

PARAGLIDER'S MANUAL

ATMUS²

VERSION 02/2017



ATMUS²



ÍNDICE

WELCOME TO SOL TEAM!	6
USER'S MANUAL	7
Atmus 2 - THE PROJECT	8
Technical description	9
OVERVIEW GLIDER	10
Risers and Speed System	11
Normal position	11
Speed System activated	11
SPEED SYSTEM	12
Adjusting your speed system	12
Operation.....	12
Seletes	12
Flight	13
Takeoff Weight	13
First Flight	13
Takeoff Pre-flight Checklist - DO NOT FORGET	14
Takeoff	14
Forward Takeoff	14
Reverse Takeoff	15
Installation of tow release and auxiliary adaptation.....	15
Normal Flight	15
Thermaling and Soaring.....	15
Turns	15
Accelerated Flight	16
Flight in turbulent conditions	16
Active flight.....	16
Landing	17
Motorized Flight, Acrobatic Flight and Tandem Flight	17
Fast descent maneuvers	17
Ears	17
Positive Spiral.....	18
B-Stoll.....	18
Behavior in extreme maneuvers and collapses	19
Lateral Asymmetric Closing.....	19
Line-Over	19
Frontal Symmetric Closing	20
Parachutal	20
Full Stall	20
Negative Turns	20
Emergency Flying.....	21
Wingover	21
Up-keep and care	21
Storage.....	21
Folding your paraglider	22
Cleaning	24
Pulleys.....	24
Backpack.....	24
Recommendations for a long life	24
Revisão	25

Repairs	25
Tears.....	25
Line breakage.....	25
Sealing	26
Zíper.....	26
Garantia	26
Warranty Terms	26
Warranty Pre-requisites.....	26
This warranty does not cover	27
Nature and environment	27
Out of use	27
Final words	28
TECHNICAL FEATURES	30
Technical Data	30
Parts List and Material	32
Lines.....	32
line layout	34
Line lengths.....	36
XS	36
S	36
M.....	37
L	37
XL	38
XXL	39
Certification	40
Flight Log.....	42
Inspection	43

WELCOME TO SOL TEAM!

You have just acquired a high quality product, manufactured under one of the most demanding industry standards worldwide, we believe this project will allow that you learn a lot in paraglider flight.

We trust your paraglider **ATMUS 2** will bring you many great life memories you will cherish forever and you could understand our work's Philosophy, safety, performance, ease of operation and innovation.

We would like you to read this manual carefully and thoroughly. In it, you will find important information about using your new equipment.

In the event you should have any questions about its usage or should you wish to be updated on the latest news at **SOL**, we remain at your disposal:

Thank you for selecting a **SOL PARAGLIDERS**.

SOL Team!

SOL SPORTS IND. E COM. LTDA.

RUA WALTER MARQUARDT, 1180 CP 370

89259-565 JARAGUÁ DO SUL, SC BRAZIL

FONE (+55) 47 3275 7753

E-MAIL: INFO@SOLSPORTS.COM.BR

www.solsparagliders.com.br

facebook [solparagliders](#)

instagram [@solparagliders](#)

USER'S MANUAL

This manual offers information about your paraglider. It is not a training manual. It is an assumption that the pilot respects the law and order of aviation and that his skills are up to the challenge of this particular equipment. It is a basic assumption that the pilot is certified to fly this paraglider.

This paraglider meets at the time of delivery the requirements of the LTF certification or of the EN, so any equipment alteration will result in the cancellation of this respective certification, we must remember that every pilot is responsible for the maintenance and assessment of equipment usability and the manufacturer and its representatives are not liable and therefore not responsible for any misuse nor mishandling of this equipment.

Don't forget that flying with this equipment shall be performed at the individual's own risk. It's very important to read this manual carefully.

Comes with the glider:

Along with your product, you are getting an accessory kit:

- Big deluxe backpack
- Internal protection bag;
- Risers' protection sack;
- Compression strap;
- Speed System
- Easy Check;
- Basic Repair Kit;
- User's Manual;
- Cap;
- Windsock.



ATMUS 2 - THE PROJECT

The **ATMUS 2** is a basic intermediate for newbie pilots who want to upgrade to B category in order to develop their flying skills and prospecting longer flights as also for occasional pilots in search of an excellent balance of easy flying characteristics with increased performance and high passive safety.

The **ATMUS 2** consists of 47 cells and has internal crossed diagonals applied at the profiles to distribute the weight uniformly. This maintains the canopy very shapely and cleans and reduces the induced drag.

The **ATMUS 2** was designed at the new software. Its enhanced design and profile are the result of our continuous development and refinement process in terms of performance paired with stability. The improved features of this project permit a large speed range and excellent stability.

The project has received innovations in many details: the profile and the new air intake, from the typ shark nose, (PBP - Pressure Booster Profile) offer more performance and enhanced climbing in thermals, although more intern pressure stability. At the front part of the profiles are added the X Battens, aiming for a much more structured and firm profile, more rigid and avoiding deformations. This results in more speed and glide performance. The trailing edge of the **ATMUS 2** got Mini Ribs. This helps to reduce the turbulence caused by the canopy profile and increases the performance.

We all know that 50% of the time flight is being spend to climb in thermals, for that reason we searched for a new concept that offers a clear advantage in comparison to the other projects of the same category on the market.

All improvements were made with the most modern materials and with the best new technologies known in this class of paragliders, though we can offer the best performance for the pilots.

