



# Qica2

MANUAL

Version 1.0 / 2022

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Congratulations on buying your  
**PICA 2**  
and welcome to the family  
of ICARO - pilots!

Before you get to know your glider please read the manual, there is important information inside.

**Your PICA 2 is pattern tested in A.**

Therefore, the glider is a “paraglider with good passive safety and forgiving flight characteristics. It is relatively resistant to abnormal flight conditions. It is appropriate for all pilots including pilots of all training levels.”

***The flight maneuvers during the certification process should not be overrated. Certification results provide only little information when you are flying in thermically active and turbulent air because the glider classifications serve to inform solely regarding the performance of a paraglider during extreme flight maneuvers in stable air conditions.***

The use of this paraglider is entirely at your own risk. It may be only used for those purposes described in this manual.

***It is strictly prohibited to fly the PICA 2***

- ***under the influence of drugs or alcohol,***
- ***in insufficient experience or training of pilots,***
- ***without guilty license,***
- ***beyond the minimum and maximum recommended Take Off- Weight,***
- ***with damaged glider, lines, risers or harness***
- ***in the rain, in snow, in the clouds and fog and in turbulent weather conditions.***

If you cannot keep your glider under control, use the rescue system in good time. Always pay attention to ground distance.

Our products are made with great care and state of the art. Each glider before it is delivered to the dealer or flight school is checked by ICARO paragliders (incoming test). This date is entered in the identification plate and as well guarantee as the first 2-year-check period starts. The incoming test must also be documented in the manual. Test flights are made only on a random basis.

Every new ICARO paraglider must be checked again for correct basic settings by the dealer or the flying school by means of a test flight, pulling up on the practice slope, etc. before delivery and this date must be entered on the nameplate of the paraglider. From this point in time, both the period for the first 2-year check and the term of the guarantee begins. The use of this paraglider is entirely at your own risk. Every pilot bears the responsibility of his/her own safety.

In order to get to know your glider, we recommend that you practice with your glider on the ground. Pulling up in flat gradients is great practice for fine tuning your launch techniques. Here you can get to learn the reactions of your glider without any stress and hectic. Ground practice pays off in the air.

All technical data and instructions were drawn up with great care. ICARO paragliders cannot be made responsible for any possible errors in this manual.

Important information in this manual is written in ***fat cursive writing***.

Any important changes to this manual will be published in our homepage ([www.icaro-paragliders.de](http://www.icaro-paragliders.de)).

Should you decide to sell this glider later, please pass on this manual to the new owner.

Each alteration of the glider (lines, canopy, and riser) is dangerous, and reactions of the glider are not predictable. Your glider will lose its pattern test result and guarantee.

You can only fly your glider with a valid flying license and in accordance with local rules and regulations.

The manufacturer or distributor assumes no responsibility for accidents occurring while using it.

Every pilot must ensure that the glider is properly checked at regular intervals.

Many countries have specific regulations or laws regarding paragliding activity. It's your responsibility to know and observe the regulations of the region where you fly.

We would like to point out that despite careful editing, all information in this manual is provided without guarantee and that ICARO Paragliders and the author cannot accept any liability.

### **Environmental aspects:**

The materials of which a paraglider is made require a special waste disposal. So please send disused gliders back to us. We will care about a professional waste disposal without costing for you.

Please do our nature-near sport in a way which does not stress nature and environment!

Please do not walk beside the marked ways, do not leave your litter, do not make unnecessary loud noises and respect the sensitive balance in the mountains.

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## To get to know your **PICA 2**

Allowed for training	yes
Certified / allowed for aerobatics	no/ no
Certified / allowed for flying with passengers	no/ no
Certified / allowed for towing	ja
Certified / allowed for flying with motor drive	no / not tested

<b>Technical data</b>		<b>S</b>	<b>M</b>	<b>ML</b>	<b>L</b>
Certification LTF/ EN		A	A	A	A
Number of cells		38	38	38	38
Number of risers		3+1	3+1	3+1	3+1
Riser length	mm	480	520	520	520
Maximum way of the accelerator	mm	90	110	110	110
Trimmer	mm	none	none	none	none
Weight of the glider	kg	3,9	4,3	4,5	4,9
Wing Area flat	m <sup>2</sup>	22	25,5	27,5	29
Wing Area projected	m <sup>2</sup>	18,7	21,6	23,3	24,6
Wingspan flat	m	10,5	11,3	11,7	12,1
Wingspan projected	m	8,2	8,8	9,1	9,4
Aspect Ratio		5,0	5,0	5,0	5,0
Aspect Ratio projected		3,6	3,6	3,6	3,6
Take off weight	kg	65-85	80-105	95-115	110-130
Recommended storage temperature	Celsius	+ 5 <sup>o</sup> to + 30 <sup>o</sup>			
Recommended storage humidity	% rel. H.	55% to 75%			
Check interval		<b>24 months or 150 operating hours, depending on what occurs sooner.</b>			

PICA 2 is a single-seated paraglider with a maximum of passive safety and a forgiving flight behavior. It is a symbiosis of safety, performance, and dynamics, making it ideal for stress-free flying. He is neither suitable for aerobatics nor pattern tested.

The modern internal structure and the new high-performance mixed material minimize the weight.

With the PICA 2, the profile and sail tension have been fundamentally reworked, resulting in a high pitch stability and directional stability. The modern internal construction minimizes the weight, the additional miniribs in the front edge double the number of cells in the flow-critical area.

The PICA 2 has been pattern tested in all sizes in an extended weight range, allowing a seamless transition from one size to another for each body weight.

In the recommended weight range established by us on many flights, the PICA 2 has the optimum ratio of speed, ascent, safety and overall performance in all flight conditions.

*The PICA 2 in sizes M, ML and L was subjected to the DGAC criteria and approved as a motorized paraglider. You can find additional information about flying with a motor under a separate article.*

## Canopy

The conventionally constructed profile nose with rods and the rearwardly offset suspension points on the A-level with a newly calculated performance profile and the mixed material Skytex 38 and STA 15 Techfiber Services Inc. are the essential features of the new PICA 2.

