and commercially used tandem paragliders, or after 100 flight hours, whichever occurs first
- 24 months for all other paragliders, or after 100 flight hours, whichever occurs first
- A line measurement shall be carried out every 20 flight hours and compared with the nominal specifications.

18.3. Personnel Requirements for Inspection

The following minimum requirements shall be met:

- Possession of a valid, unrestricted pilot licence for paragliders or an equivalent recognized licence
- Sufficient technical knowledge to carry out the inspection of the specific paraglider model (e.g. through type-specific training provided by the manufacturer or importer)

Inspection of Paragliders Used by Third Parties and Tandem Paragliders:

The following minimum requirements shall be met: Sufficient technical knowledge for the inspection of paragliders. This shall be demonstrated by at least one of the following:

- A professional qualification relevant to inspection activities
- A minimum of two years of professional experience in the manufacture or maintenance of paragliders, hang gliders, or technically comparable equipment
- Adequate type-specific training (e.g. training provided by the manufacturer or importer)



18.4. Required Documentation

The following documentation shall be available for the performance of the inspection:

- Current revision of the inspection instructions (to ensure proper execution)
- Type certificate data sheet for the air sports equipment
- Initial inspection record (production inspection report)
- Previous inspection records (for recurring inspections)
- Maintenance and calibration records of the measuring equipment used
- Manufacturer's instructions for corrective actions Airworthiness directives, if applicable

18.5. Test equipment

The following test equipment shall be used for the respective inspections:

- Air permeability measuring device: JDC, Hello, or equivalent device
- Length measuring device: steel measuring tape or laser measuring device
- Line strength testing device in accordance with EN 926-1, section 4.6.3: electronic measurement with a minimum sampling rate of 100 Hz and a load application speed between 0.7 m/min and 1.0 m/min
- Canopy strength testing device: Bettsometer, B.M.A. GB 2270768

All measuring equipment shall be calibrated and maintained at regular intervals in accordance with the respective manufacturer's specifications.

18.6. Inspection Procedure

Identification of the Equipment:

- Upon receipt of the paraglider, an initial visual assessment of the air sports equipment shall be carried out. The paraglider shall be clearly identified using the official manufacturer documentation.
- The type label and all markings shall be checked for correctness, completeness, and legibility.

Visual Inspection of the Canopy:

The upper and lower surfaces, leading edge, trailing edge, ribs (including any V-ribs), internal cell walls, stitching, reinforcements (flares), and line attachment points shall be inspected for:

- tears, deformation / distortion, elongation, coating damage, previous repairs, any other abnormalities

Damaged components shall only be replaced with original spare parts.

Visual Inspection of the Lines:

The lines shall be inspected in particular for the following defects:

- damaged or loose stitching, cuts or kinks, sheath damage, abrasion, thickening, core exposure

Damaged lines shall be replaced using original spare parts and in accordance with the original stitching pattern.

Visual Inspection of Connecting Components

All line connectors (maillons), pulleys, and other hardware components of the risers, as well as any installed trim systems and speed systems, shall be inspected for:

- cracks, abrasion, restricted movement of connectors, excessive wear

Damaged components shall only be replaced with original spare parts.



Measurement of Line Lengths and Risers:

- The individual lines shall be laid out and subjected to a load of 5 daN. Measurements shall be taken from the riser attachment point to the canopy, including the line attachment loop. The measured total line lengths shall be recorded in the inspection report and compared with the nominal values. Compliance with the tolerances specified in the manufacturer’s instructions shall also be documented in the inspection report.
- The measured values shall not deviate by more than ± 10 mm from the nominal values. In addition, no significant trim deviation shall be present.
- A trim deviation is considered to exist in particular if:
 - more than 50% of the lines reach the tolerance limit and the deviation occurs exclusively in one direction (+ or -) (e.g. A/B lines +10 mm, while C/D/E lines are within nominal values)
 - or more than 25% of the lines reach the tolerance limits in both directions (+ and -) (e.g. A/B lines +5 to +10 mm while simultaneously C/D/E lines -5 to -10 mm; typical rearward trim shift due to ageing)
- Correction of individual lines is permitted by means of looping or unlooping in order to restore the correct trim condition (e.g. looping shortened A-lines or extending shortened C-lines at the line connector).
- Both risers shall be measured under a load of 5 daN. The measured values shall be compared with the specifications in the data sheet and recorded in the test report. A maximum difference of +/- 5 mm is allowed in the length of the risers.
After correction, the absolute total line lengths shall not deviate by more than ± 30 mm from the nominal values.
- Measurement of Risers: The risers shall be measured under a load of 5 daN. The measured values shall be compared with the specifications in the type data sheet and recorded in the inspection report. A maximum deviation of ± 5 mm between riser lengths is permitted.

Line Strength Verification:

Verification of line strength shall be performed in accordance with the requirements of EN 926-1:2016 and LTF 2-565-20 for type certification and shall be documented in the inspection report.