SOL Paragliders products are known for long-life and performance – our tests and research, which use paragliders for competition and acrobatics in the first place, are getting us knowledge to choose the right materials. We achieved less weight, volume and resistance for the **ATMUS 2** with new construction technology. We are using competition lines made of vectran and thin risers.

Attention

This glider is not designed for flight school!

TECHNICAL DESCRIPTION

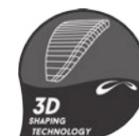
The **ATMUS 2** combines our performance technology with security.



PBP - Pressure Booster Profile: New design to increase and maintain inner pressure. More performance along all velocity.



X Battens: Cross X battens strengthening the nose profile.



3D Shaping: Our double 3D Shaping is a three dimensions modeling technology that reduces wrinkles and imperfections on the leading edge construction, improving the overall aerodynamic performance.



Mini Ribs: Profiles between the cells of the trailing edge, which improve performance and handling.



3RS - 3 Risers System: A – B – C row in all levels- less 25% line consumption.



BOW Tech: Greater lift in the same sail area and better pressure distribution across wingspan glider.



Full Hybrid Tecnology: is the hybrid utilization of 2 types of fabrics and lines. An optimised combination of durability and resistance with low deformation and less weight.



HPAR - High Project Aspect Ratio: higher A/R in each class.

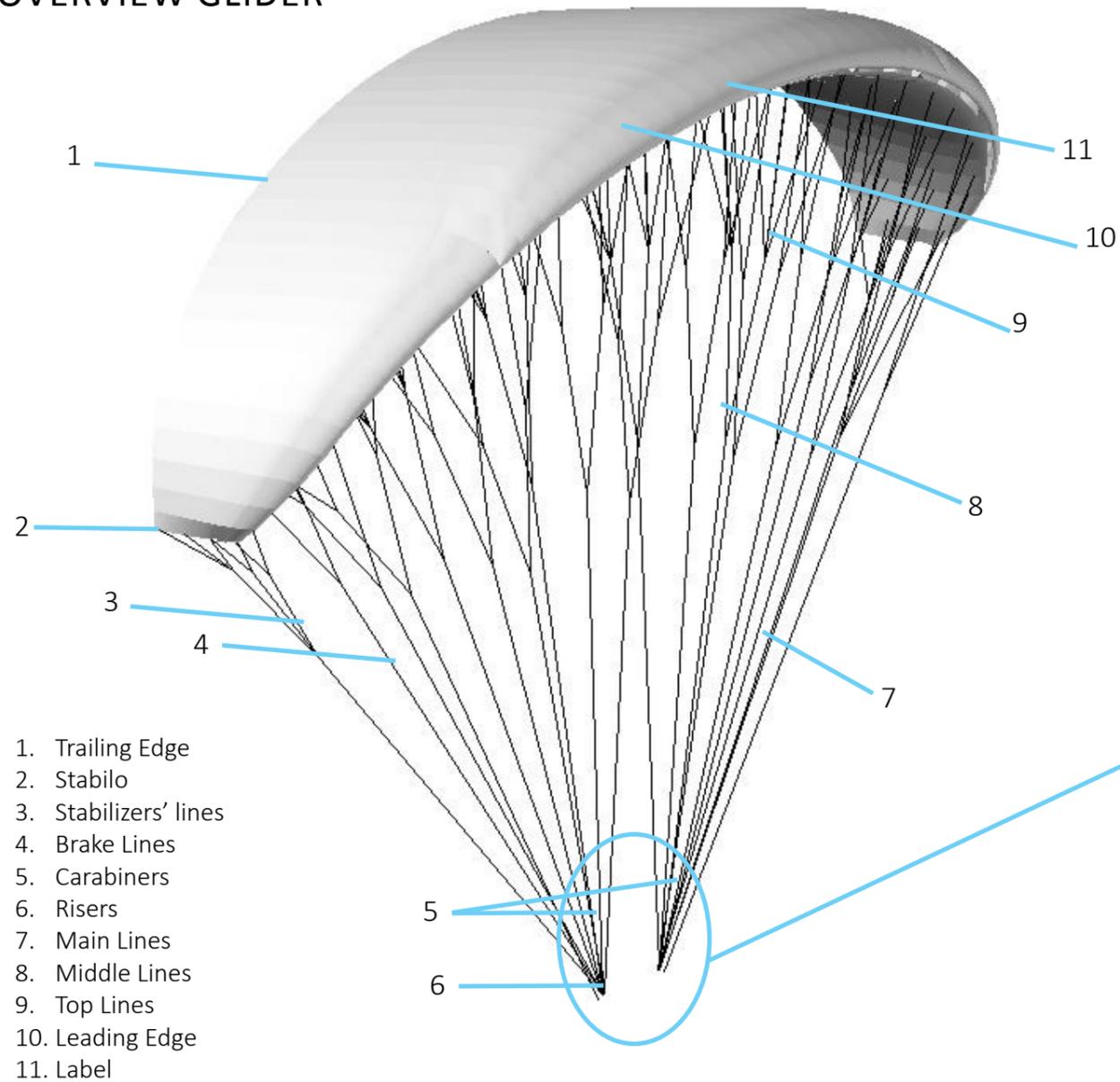


HTM - High Tech Materials – highest technology materials guarantee durability- Technora Lines, Diac Laminates, Inox Hardware, Polyester of High Tenacity.



LCT - Laser Cut Technology: Panels, profiles and parts cutting with Laser equipment.

OVERVIEW GLIDER



The upper lines distinguish themselves (9), next to the inside layer, the middle lines (8) and the main lines (7), which are connected to the Quick Links (5). These, in turn connect to the main lines on the risers (6). The stabilizers' lines (3) are connected to the same Quick Links (5).