- The advantages that this new profile offers the pilot are:
- The glider starts better and easier, which makes training operations much easier.
- A better dynamic pressure is achieved over the entire range of the angle of attack, because: the higher this is, the more stable the canopy is over the entire speed range.
- The paraglider, stalls later, and gives the pilot a larger control line area.
- In high-speed flight, the profile is more dimensionally accurate than with conventional profiles and
- The reduced air resistance results in better gliding and climbing performance. In addition, different fabric materials on the upper and lower sail reduce the weight, but still guarantee the highest form and aerodynamic stability and strength. The dirt outlet openings on both sides of the leech make it easier to clean the inside of the canopy. The coating makes the fabric water-repellent, UV-stabile and air-impermeable. Between the single groups of main lines are taut ribbons sewn in, which are regulating the tension of the sail.

## Lines

The entire line system is formed from individual lines, which are sewn and looped at both ends. The lines and stitching are subject to rigorous production controls, to ensure high and consistent manufacturing quality.

Upon delivery, the PICA 2 is provided with an “anchor stitch” trim loop on the C level. These are used to compensate for the unavoidable changes in length of the lines, which depend, among other things, on climatic conditions, the storage of the glider, maneuvers, the type of line used, etc.



As a rule, the A and B planes stretch slightly due to the higher load in the front area of the canopy, while the C-level mostly remains unchanged or even shrinks a little under certain circumstances. This makes the glider a little slower due to the higher angle of attack.

The first signs of a trim change are

- worse start
- Changed flight behavior, the glider is slower and more sluggish or
- Tending to deep stall when flying with big ears.

If one of these possibilities occurs, we recommend opening the trim loops on the C level step by step to counteract these effects (first, instead of the anchor stitch, use a double loop. If nothing changes in the above properties, then open the double loop and hang the line in the line lock).



***If there is still no improvement, the glider must be checked and measured by qualified personnel. He has the option of either trimming the canopy without changing the lines or, in the worst case, replacing the affected lines with new ones.***

***It is imperative to ensure that the line locks are securely and firmly seated. If you are not sure or have any questions, please contact your dealer.***

The PICA 2 is delivered from the factory with the best **brake position** for most pilots. But tall or short pilots, or those with a harness with non-standard attachment points might consider it necessary to change the position of the brake handles.

If the brakes are to be shortened, it is extremely important to avoid the adjustment affecting the glider's trim speed. There must always be some slack in the brakes when they are fully released. This can be checked with the glider inflated above the pilot's head. There should be a noticeable bow in the brake lines, and the brakes should be having no effect on the shape of the trailing edge.

***If the brake lines are to be lengthened, it is important to ensure that the pilot can still stall the canopy (i.e., during extreme manoeuvres or landing) without the need to take wraps.***

***If you need to change the brake line lengths, do it maximum 5 cm at a time, and check it at an easy training hill. Check especially that both lines are the same length, as any asymmetry will lead to tiring and possible dangerous flying characteristics.***

### **Risers**

The Glider has 3-fold risers with separated A-risers an acceleration system which will be activated with a foot bar. The risers are signified. The main break line comes through a return pulley; the handle of the main break line is mounted on the C- riser. The acceleration system is mounted on the A- riser.

To fix it with the foot bar you must connect the brummel hooks of the foot bar with the brummel hook of the acceleration system.

### **How to vary the trim of the glider**

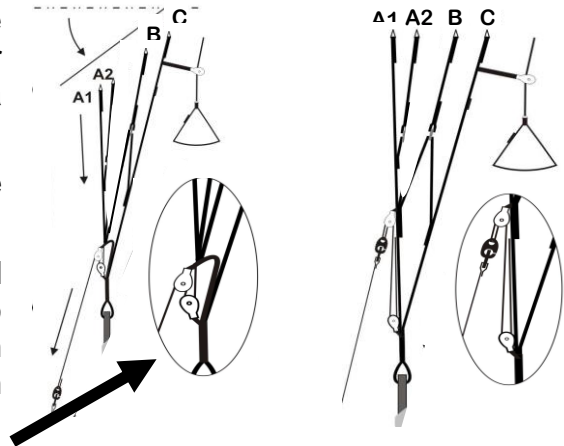
The glider has an acceleration system which will be activated with a foot bar.

## Acceleration system

When flying normal all risers have the same length. When using the accelerator system, the risers are shortened by a constructive exactly defined length.

Therefore, the angle of attack of the canopy is smaller and speed increases.

The length of the accelerator is adjusted to the left and right of the foot pedal so that when your leg is fully extended, then the acceleration is at maximum – both rollers are touching.



Please pay attention that the glider will not be pre-accelerated, while the accelerator is loosened, when the acceleration ropes are set too short. Assembling the accelerator is reliant upon the harness, e.g., numbers of return pulleys, rope guide ...

***The more turbulent the weather conditions and when near the ground, the less acceleration should be used.***

***Do not use the acceleration system and brakes at the same time! It is very dangerous to use both simultaneously as it can result in serious collapses.***

## Flying with the PICA 2

### Harness

The **PICA 2** is certified for use with harnesses GH type. Practically all modern harnesses are GH type harnesses. Older harnesses with fixed cross belts (GX type) are not certified and should not be used.

The adjustment of the harness chest strap controls the distance between karabiners and affects the handling and stability of the glider. Excessive tightening the chest strap increases stability but also the risk of twists following glider collapse, and it also increases the frequency of getting collapses due to poor feedback from the glider.

The risk of twisting is also strongly affected by the seating position of pilot. Flying in a laid back (reclined) position makes it much more difficult to react in time to prevent riser twisting. With the chest strap in a more closed position the glider also has more tendency to maintain a stable spiral, lengthening of the chest strap gives more feedback from the glider but decreases stability.