The CrossAlps 3 is equipped with high-strength Dyneema and aramid lines manufactured by Edelrid and Liros. Provided that the overall condition of the paraglider is good, a break test may be omitted in order to ensure uniform ageing of line lengths:

- for aramid lines after the first 24 months,
- for Dyneema lines on a permanent basis.

This exemption shall only apply if the visual condition of the lines shows no indications of strength degradation and if no other factors are present that could indicate reduced line strength.

Scope of Testing:

• Main Lines:

From each line level (A, B, C), one main line shall be removed from the central section of the wing and tested to failure using a tensile strength testing device. For recurring inspections, main lines from the opposite side or adjacent to the centreline shall be tested (e.g. AR2, CR2).

• Upper Lines / Mid-Level Lines

Above the main lines, one corresponding line leading towards the canopy shall be removed and also subjected to a tensile strength test.

If the measured breaking load of the tested A-line reaches at least 1.5 times the nominal value (e.g. nominal value 50 daN → measured breaking load ≥ 75 daN), testing of additional lines in levels B, C, and D may be omitted.

All tested lines shall be clearly documented in the inspection report to ensure that, during subsequent inspections, previously replaced lines are not tested again.

Limit Values for Individual Lines – CrossAlps 3:

Leinenposition	Limit (daN)
AR1, BR1	149
AR2/3, BR2/3	143
BR4	50
CR1 - CR3	85

Leinenposition	Limit (daN)
AM1 - 4, BM1 - 4, CML1 - 4	61
AM5 - 9, BM5 - 7, CM1 - 8, DM1 - 4	38
A1 - A8, B1 - B8	38
A9 - 18, B9 - 18, C1 - 18, D1 - 8	23



Canopy Strength Verification:

- The canopy strength test shall be performed using a Bettsometer (B.M.A.A. approved, Patent No. GB 2270768, Clive Betts Sales). For this test, a needle-sized hole shall be introduced in both the upper and lower surfaces in the area of the A-line attachment points. The tear propagation strength of the fabric shall then be determined. The acceptance limit is defined as: 400 g tear force at a tear length of 5 mm
- The test procedure shall be carried out in accordance with the Bettsometer operating instructions. The measured values shall be recorded in the inspection report.

Fabric Air Permeability Check:

- The air permeability shall be measured using a suitable air permeability measuring device (porosity tester). At least 5 measurement points shall be defined: evenly distributed across the span, approximately 20–30 cm behind the leading edge, at least 2 measurement points within the central third of the span
- The measured values shall be recorded in the inspection report.
- Limit value: No measurement point shall show a value below 15 seconds. If this limit is exceeded, the paraglider shall be considered unairworthy.

Visual Inspection of Trim and Configuration:

- All lines shall be inspected in accordance with the line layout plan. It shall be ensured that: all lines are correctly routed and assigned up to the risers. All line levels run freely, no twists, tangles (cravats), or misconfigurations are present

Check Flight:

- A check flight shall only be performed following major repair or maintenance actions.
- During the check flight, it shall be determined whether the flight characteristics of the inspected paraglider differ from those of a new reference wing.
- The inspector shall, based on their flying skills and experience, be capable of comparing the design requirements with the actual flight behaviour of the inspected wing and identifying any deviations.

The following prerequisites shall be met:

- sufficient knowledge of the specific paraglider model and its flight characteristics
- knowledge of the design and certification requirements applicable at the time of type certification

The check flight shall include at least the following assessment points:

- inflation behaviour, tendency to parachutal stall (in particular recovery from a B-line stall), tendency to spin (negative turn), brake travel, behaviour during asymmetric collapse (> 50%)

If the inspected paraglider exhibits any abnormal or non-compliant flight behaviour, it shall be considered unairworthy. Further operation is prohibited. The paraglider shall be returned to the manufacturer for further inspection. Independent repair or corrective actions by the inspector are not permitted.

8.7. Documentation

All inspection results, as well as all equipment-specific data (type, size, serial number, year of manufacture), shall be recorded in the inspection report. A sample report format is available from the manufacturer.

All maintenance and corrective actions carried out shall also be recorded in the inspection report.

The overall condition of the equipment shall be determined in accordance with the assessment criteria defined in the inspection report. All measured results (e.g. strength values, porosity) shall be taken into account.

In the event of a negative inspection result, the manufacturer shall be contacted to determine the further course of action (e.g. return of the equipment to the manufacturer for repair).

Any unusual or safety-critical defects shall be reported to the manufacturer without undue delay.

The inspection shall be documented on the equipment by means of an inspection record label (typically located near the identification plate).

The inspection record shall include at least the following information: date of the next inspection, place and date of the inspection performed, name and signature of the inspector

All inspection documentation (inspection report and measurement report) shall be prepared in triplicate. One copy each shall be provided to the owner, the inspector, and the manufacturer.

The retention period for inspection documentation shall be 6 years.