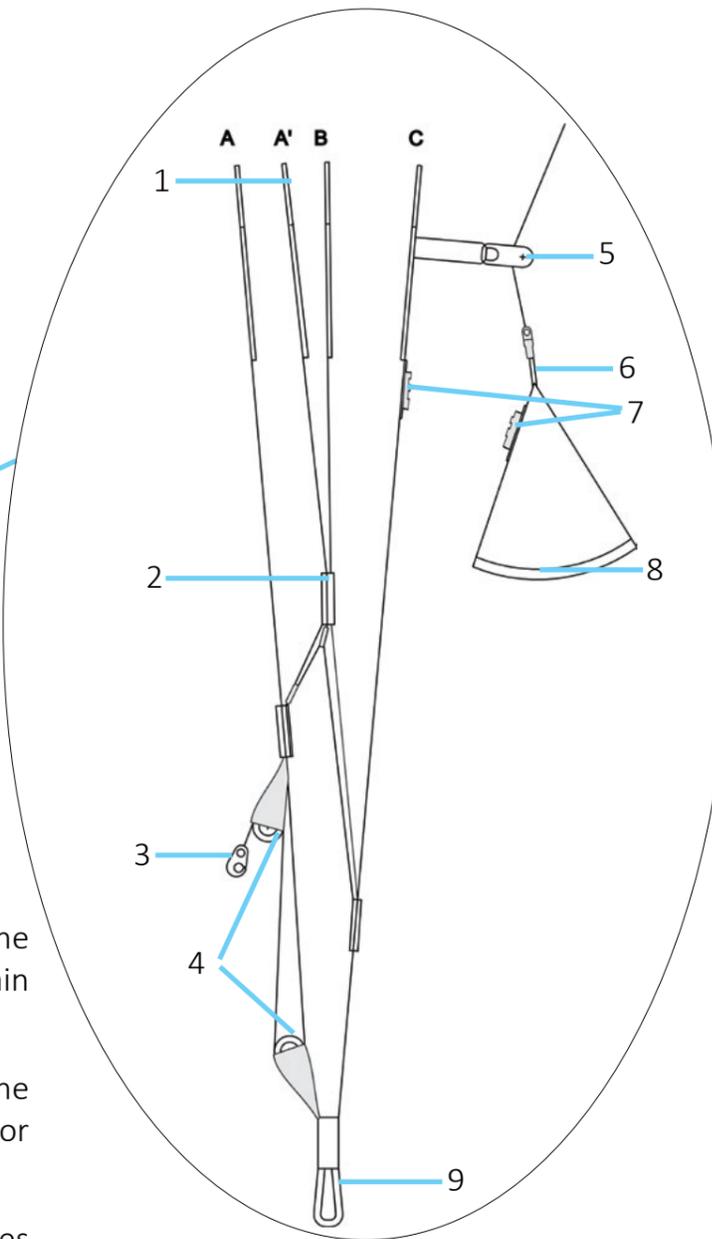
The brake lines (4) come out of the trailing edge, through the master line and are linked to the toggles, passing through a pulley attached to the 'C' riser. The brake lines are of different color in order to facilitate takeoff preparation.

On the brakes' master lines, there is a mark at the ideal setting point, at which height the toggles are affixed. This setting should not be altered as it ensures adequate and sufficient path and room for the toggles in case of emergency situations during flight and landing. Furthermore, in this position the paraglider is not constantly on a stall.

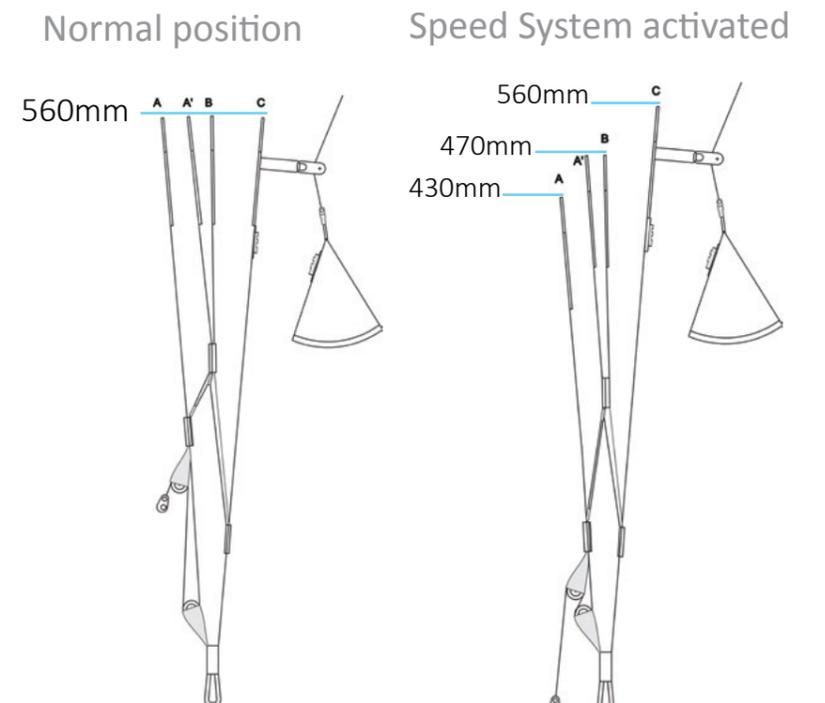
RISERS AND SPEED SYSTEM

The **ATMUS 2** doesn't have trimmer but can be used with a speedbar. He has 3 risers on each side, with the 'A' lines attached to the 'A' riser. The riser 'A1' is divided to make "ears" easy. The 'B' lines and the stabilizer are attached to the 'B' riser. And lines 'C' are attached to riser 'C' additionally to the brake pulley.