ICARO paragliders recommends following settings:

Take-off weight	< 80kg	80 kg -100 kg	> 100kg
Horizontal distance of the main karabiners	38 cm – 42 cm	42 cm – 46 cm	46 cm – 50 cm



## **Flight preparation**

- When choosing an area to lay out the glider before launching, try to find somewhere that is relatively free of stones and sharp rocks. Pay particular attention to the top surface, where the canopy touches the ground.
- Never step on your glider – stepping on it will weaken the cloth.
- We recommend keeping an eye on other pilots, spectators, and smoking people near of the glider. Many of them do not appreciate the fragility of the lines and cloth.
- Whilst unfolding your paraglider check the canopy and cell walls for damage. Always take into consideration that the paraglider may have become damaged during transportation.
- Make sure that no sand, stones or snow get inside the canopy as the extra weight collected in the trailing edge may slow down or even stall the glider. Sharp edges damage the canopy.
- Check the lines for knots, twisting and damage, the brake lines for knots, kinks and their symmetric. Loose or incorrect brake knots can cause serious accidents through loss of the steering of the glider!
- Separate the line groups carefully and bring the risers in order. All lines must run freely from harness to canopy. It is equally important that the lines are unhindered and cannot get caught up during the launch.
- There should not be any lines underneath the canopy. If the lines wrap around the canopy, this can result in injury or death!
- Check the rescue system (handle's pins fixed in the loops and the closed cover of your harness).
- Check your harness and make sure that all connections to pilot are correctly closed. Check that all karabiners are closed and can not be opened accidentally in flight and the risers are not twisted.
- Check canopy (all cells are open), wind direction and airspace.

***Do not launch if there are any defects!!!***

## **Launch preparations**

Before every launch you should carry out the standard 5-point checking procedure. Do the checks following the same sequence every time.

- Helmet, harness, carbines closed.
- Lines, risers and accelerator/ trimmer, ok?
- Leading edge open?
- Wind direction and strength, ok?
- Airspace and start area, ok?

## **Launch**

**The most important thing during the take-off is, like at all other gliders too, not the force but the constancy of the pull.**

At the start advice to fix the accelerator with the Velcro which is attached at the front of the sitting board, in order to avoid tripping while pulling up the glider or when starting up.

Hold only the middle A risers and the handles of the brakes. When you pull on the A-risers, the lines in the middle of the wing should be under tension before the lines on the wing ends. This ensures an even easier start. Use progressive

pressure on the A risers and the energy of our own bodies weight until the wing is fully inflated overhead. The canopy is inflated quickly due to the super short lines. When there is no pull from the lines and the wing is overhead, use slight pressure on the brake. Look up and make sure that the canopy is fully inflated. After a few accelerating steps and at the same time let go of the brakes gently, you will take off. Then use slight pressure again on the brakes to fly at a speed with minimal sink rate.

When there is strong wind the reverse launch technique is recommended. Holding the brakes, turn around to face the wing passing one set of risers over your head as you turn. We suggest building a "wall" by partially inflating your glider on the ground, thus sorting out the lines thoroughly.

By towing by winch there are no special techniques needed.

***Avoid large brake inputs until you are reasonably high if course correction is necessary close to the ground. Do not try to climb steeply during the first part of the tow.***

### **Active flying**

Active flying in normal flight means that the wing is always kept at a safe angle of attack and, if at all possible, vertically above the pilot. The moving air affecting the wing often changes the angle of attack in an unwanted way. When flying into an upwind the paraglider often bucks, the wing drops back, the angle of attack increases, getting closer to a stall. In upwind the canopy pitches forward, the angle of attack is reduced and there is the risk of a collapse. Both can occur symmetrically, on both sides or asymmetrically, on one side only. It is impossible to control the angle of attack by looking to the canopy. Look in the direction you are flying, changes in the horizon inform the pilot about the canopy's movements.

Braking is also an absolute must! If the canopy pitches forward, the angle of attack decreases. In the case of strong forward pitching there is a risk of the canopy collapsing due to its insufficient angle of attack. The pilot must therefore prevent the canopy from pitching forward by pulling the controls down on both sides. Inversely, the angle of attack increases if the wing drops back behind the pilot, e.g. when entering into a thermal. The canopy is closer to stalling.

In these flight situations a significant braking movement by the pilot can lead to a spin or a stall. When the wing drops back, the pilot therefore must not brake and/or if the pilot is already holding the controls low, he must release them accordingly.

Any change in the angle of attack immediately transfers in to a change in the control pressure of the brakes. The control pressure presents the pilot with immediate information on the angle of attack and on what the canopy is doing or about to do.

### **Flying with accelerator**

When using the accelerator, be careful. The accelerator should be employed, to compensate for high angles of attack and the associated potential risk of a stall.

Do not step too quickly because your glider will dive down from the strong change in angle of attack. Put equal pressure on the speed bar with your feet until the pulley touches the A-riser, and the glider will quickly gain speed and the sink speed remains very moderate from beginning up to full speed.

***The more turbulent the weather conditions and when near the ground, the less acceleration should be used. Using the accelerator decreases the angle of attack and can make the glider more prone to collapse.***

***Do not use the acceleration system and brakes at the same time! It is very dangerous to use both simultaneously as it can result in serious collapses.***

### **Turning**

A combined steering technique is suitable for every situation. The glider is agile and reacts to steering impulses quickly and directly. Strong, one-sided pulling of the brakes brings the glider into an obvious side angle and the glider flies fast steep curves until spiral dive begins.

***If the brake lines are pulled too fast or too far the glider will be stalled!***

A one-sided stall is signaled clearly by: The curves inner side of the wing is getting soft, and nearly stops. In this case you have to release the brake lines!

### **Landing**

Always stand up in the harness in the landing position very early in order to be able to react as fast as possible to sudden events. Set up your final landing leg to face into the wind to minimize groundspeed. If you leave the inflated leading edge bang on the ground, this can cause the cell walls to burst!

***Do not brake too much, to avoid a stall of the glider in this very low altitude! Do not reduce height by "pumping" with the brakes.***

## **Descent techniques**

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***The methods described here can stress the material and structure of the paraglider and the pilot to their physical and psychological limits. They should therefore only be used for training and in emergency situations.***

- ***Training of descent techniques and simulation of flight incidents (SFI) should only take place at professional safety training seminars with professional trainer and only while flying over water.***
- ***Before inducing any exercise control the airspace beneath.***
- ***During the exercises stay in contact with the canopy.***
- ***If the glider is out of control, use your reserve parachute.***

### **Big & Small Ears**

The aim of this exercise is to descend in strong thermals. Only take the outer lines of the A-risers in your hand, without releasing the brakes and pull down leaving it run through your hands (use gloves!). Sink rate increases but not the forward speed. If you use the acceleration system, then higher sink speeds can be achieved. Reopen the wing by pushing up with your hands and if necessary, then pump the brakes with short symmetric movements. For directional control while using the big ears, you should use weight shift.

***Never attempt tight turns or spirals with Big Ears, as the A-lines will be over stressed.***

## **B-Line-Stall**

B-Line-Stall is not so effective, furthermore stresses the material of the glider and reduces operating life of the canopy.

To enter and hold a B-line-stall requires considerable strength.

***It is very dangerous performing a B-line-stall incorrectly and following errors must be avoided:***

- ***pulling too far on the B-line-stall aid, so that the A-lines are pulled too,***
- ***exit is too slow,***
- ***releasing the B-line-stall aid without simultaneously pushing up with your hands,***
- ***using brakes during or directly after exiting,***
- ***Brakes must not be shortened by twisting around your hand during the exercise.***

## **Spiral Dive**

In a controlled spiral dive, the pilot applies an active flying technique in the same way as when circling in thermals. The strong centrifugal forces in a spiral dive, however, change the control pressure. It increases by a multiple of the force.

Even in moderate spirals, the pilot reaches double acceleration of gravity (2G). Subsequently, the control pressure also doubles.

To initiate a spiral dive, look in the direction you want to go, roll your body weight in that direction and at the same time smoothly pull down on the inside brake. The **PICA 2** will start to turn, and then drop into a spiral.

In the spiral dive an uncontrolled acceleration of the canopy must be prevented. As the canopy always accelerates via the outside of the wing, the spiral speed is controlled via the outside brake by applying the active flying technique.

If the speed increases in an unwanted manner, pull the brakes further to slow down. If the wing becomes too slow, it can be speeded up by releasing the outside control.

***If you pull abruptly and too far on the brakes, the canopy may enter a negative spin. When entering a spiral dive keep the brake on the outer curve released.***

The glider does not have a tendency for stable spiral dive.

If under certain conditions, it should go into a stable spiral dive then actively exit the maneuver by bringing your weight into a neutral position, release the brakes of the inner curve side and brake gently on the outer curve side until you notice that the wing starts to level out. Then gently brake on the inside curve for several turns until normal flights returns.

## **Wingover**

The **PICA 2** is an agile glider, and it is quite easy to get to an excessively high angle of bank in just a few turns. Practice wingovers gently at first, as there is a chance of quite large collapses at high bank angles.

## What happens when it happens?

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### Knots and tangles

The best way to avoid knots and tangles is to inspect the lines before you inflate the wing for take-off. If you notice a knot before, take off, immediately stop running and do not take-off.

If you have taken-off with a knot you will have to correct the drift by leaning on the opposite side of the knot and gently apply the brake line on that side too. You can gently try to pull on the brake line to see if the knot becomes unfastened or try to identify the line with the knot in it. Try to pull the identified line to see if the knot releases. If the knot is too tight and you cannot remove it, carefully and safely fly to the nearest landing place.

***Be very careful when trying to remove a knot. When there are knots in the lines or when they are tangled, do not pull too hard on the brake lines, there is an increased risk of the wing to stalling or negative turn being initiated.***

### Deep / Parachute Stall

Your glider has been carefully designed to resist entering deep stall. Before exiting a deep stall, please ensure that the brakes are fully released. Actively exit the deep stall by reaching up and push forward with both palms on the A-risers or pull on them. Avoid flying in very humid air or in rain. A wet canopy may have very unpredictable flying characteristics, one of which is a radically increased risk of deep stall.

***Never pull the brake-lines during a parachute stall, because the glider would go into a full stall immediately. If you find yourself flying in unavoidable rain we strongly recommend that you avoid any sudden movements or radical brake line input, that you do not pull Big Ears or B-Line-Stall, and that you steer clear of turbulence and avoid a deep flare on landing.***

### Asymmetric Collapse

While flying in turbulent conditions it may occur that a portion of your glider deflates. However, just like in flying in turbulences, please pull gently on both brakes. Re-inflation is speeded up by counteracting the turning movement of the canopy until normal forward flight return. Then pump the brake line on the collapsed side.

If the canopy is in front of the pilot after an asymmetrical collapse, the pilot must immediately and decisively break down the open side to prevent an uncontrolled rotation. The same rule applies here: If the wing is ahead, braking is a must. Sometimes, however, the angle of attack on the open, not-collapsed side is relatively high and the wing is behind the pilot. Then a significant control movement would definitely cause a stall and its potentially extreme reactions.

***If the collapsed part of the canopy is very big, you have to brake the open side very dosed (not too much!) to avoid a stall.***

### Symmetric Collapse

Your **PICA 2** normally re-inflates promptly in a symmetric collapse without pilot input. Applying the brakes symmetrically will speed things up.

## Emergency Steering

Should it no longer be possible to steer your glider, for example due to a broken line, the glider may be steered by gently pulling on either rear riser.

***By steering this way airspeed is reduced hardly. Therefore, for landing you must change to the rear risers to control your glider. Handling will be more direct so being careful not to pull too hard.***

## Negative Spin

If the pilot abruptly applies full brake to one side of the glider while the other side is at zero brake, the faster side may fly around the braked and stalled side resulting in a spin. Alternatively, if flying very slowly with almost full brakes on both sides, if one hand releases one brake suddenly, while the other continues with full brake, the glider may enter a negative spin. To exit a spin just do “hands up” to release the brakes and the glider will return to normal flight.

***If you do not have control over your glider and you are running out of altitude, immediately deploy your reserve parachute.***

## Front stall

After a front stall of the canopy, the wing moves backwards while the pilot with his higher mass moves further ahead. Wing behind, pilot ahead, significantly high angle of attack – there is only one thing to do:

***Do not brake or you run the risk of a dangerous stall.***

***The pilot must not pull the control lines before the canopy is at least above him again. If the canopy then shoots forward dynamically, it is absolutely vital to stop the motion in a consistent and decisive manner via the brakes.***

## Full Stall

***Spin and full stall are both dangerous and somewhat unpredictable exercises. Do not stall or spin your paraglider on purpose.***

To initiate a full stable stall, apply both brakes to maximum arm extension. If possible, grasp the seat of your harness to assist keeping your arms locked. The pilot will swing back under the canopy and finally the canopy will stabilize to a full stall. Once in a stable stall, the exercise can be completed. Release the brakes just a little and let the glider fill until it regains shape. Then release the brakes fully and your glider will return to normal flight.