The Speed System works on the risers 'A', 'A1' and 'B'. When set at the normal position, all risers have the same length. When the Speed System is activated, it shortens the risers 'A', 'A1' and 'B'. The riser 'C' remains in its original position.



- 1- Ears
- 2- System of increase speed
- 3- Speed System Connection
- 4- Speed Pulleys
- 5- Brake pulley
- 6- Swivel
- 7- Magnetic button
- 8- Toggle
- 9- Carabiner's harness connection



SPEED SYSTEM

Adjusting your speed system

The majority of the latest harnesses have pulleys for assembling the Foot Speed System. In the eventuality the pulleys are not there, it is important to attach such pulleys (sewing them) in such way to make the operation of the speed system softer. The little chord on the speed system must be firmly attached (by a nonslippery knot) to the stirrup (aluminum bar). The other end of the cable is fed through the harness' pulleys and comes out vertically, and firmly attached to a Quick Link with a strong coil, a quick hook-up or preferably closed by a nut.

In order to adjust the Speed System, we suggest that you connect the harness and the risers together, suspended from the ground. Ask a friend to pull the risers 'A' upwards. At this time, adjust the length right to the bar in such way to be easily reachable with your feet in flight and by stretching the legs, make sure to allow for a clear path to maximize the accelerator usage.

Operation

The pilot activates the speed system by pushing the stirrup forward. The pulleys on the risers reduce to 2/3 the necessary energy and the risers at the front are shortened.

Before takeoff, the Quick Hook-Up or the Quick Link must be connected at the ring on the speed system risers. It is important to note that the little chord must run free of snags. The rubbing with the risers may cause damage. The Paraglider has no further technical parts that can be adjusted.

Warning

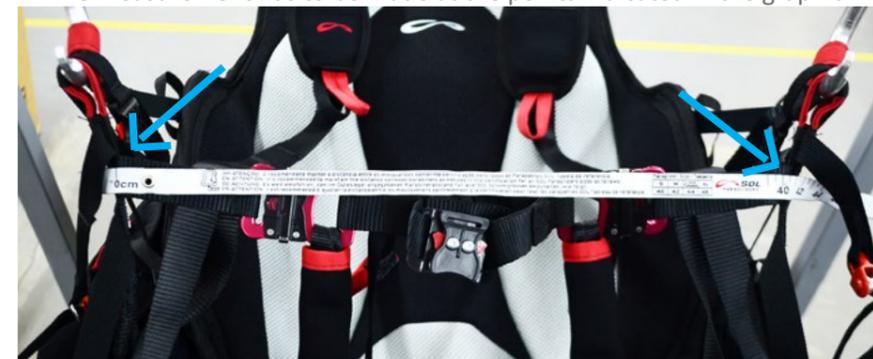
- An incorrect system assembly, that allows for different measurements other than the indicated above nullifies the certification!
- Remember that when using the speed system, the angle of attack decreases which may result in the collapse of the paraglider, consequently, the use of the speed system close to the ground should be avoided. We do not recommend the use of the speed system in turbulent conditions.
- Never use the speed system in extreme maneuvers.
- In the event the canopy collapses, release the stirrup immediately and make the appropriate corrections. •
- Never let go of the toggles!

SELETES

The **ATMUS 2** was tested with a harness LTF Type GH. Any harness of type ABS are recommended for the **ATMUS 2**, tested with large clips set at 42 cm and 48 cm heights from the board, depending on the harness size. Care must be taken because the large clips height affects the brake position when set at 'normal'. SOL give free together all gliders and harnesses, a Measuring Tape "Easy Check" to help pilots to check the distance between carabiners.

The regulated distance between the large clips (adjustable at the chest) is 42cm for the paraglider size "S" and "M", 44cm for size "L" and 48cm for size "XL". Variations of more than 5 cm above these ones will alter the fundamental characteristics of the canopy and are potentially dangerous.

The measurement has to be made at the points indicated in the graphic:



FLIGHT

TAKEOFF WEIGHT

The **ATMUS 2** has been certified for a defined weight range. If your weight range falls between two sizes, we recommend the following:

1. If you desire better speed, accurate commands, and if you usually fly over mountains and/or extreme conditions, you should choose to fly near the middle to maximum suggested weight.
2. If you desire a better sink ratio, and if you usually fly above flat elevations, and light conditions, you should choose to fly near the minimum suggested weight.

FIRST FLIGHT

A careful First Flight is necessary with every paraglider, the **ATMUS 2** is no exception. This flight must take place on a practice hill. After unpacking the paraglider and laying out in a horseshoe shape position, the following steps must be taken:

- The paraglider must be laid out in such a way that, when tension is applied to risers 'A', the canopy center should be extended before the extremities. This allows for an easy takeoff with good directional stability.
- Special attention must be taken to the wind's direction upon the lifting of the canopy, so that the two halves are inflated symmetrically.
- All lines must be organized and completely free of any entanglements. Special attention must also be given to the lines 'A', which must be free right from the risers 'A' (with the red mark) to the canopy.
- Same priority and care must be given to the brake lines, which must also be completely free and without any possibility of entanglement on any obstacle during takeoff.
- All lines should be checked and all the risers in appropriate order. When the risers are aligned and not twisted, the brake lines will be free from the pulleys (on the rear risers) to the canopy's rear edge.