***It is imperative that the pilot fully completes this exercise and holds on, as a premature release while the glider is still falling back may cause the glider to rapidly dive ahead past the pilot. There is a possibility of the pilot landing in or entangling in the glider.***

## Care instructions, repairs, inspection

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### Care Instructions

- A new wing supplied from the factory is often compressed hard. The compression serves to reduce shipping costs but should not be repeated once the wing has been unpacked and flown for the first time.
- Note that the glider bag should not be used as a seat.
- Even with good care and maintenance, just like any item exposed to the elements, your glider can wear out after a certain amount of use. This can change flight behavior and safety. We recommend a regular safety inspection of the canopy and all lines.
- If you clean your glider, it is best to use warm water and a soft sponge.
- Store your glider in a dry and dark place, ideally between 5° and 30° Celsius and humidity between 55 and 65%. Do not store it near chemicals or petrol.
- If you will not fly for longer period, store the glider releasing all compression straps and take it out of its backpack so that the fabric is not compressed, creased or stretched.
- Avoid storing your glider for days at a time in a hot car.
- Unpack your paraglider shortly before launch and pack away immediately after landing to avoid any unnecessary UV exposure.
- When unfolding the paraglider ensure that neither the canopy nor the lines become too dirty. Dirt particles can damage the material and lines.
- Never use chemical cleaning agents, brushes, or hard sponges on the material, as these destroy the coating and affect the strength of the cloth. The canopy will become porous and will lose structural strength.
- Never attempt to clean your paraglider in a washing machine. Even without using detergents the simple mechanical abrasion will quickly finish the canopy and render it useless.
- If you are flying near the sea most the wing may age faster because the air is humid and salty. In this case we suggest you have it checked more often than prescribed in this manual.
- Also avoid dipping it in a swimming pool; the chlorine will damage the cloth.
- If you must rinse or clean your glider do so with fresh water. Frequent cleaning will accelerate the ageing process.
- If the glider has become wet, lay it out so that air can get to all areas of the fabric.
- After landings in trees or on water you should check the length of the lines and the canopy.
- Flying all the descent or acrobatic exercises will not normally pose a structural problem but freestyle training accelerates the ageing process dramatically.
- There is no special method packing your glider. ICARO paragliders commends the "Cell to Cell-method bag because the reinforcements of the leading edge stay flex-free on top of each other and do not fold.

- When folding your glider make sure that there are no insects inside the canopy. Many insect species contain acids that could damage the cloth. Grasshoppers gnaw their way out of a folded canopy, making it full of holes in the process.
- When you did not fly for a longer period ICARO commends to check the glider (e.g., mildew stains, splice of the lines, corrosion of the shackles and carabines). If you are not convinced of the glider's airworthiness, please send your glider to an authorized ICARO dealer to check your glider. The same is commended for harnesses.

## Repairs

***Only use original ICARO parts for repairing your glider. If you don't you lose the warranty for your glider.***

Small holes in the canopy (max. 20x20 mm) can be repaired by the pilot by using self-adhesive sailcloth on both sides of the perforation.

Damage to the lines or any other repairs should only be carried out at an authorized ICARO center.

If your glider needs to be repaired, please contact your local ICARO paragliders dealer.

## Inspection

It is important to have your glider inspected by a trained ICARO technician, but it is also allowed to check your glider for yourself.

In the annex you find the regulations for checks of certified gliders and items in order to perform a paraglider inspection you need.

## Inspection interval

**24** months or **150** operating hours, depending on what occurs sooner.

***Without regular certified inspections, your glider will lose its pattern test result and warranty.***

ICARO recommends having wings that are often used for training of descent exercises, acrobatics or flying in salty or sandy conditions subjected to checkups all 100 operating hours or 12 months.

It is also important, that ground handling also will be considered. All gliders, especially gliders manufactured with light and thin material are mechanically more stressed than other gliders. Therefore, ICARO recommends multiplying ground handling time with the factor 1, 5.

Not only gliders have a recurrent inspection interval. Airworthiness of harnesses and rescue systems must also be verified. Generally, it is recommended to change aluminum snap hooks after 24 months or 200 operating hours.

According to German and Austrian aeronautical legislation the owner of a glider can check the airworthiness by his own or order a third person (for example manufacturer/importer) to do this.

To perform your own airworthiness check, ICARO paragliders must give you a briefing. Should you decide to check the wing by yourself you must make sure that our guidelines are adhered to. Failing to do so will void the certification.

ICARO paragliders highly recommend that you let the manufacturer or authorized supplier/ person do the check of airworthiness.

***All inspections and repairs must be documented (manual page 2).***



## Terms of the warranty

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ICARO warranty covers the cost of materials and workmanship on gliders accepted by ICARO paragliders to fall under the warranty.

Paragliders: **24** month or **150** operating hours, depending on what is first

Harnesses and rescue systems: **24** months

*Warranty is only valid for ICARO products  
with LTF/ EN certification.*

### **What is covered by the warranty?**

Provided that ICARO paragliders accept the fault the warranty contains all necessary spare parts related to the replacement or repair of defective parts and working time.

ICARO paragliders accept no freight costs (outbound and return transportation).

### **What are the conditions of the warranty?**

Provided that ICARO paragliders accept the fault, the warranty contains all necessary spare parts related to the replacement or repair of defective parts and working time.

- ICARO paragliders needs to be informed immediately after the discovery of a defect and the defective product must be sent to us for testing.
- The glider/ harness/ rescue system was used in normal circumstances and maintained according to the instructions. This includes the careful drying, cleaning and storage.
- The glider/ harness/ rescue system was used only within the applicable guidelines and all rules have been complied with all times.
- All flights must be accounted for within the flight book.
- There were only original spare parts used and checks, exchange and / or repairs were conducted by an authorized dealer or by ICARO paragliders company / person and properly documented.
- The online form on [www.icaro-paragliders.com](http://www.icaro-paragliders.com) must be sent at least 6 weeks after buying to ICARO paragliders.

### **What is excluded from warranty?**

- Gliders and harnesses that are used for training purposes, Acro or other official competitions,
- Gliders / harnesses who were involved in an accident,
- Rescue equipment, which has been thrown for an emergency,
- Gliders / harnesses and rescue equipment, which have been changed by yourself,
- Gliders / harnesses and rescue equipment that were not purchased from an authorized dealer / flight school,
- Gliders / harnesses and rescue equipment where the required inspection intervals were not met, and the verification of the glider was not conducted by a ICARO paragliders authorized operation / person

- Damage which has occurred due to improper treatment (i.e. storage in humidity, heat or direct sunlight)
- Parts that need to be replaced due to normal wear and tear,
- Discoloration of the cloth material used,
- Damage caused by solvents, salt water, insects, sun, sand, humidity or “debag-jumps”.
- Damage caused by force majeure.
- Damage caused by the motor (Oil, fuel, damage in cause of the prop) and towing by winch.

***In case of a concluded claim the period of warranty carries on. The period of warranty and the connected claim are not prolonged and are only valid until the original date of expiry. The freight costs (transport to and from) are not paid by ICARO paragliders.***

## **Annex**

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### **Warranty Card**

Please fill in the guarantee card which you find on our homepage [www.icaro-paragliders.com](http://www.icaro-paragliders.com) and send it.

### **Users needs for Inspections**

You will need the following items in order to perform a paraglider inspection:

- Standardized inspection report
- Porosity meter
- Spring scale
- Equipment for measuring line lengths
- Equipment for line strength testing
- Sewing machine
- Big, clean and bright room

Technical specifications about your glider (type, serial number, size and year of production). Please call ICARO Paragliders for information.

A three-week course at ICARO Paragliders, specified to a glider type together with a legal flight license is the necessary prerequisites for permission to inspect ICARO Paragliders.

## **Inspection Instructions**

### **Record Information**

Spread out your paraglider in a big bright room and make a note of information such as model, type and serial number.

### **Porosity Test**

Use your porosity meter to perform porosity checks at 4 different places of the canopy. The results are recorded in the inspection protocol and are to be evaluated according to the internal guidelines of the workshop.

### **Visual Control of the Canopy**

Hang up the canopy so that you can do a visual check of your canopy. Check for perforations in the upper and lower sailcloth, damaged stitching between the cells, and damage to the leading/trailing edge reinforcements. Each cell must be checked.

### **Visual Control of the Risers and Lines**

Check the risers, the trimmers, the stitching at each line loop, the brake lines, all seams and line contact points. Each line must be measured and inspected for kinks.

### **Strength test of the lines**

One complete A-and B- line must be removed, measured and submitted to a strength test. The measured value of each individual line must be noted in the inspection protocol. The minimum of the line's strength are 125% of the normative guidelines.

### **Measurement of the lines**

Measure every single line while stressing it with defined tractive force (5daN). The results are recorded in the inspection protocol and are to be evaluated according to the internal guidelines of the workshop. For all information about the lines (single length, total length, mechanical strength) please call ICARO paragliders, [office@icaro-paragliders.com](mailto:office@icaro-paragliders.com)

### **Assessment**

The measurements of all procedures are noted in the inspection protocol. When all facts have been recorded, the technician must make a general assessment. Check the backpack for damage to the zips, seams and straps and repair if necessary with a sewing machine.

### **General Remarks**

Any other repairs, corrections etc. to the general condition of the paraglider must be evaluated. A copy of the results of each inspection must be sent on to ICARO Paragliders.

The technician must report any unusual faults to ICARO Paragliders within 3 days.

## **Inspection Reference**

Only an authorized technician who has been trained by ICARO Paragliders is authorized to sign and date the glider type label and sign the manual.

**Part list****STÜCKLISTE****ICARO  
Pica2****ALL SIZE**

Bezeichnung		Material	Oberfläche	Abmessung	Hersteller
Fangleinenschlösser	Triangel	Edelstahl	Edelstahl	Ø 3,5 mm	Maillon
Stammleinen (Stamm)	PPSL 275	Aramid	Ummantelt	Ø 1,42 mm	Liros
Mittelleinen (1 Gabel)	PPSL 160	Aramid	Ummantelt	Ø 1,35 mm	Liros
Galerieleinen (2 Gabel)	DSL 70	Dyneema	Ummantelt	Ø 0,95 mm	Liros
Hauptbremsleine	DSL 350	Dyneema	Ummantelt	Ø 2,0 mm	Liros
Bremsmittelleine	TSL 140	Dyneema	Ummantelt	Ø 1,3 mm	Liros
Bremsgalerieleinen	DSL 70	Dyneema	Ummantelt	Ø 0,95 mm	Liros
Tuch Obersegel	SKYTEX 38	Nylon	Beschichtet		Skytex
Tuch Untersegel	STA 15	Nylon	Beschichtet		Techfiber Services Inc.
Tuch Profile	Skytex 32 hard	Nylon	Beschichtet		Skytex
Faden Segel	TEX 45				A&E
Faden Tragegurte	TEX138				A&E
Schlaufenband	Schiffchenwar	Nylon		12,5 mm	Schmahl
Profilverstärkung	Nylon Webbing	Nylon		Ø 2.7 mm	
Einfassband	NCV 20mm Mylar Tape	Mylar	90g	20 mm	Porcher Marine
Leinensammler (Schlosser)	Leinenschloss Clip	Kunststoff			