- It is extremely important that no entanglements nor bunched lines are present. Any line going under the canopy or tie may result in disastrous consequences.
- Before and after each flight the lines, risers and canopy must be checked for any possible damage.
- In case there is any damage present, as insignificant as it may be, the canopy should not be flown!

Warning

- It is not advisable to fly the **ATMUS 2** in rainy days or with a wet paraglider, since the in-flight maneuvers become more sensitive and a reserve deployment may occur upon exiting a B-Stoll or in the event of excessive usage of breaks.
- Never take off if your glider is not fully inflated or the toggles are not under your control.

TAKEOFF PRE-FLIGHT CHECKLIST - DO NOT FORGET

- Make sure reserve is OK! Opening device and pins activated?
- Helmet?
- Carbines closed?
- Harness – Connected all Locks closed?
- 'A' risers in hands?
- Untangled brakes in hand?
- Are you in the center of the canopy?
- Takeoff path is clear?
- Paraglider and pilot aligned with the wind?
- Airspace ahead of takeoff area is clear?
- Distance between carbines is correct?

TAKEOFF

Forward Takeoff

It's very easy to fly the SYCROSS ONE. When ready to takeoff, the pilot must take risers 'A', 'A1' together with the toggles. In order to differentiate between the lines, line 'A' and risers 'A' inclusive are marked with a different color.

Before takeoff, a last check is required to ensure all the equipment is laid out properly. The arms must be extended to the side, as if they are extensions of risers 'A'. A decisive run allows for a quick and stable inflation.

Canopy overtakes are not common. After the initial inflation momentum, the pilot must keep the tension forward on risers 'A' (pushing them ahead, and not pulling them downwards), until the canopy is above your head. At this point, the brakes must be carefully activated, ensuring room for the possibility of directional changes. A move to underneath the center of the paraglider is the best method for corrections, provided there is room for it. The pilot glances at last upwards to ensure the canopy is properly located above, completely unobstructed and inflated. At this point, the pilot decides whether or not to takeoff.

Reverse Takeoff

Reverse takeoffs in strong wind conditions are also very easy to execute. Due to risk of takeoff with entangled lines (twist), it is highly recommended to take some time and practice reverse takeoffs on a small, leveled hill initially.

Installation of tow release and auxiliary adaptation

The **ATMUS 2** can be used for towed flight as long as is connected to the towed flight system (Tow release). It must be connected to the same carbines that join the harness with the paraglider. It is activated through an activator that is strategically located and when is pulled it releases the equipment to fly.

During the taking off it's necessary to avoid a small angle of the cable with the ground. A taking off with tow release help needs instructions and appropriate procedures. Make sure that you have the necessary knowledge and that the operation is made in a safe and correct way.

Normal Flight

The **ATMUS 2** in its normal flight, performs better with the hands lifted. Applying 20- 25 cm the canopy enters safely the minimum speed range. In order to accelerate, use the speed stirrup.

Maximum symmetric way of brake lines , by maximum weight:

Size S:	65 cm	Size L:	69 cm
Size M:	67 cm	Size XL:	72 cm

Thermaling and Soaring

In turbulent conditions, the paraglider must be flown with the brakes softly applied. An increase in angle of attack is achieved by this measure, resulting in greater canopy stability.

The pendulum effect back and forth must be avoided! The canopy must remain on top of the pilot. For this purpose, the speed must be increased by releasing the brakes upon entering a thermal (depending on its intensity) or braking on exit. This is part of the basic technique on active flying.

During flights over the lift, it is highly recommended a minimum height of 50m be kept, for safety reasons.

It is extremely important to know and respect flying regulations, especially so when the airspace within close proximities of canyons is shared among several pilots, where last minute anti-collision maneuvers are not executable.

Turns

The **ATMUS 2** is very sensitive, responding instantly to turn commands. Leveled turns can be achieved with the shifting of weight on the risers with minimum altitude loss.

A combination of weight shifting and breaking technique is the most efficient way of executing turns in any situation. The given brake utilized determines the radius of turns.

By activating the brakes on the outside edge of the turns, as well as applying maximum weight shifting on the risers, the efficiency and resistance to collapse in turbulences (at the edge of thermals) is increased. In case it becomes necessary to perform turns in a constrained space with the **ATMUS 2**, we recommend you to release the outside brake in the given turn and pull a little more the brake on the inside of the turn.

Warning

- By pulling either brake too strongly or suddenly, there is a danger of creating a negative spiral!

Accelerated Flight

It is recommended to use the accelerator when flying against the wind or in descending current zones. Due to a decreased angle of attack, the canopy may collapse easier than when set at the normal position. The pilot must remember that the higher the speed, the more dynamic the collapse response or symmetric closing will be.

Flight in turbulent conditions

In turbulent conditions it is not recommended to fly the glider with full speed, cause the **ATMUS 2** is than more sensitive to deformation and closing. You must remember that the higher the speed, the more dynamic the collapse response or symmetric closing will be.

Warning

- The **ATMUS 2** requires active flying in turbulences! This can avoid canopy closings and deformations.

Active flight

For best performance during your flight, it is important to be always sensitive to what your canopy is trying to communicate. The key elements of active flying are the advancements and tension control. When the canopy moves ahead of you, carefully apply the brakes, so that the canopy returns to be above you, and if the canopy moves behind you, you must release the brakes. Flying with the brakes lightly applied (+- 20 cm) allows the canopy to fly slightly behind. In turbulent circumstances the internal paraglider tension may change, which you will feel on the brakes. The idea is to maintain a constant tension, and in case you feel loss of tension, apply the brake.