**ICARO paragliders**

Hochriesstraße 1, D-83126 Flintsbach

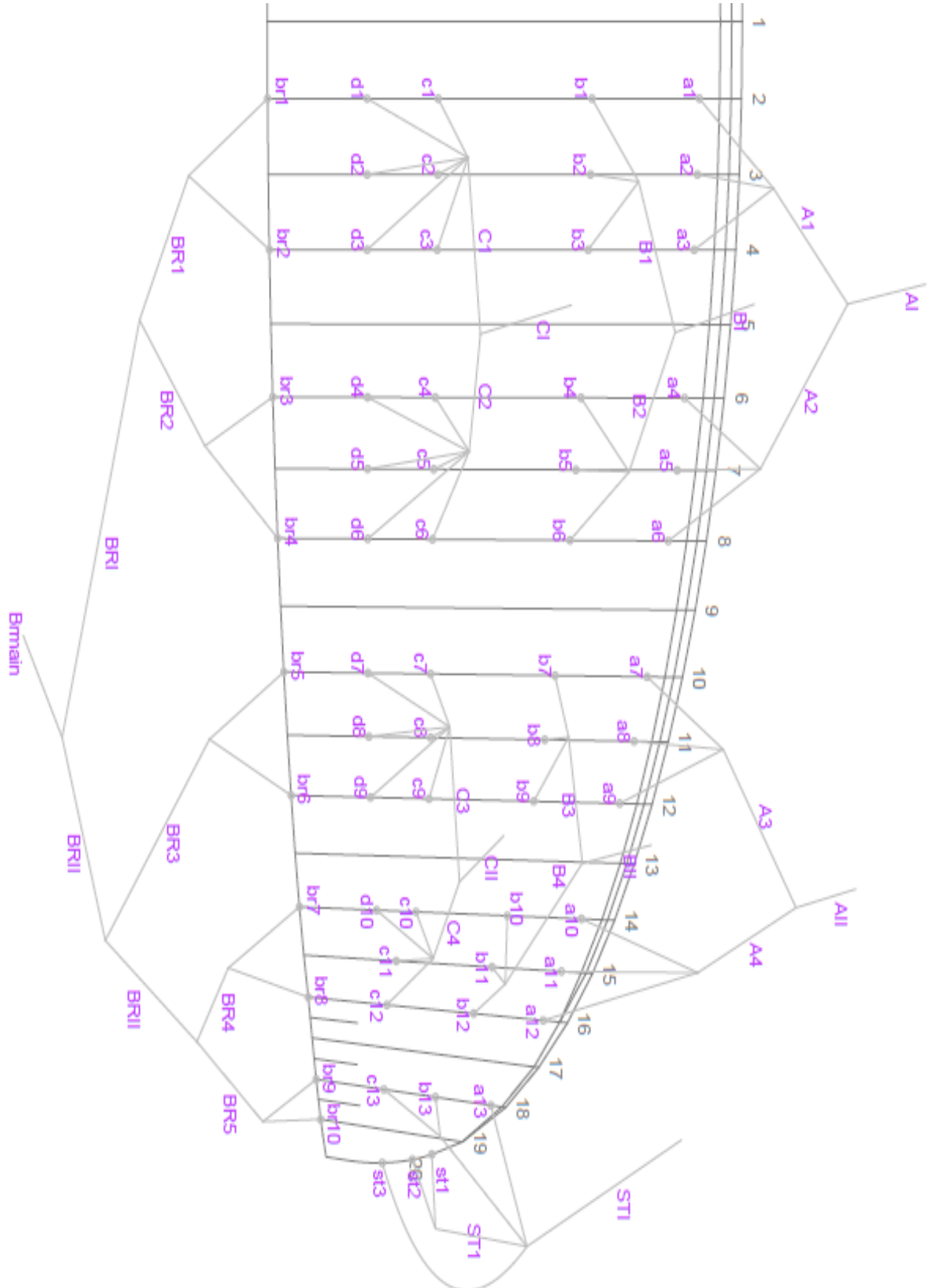
Telefon: +49 (0)8034 909700Telefax: +49 (0)8034 909701Email: office@icaro-paragliders.com

ICARO Paragliders  
a brand of FLY & MORE GmbH,  
Hochries Str. 1, 83126 Flintsbach, Germany

Wolfgang Kaiser (CEO)

**Line plan all over (all sizes)**

**Attention: cow hitch on the CI and CII**



# Line type, length und title (all size)

## PICA 2 S

**Line LENGTH**

Rib	Total	Total
2	1141	2653
3	1078	2474
4	1036	
6	1066	2678
7	1069	
8	1132	
10	1051	2259
11	956	2952
12	1001	
14	883	2334
15	823	6090
16	812	6077
18	1353	5768
20	314	5583

**Line TYPE**

Rib	A-LINES	B-LINES	C-LINES	D-LINES	BR-LINES
2	DSL 70	PPSSL 160			
3	DSL 70	PPSSL 275			
4	DSL 70				
6	DSL 70	PPSSL 160			
7	DSL 70				
8	DSL 70				
10	DSL 70	PPSSL 160			
11	DSL 70				
12	DSL 70	PPSSL 275			
14	DSL 70	PPSSL 160			
15	DSL 70				
16	DSL 70				
18	DSL 70				
20	DSL 70	DSL 70			

**Line Name**

Rib	A-LINES	B-LINES	C-LINES	D-LINES	BR-LINES
2	a1	b1			
3	a2	b2			
4	a3	b3			
6	a4	b4			
7	a5	b5			
8	a6	b6			
10	a7	b7			
11	a8	b8			
12	a9	b9			
14	a10	b10			
15	a11	b11			
16	a12	b12			
18	a13	b13			
20	s11	s12			

**Loop Distance 'A'**

Rib	Total	Loop	Brake
r2	1548	7444	
r4	1233	7824	2181
r6	1202	1486	
r8	1171		1804
r10	1151	1873	
r12	1111		4448
r14	1145	702	
r16	1146		1160
r18	535		6398
r19	493	1248	

**Checking**

6251	6186	6204	6209	6199	6262	6245	6188	6191	6131	6090	6077	5768	5583	6208	6137	6157	6154	6146	6213	6176	6121	6131	6088	6053	6042	5758	5570	6313	6246	6251	6239	6236	6298	6215	6168	6165	6122	6103	6063	5811	5579	6404	6359	6340	6321	6315	6361	6282	6218	6153	7144	6830	6643	6610	6490	6448	6464	6465	6398	6355	6675	6599	6620	6617	6609	6601	6641	6582	6592	6546	6509	6497	6191	5989	6886	6916	6817	6797	6790	6840	6755	6686	6686	6616	7882	7344	7443	7143	7107	6978	6933	6951	6880	6833	7682	7443	7443	7107	6978	6933	6951	6880	6833	1940	6951	6880	6833
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## PICA 2 M

**Line LENGTH**

Rib	Total	Total
2	1201	2852
3	1150	2659
4	1180	
6	1150	2879
7	1148	
8	1070	
10	1130	2427
11	1071	3174
12	1076	
14	1029	2509
15	865	6548
16	873	6534
18	1487	6202
20	338	6003

**Line TYPE**

Rib	A-LINES	B-LINES	C-LINES	D-LINES	BR-LINES
2	DSL 70	PPSSL 160			
3	DSL 70	PPSSL 275			
4	DSL 70				
6	DSL 70	PPSSL 160			
7	DSL 70				
8	DSL 70				
10	DSL 70	PPSSL 160			
11	DSL 70				
12	DSL 70	PPSSL 275			
14	DSL 70	PPSSL 160			
15	DSL 70				
16	DSL 70				
18	DSL 70	DSL 70			
20	DSL 70	DSL 70			