Avoid flying excessively with the brakes on because you might brake to the point of stopping the canopy from flying. Always consider your aerodynamic speed. Your movements can be symmetric or asymmetric and both or one brake can be applied. We suggest that you do ground practice runs and advancing simulations.

Tension loss can be simulated well on the ground.

Warning

- Neither pilot nor any paraglider are immune to collapses; therefore active flying will decrease the chances of happening.

- Always maintain altitude awareness and do not get into excessive commanding mode. We advise you to maintain brake tension and avoid flying in extreme turbulent conditions.

Landing

It's very easy to land with the **ATMUS 2**. The final approach stage must be done in straight line upwind.

During this final glide, the paraglider must be decelerated slowly and at about 1 m from the ground the pilot must stall the canopy, according to the conditions.

With a strong nose wind, the pilot should break only slightly or eventually don't even brake at all, and utilizing just the risers 'C' to de-inflate and overcome the canopy after the landing. By breaking during a landing in strong wind conditions, you may expose the canopy to the wind, which could lead to the pilot being dragged backwards.

The final approach must be done always in a straight line. Sharp and alternating turns may produce a dangerous pendulum movement close to the ground.

Motorized Flight, Acrobatic Flight and Tandem Flight

The **ATMUS 2** has not been designed for motorized flight, tandem flight or acrobatics. This project is designed for only one pilot without passenger.

We recommend that seminars who simulate flight incidents or other manoeuvres are done with the supervision of experienced instructors and above water with all the safety precautions necessary.

FAST DESCENT MANEUVERS

Warning

- All fast descent maneuvers must be executed in light conditions and at sufficient altitude, so that they can be performed as necessary under extreme flying conditions.
- 'Full Stalls' and negative spirals must be avoided, regardless of the paraglider being flown. Incorrect recoveries and exits can result in disastrous consequences.
- The best flight technique is to fly safely and correctly. This way you will never need to descend rapidly!

EARS

By pulling simultaneously the external riser 'A1' at about 18 cm, the canopy tips will close. The canopy remains completely maneuverable through the activating of unilateral brakes or the shifting of weight towards the risers, flying at a fast descending rate (up to approximately 3m/s). In order to recover, the pilot must release the external riser 'A1' lines. Usually the canopy re-opens by itself, but the pilot can assist with a long and quick pumping.

Warning

- SOL does not recommend combining of ears and spirals, as this may exceed the allowable load.
- Don't push the ears simultaneously, push one each time.
- Never fly with ears simultaneously using the speed bar, this might cause a great collapse.

POSITIVE SPIRAL

Spirals carry a high rate of descent. Therefore high accelerations (G) make it impossible to hold them for an extended period of time. The spiral force may cause the pilot to faint and to lose flying controls, and crash. Furthermore, they will exert a lot of force and affect the pilot and equipment alike.

The pilot should never exercise this maneuver in turbulences or with wide lateral angles. In windy conditions, the pilot must be aware of oscillations during the maneuver.

When the pilot activates just one brake, slowly and progressively, the paraglider inclines sideways in a sharp angle and enters a steep and quick turn, which may become a positive spiral.

During a spiral the rotation radius can be controlled by the greatest or smallest force applied to the inside brake.

In order to come out of it, the pilot must release the brake slowly and shift his/her weight lightly to the outside of the turn. A sudden exit may result in an exaggerated momentum forward of the canopy, and collapsing it. For this reason, on exiting the last turn, the inside brake of a given turn must be softly applied again.

In case the canopy collapses during this process, the spiral must be counter-acted, as the active canopy area will be reduced.

Warning

- Never combine ears with spirals. The canopy active area reduction plus the 'G' force, by the centrifugal effect, may result in line and/or canopy damage.
- Exiting of any spiral at great speeds must be piloted.
- This maneuver requires high altitudes (at least 600 meter over ground) and is dangerous due high descent ratio pilot can lose the altitude reference. Never do this maneuver without sufficient experience.

B-STOLL

To induce a 'B-Stall', the pilot must pull the risers 'B' simultaneously, between 15 and 20 cm. There will be a shift of air flow on the outer layer and the canopy will initiate a parachutal phase.

By releasing the risers 'B' quickly the airflow recoils on the outer layer and the canopy returns to its normal flight position. In case the canopy does not recover to normal flight, refer to the section on Wraps. The momentum of return creates a forward motion by the canopy. We recommend avoiding braking the paraglider eliminating the possibility of a parachutal stall.

The load applied on the 'B' lines during this maneuver is not beneficial to your paraglider. Use this maneuver only in emergencies. In the event risers 'B' are pulled too quickly or too deeply, a horseshoe may occur towards the front. In order to regain normal flight, the pilot must apply the brakes lightly.

BEHAVIOR IN EXTREME MANEUVERS AND COLLAPSES

Warning

- Extreme maneuvers must be executed under the supervision of a qualified instructor, on safe courses and with the entire infrastructure available for above ground and water flying!

LATERAL ASYMMETRIC CLOSING

Like any other canopy, a negative angle of attack will result in a closing. In order to maintain directional control upon a lateral asymmetric closing, the brakes must be applied on the open side. In case of a major closing, the amount of braking must be well graduated, in such way to avoid the airflow displacement (stall) on the open section of the canopy.