**Line Name**

Rib	A-LINES	B-LINES	C-LINES	D-LINES	BR-LINES
2	a1	b1			
3	a2	b2			
4	a3	b3			
6	a4	b4			
7	a5	b5			
8	a6	b6			
10	a7	b7			
11	a8	b8			
12	a9	b9			
14	a10	b10			
15	a11	b11			
16	a12	b12			
18	a13	b13			
20	s11	s12			

**Loop Distance 'A'**

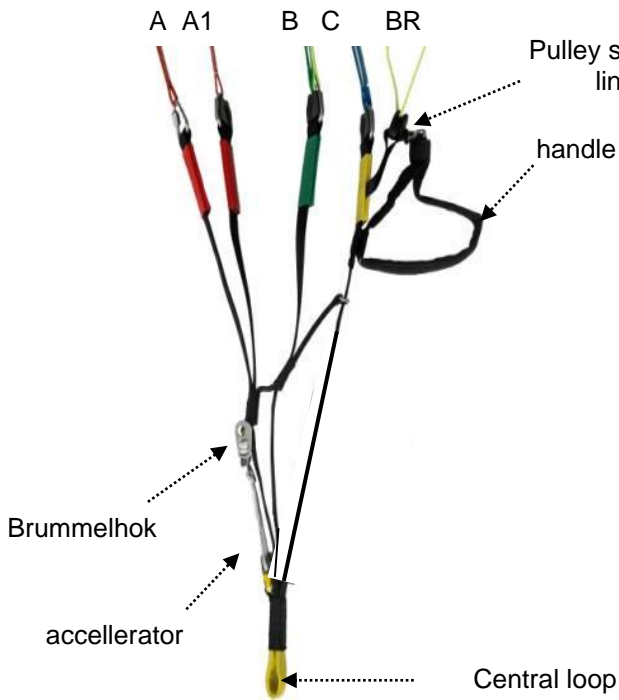
Rib	Total	Loop	Brake
r2	1662	7444	
r4	1326	7344	2345
r6	1291	1576	
r8	1256		1940
r10	1238	2014	
r12	1195		6951
r14	1231	754	
r16	1234		1247
r18	535		1797
r19	530	1341	

**Checking**

6675	6599	6620	6617	6609	6601	6641	6582	6592	6546	6509	6497	6191	5989	6886	6916	6817	6797	6790	6840	6755	6686	6686	6616	7882	7344	7443	7143	7107	6978	6933	6951	6880	6833	7682	7344	7443	7143	7107	6978	6933	6951	6880	6833	1940	6951	6880	6833
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## Description of the risers



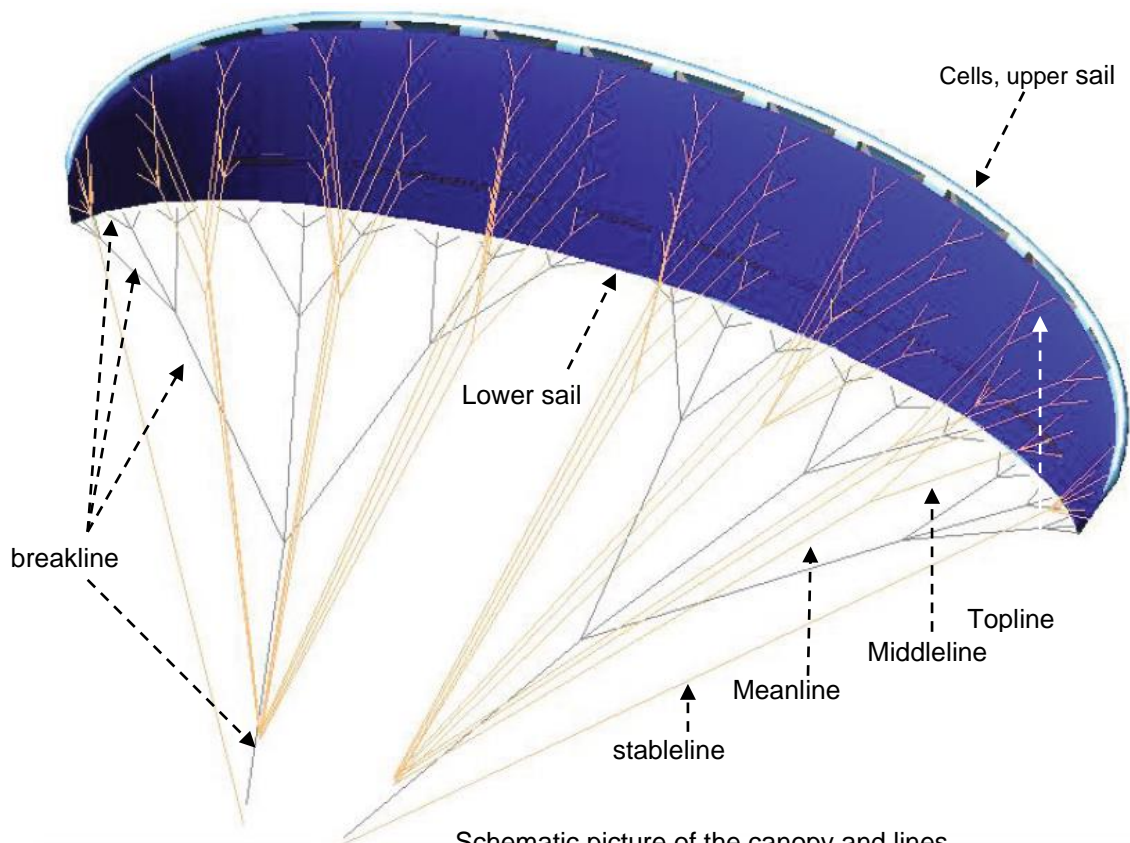
**Riser length not accelerated (mm)**

**S: 480      M, ML, L: 520**

**Riser length accelerated (mm)**

	A1	A2	B	C
<b>S:</b>	390	390	400	480
<b>M:</b>	410	410	425	520
<b>ML:</b>	410	410	425	520
<b>L:</b>	410	410	425	520

## Description of the canopy



Schematic picture of the canopy and lines