To facilitate the canopy re-inflation during a collapse, the steps above must be followed in conjunction with a long and slow brake pumping action (2 seconds) with the toggle on the closed side. The shifting of weight on the opposite side riser of the closing will also assist with the re-inflation and increase safety, requiring less brake action and keeping away from the stall point.

In case the pilot does not compensate with the brakes, the **ATMUS 2** in most situations will inflate by itself even in major asymmetric collapses. The **ATMUS 2** can make a complete turn and in the event it does not open on its own.

Without action, the paraglider will begin a positive spiral. The pilot must lightly apply the brake on the external side to stop a spiral and at the same time shift his/her weight on the same side until the canopy is stabilized. Exactly at this stage of pendulum effect under the canopy, it is important that the pilot controls carefully the amount of force applied on the brakes, and often it is needed to decrease the force. Once a straight flight is achieved, the closed side can be re-inflated by the pumping action.

Warning

- If the pilot does not actively terminate the spiral, it will continue all the way to the ground!

LINE-OVER

In the eventuality of lines going over the canopy during flight, the pilot must take the following steps:

- Try to maintain a straight flight: Shift the weight to the open side of the paraglider and assist with a light brake tension on the open side.

- To re-open: Pull the stabilizer line on the closed side (first line of riser 'B' of a different color) until the line entanglement is cleared.
- If the line-over is serious, if it's not possible to maintain a stable flight (spiral) and if there is sufficient altitude (>400 m), there is a chance of resolving this mal-function by executing a 'Full Stall'. In case the above maneuver does not solve the problem, or if the altitude is not sufficient, the pilot can activate the emergency parachute (reserve).

Warning

- Line-overs are generally the result of poor preparation before takeoff, collapses during acrobatics or lateral asymmetric closings.

FRONTAL SYMMETRIC CLOSING

Risers 'A' and 'A1' are tightly pulled until a complete closing of the Leading edge is achieved, then quickly release the risers until it is closed. The pilot should not hold the risers after the closing. Special attention must be given to ensure enough altitude is available.

The **ATMUS 2**, on most instances, recovers on its own from a frontal asymmetric closing. In turbulent conditions, a head butt may occur, which must be overcome by accurate brake control.

PARACHUTAL

The **ATMUS 2** does not have parachutal stall tendencies and recovers on its own from an intentional parachutal stall induced by braking commands. In the event of a parachutal stall upon coming out of a B-Stall, it is enough just to pull the risers 'A' downwards or the accelerator, thus reducing the angle of attack, therefore reorganizing the air flow contact to the canopy.

FULL STALL

To create a 'Full Stall', the pilot must pull both brakes to the end, and hold them tightly in this position. In this situation, the **ATMUS 2** flies in most times on reverse, in a forward horseshoe shaped tie.

The canopy must be stabilized before the procedure for normal flight re-entry is initiated. Any attempt of recover during the beginning stages of a stall, when the paraglider reverses suddenly can result in a sudden push forward of the canopy. When recovering from a 'Full Stall', both brakes must be released slowly simultaneously and symmetrically (> = 1 second). The **ATMUS 2** will move forward gradually and begin normal flying.

An asymmetric recovery (releasing one brake before the other) of a 'Full Stall' is utilized only by test pilots to simulate a paraglider being expelled out of a thermal and must not be attempted by pilots!

NEGATIVE TURNS

To induce a fast Negative Turn out of normal velocity (LTF) or starting from the minimum speed (EN), the pilot must pull tightly and quickly one toggle right to the end of it.

During the negative spiral, the canopy rotates relatively fast around its center, with its inner side flying backwards.

When entering an unintentional Negative Turn, the pilot must recover as soon as it is noticed by releasing the brake slightly so that the canopy will accelerate and returns to a stable flight, without losing too much altitude.

When a negative turn is intentionally prolonged, the **ATMUS 2** accelerates forward asymmetrically. A frontal asymmetric closing should not be under-estimated.

To recover from an intentional negative spiral, the pilot must release the pulled brake and pay close attention to a strong canopy surge ahead.

Warning

- A sequence of wrong commands could cause a sequence of collapse of the canopy and might lead to an accident.

EMERGENCY FLYING

In case braking controls are impossible, the canopy can be driven by utilizing risers 'C' and eventually land. Pay close attention to the length of the command, which should be shorter than braking commands.

WINGOVER

In order to perform a 'Wingover' the pilot must generate a strong pendulum effect by alternating turns on both sides. A complete closing of the canopy is possible.

Warning

- A turn with an incline beyond 60° is considered acrobatic.

UP-KEEP AND CARE

Warning

- A good maintenance extends the life of your **ATMUS 2** for many years to come.

STORAGE

The **ATMUS 2** fabric is made mainly out of Nylon, which like any other synthetic material is sensitive to UV light radiation, causing it to decompose, losing its mechanical resistance, and thus increasing its porosity.

For this reason, the unnecessary exposure to sun light, which carries a high UV radiation level in high altitudes must be avoided. It is highly recommended to leave the paraglider stored away and well protected when it's not being used in a dry place, protected from UV light and away from chemical products. Avoid keeping the paraglider in places with high temperature (trunk of the car).

Warning

- After an accident or long time without using the paraglider must be checked.

FOLDING YOUR PARAGLIDER

There are various facts that could help to increase the life of your paraglider. One of them is the way how to fold your equipment. To take care of the battens folding the paraglider is essential to maintain the starting and flight characteristics of your paraglider. We recommend to fold the canopy using the origami folding technic and our origami folding bag. With your paraglider comes a traditional bag to store and protect your equipment. Storing it in there is a good beginning to protect the canopy.

Steps to fold the canopy:



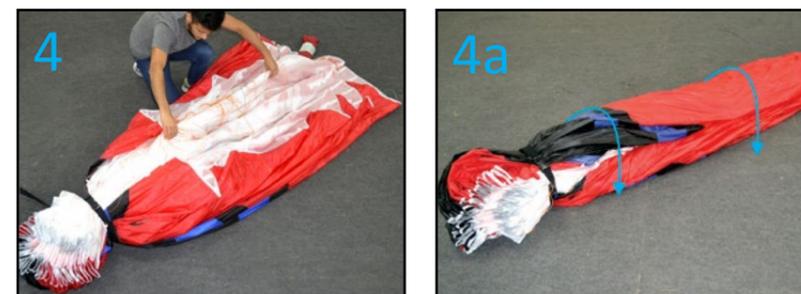
Step 1. Open the canopy completely on the ground and fold him in form of a accordion, though you avoid dragging him over the ground.



Step 2. Initiate the folding at the center, placing profile over profile always taking care of the battens (forming the curve of the profile (A)). To liberate space for the battens, manage the bottom surface.



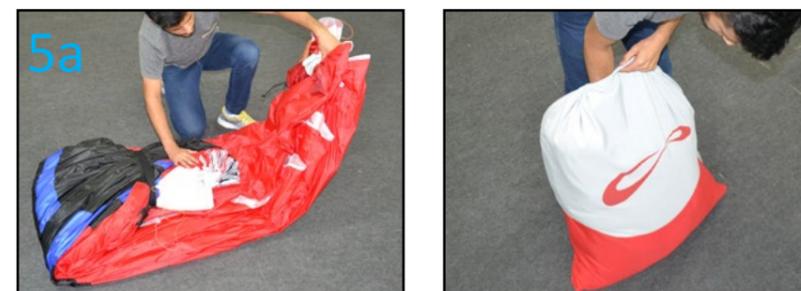
Step 3. After folding the battens turn both sides to the center (C), handle the profile of the center to shape the form of the others.



Step 4. Organize the canopy in form of o accordion of both sides and then put one side up the other. Now all battens should be positioned lateral.



Step 5. Open your origami folding bag and localize the cushioned area, there you have to put the battens. After closing the bag fold the part with the battens to the middle, this way they are double protected.



Step 5a. If you use the traditional bag, follow the steps 1 to 4. After this fold the canopy with the battens inside. This way you protect them. Normally the paraglider occupies the whole bag without great compression.

CLEANING

Cleaning must be performed only when it is absolutely necessary. We recommend the use of water only with a smooth sponge or cloth. Do not use any chemical product, since it will damage the material permanently.

PULLEYS

It is important you keep pulleys lubricated because in case they do not work may consume the speedy handle or axle, apply paraffin or lubricant spray, read carefully about the lubricant to avoid spots and fabric consume. Do not apply on the sewing lines.

Atenção

- When buying the lubricant make sure that this product do not attack the material properties. This may affect the fabric and lines resistance.

BACKPACK

Your backpack was designed with comfort and practicality in mind. It's format allows for good content distribution. Shoulder straps and back support are padded so that comfort is not compromised during walks.

RECOMMENDATIONS FOR A LONG LIFE

- The **ATMUS 2** lines are made of Vectran. Individual line overloads beyond the normal range in flight must be avoided, because an excessive deformation of the line is irreversible, and becoming permanent.
- The same way, folding and creasing the lines must be avoided, specially the main lines. Never step over the lines or canopy, above all on hard surface. The canopy must be opened only on a clean surface area, since dirty can penetrate in the canopy's fiber, shorten the lines or spoiling the fabric. The lines must be kept from any entanglements on takeoff to prevent excessive deformation. Avoid storing the paraglider for long periods in areas with high humidity or heat, this causes premature aging of the materials.
- Keep away sand, stones or snow from entering the canopy cells because any weight on the trailing edge slows the canopy down, possibly creating a stall, furthermore, sharp corners may cut the fabric.
- During takeoffs and landings in windy conditions, a run-away canopy may hit the ground strongly and the shock may rupture the material. Em caso de emaranhamento as linhas de freio podem esfolar ou uma linha principal pode vir a ser cortada por uma linha de freio, rompendo devido a fricção.
- In case of line entanglement the brake lines may peel-off or a main line may get cut by a brake line, due to friction.
- The manipulation of the paraglider during ground takeoff, or a lot of wind speed up the aging process of your equipment.
- After a tree or water landing, the lines must be checked and tested.
- On landing, avoid letting the Leading Edge fall forward and downward towards the ground because this may damage the materials that form the front of the paraglider and/or rip the sewn areas.
- In case of salt-water contact, the paraglider must be soaked and washed with fresh water. Salt water might decrease the lines' resistance even if soaked with fresh water. The lines must be changed after contact with salt water.
- Never dry the paraglider directly under the sun. This must be done in a shaded area.
- After an accident send the paraglider for inspection to the manufacturer or distributor.

Warning

- Your **ATMUS 2** was designed, tested and certified to perform the best. Any alteration of your paraglider will nullify your certification and jeopardize your safety. For these reasons we strongly recommend you to avoid altering anything on your paraglider.

REVISÃO

The first inspection check is mandatory completing 24 months or 100 flights, whichever comes first.

After the first inspection any wing has to be checked yearly or at each 100 flights, whichever comes first. In any of these inspections may occur that a shorter period of time for the next inspection will be defined (f. ex. 6 months or 50 flights). It is of utmost importance to follow these guidelines. Without performing the mandatory inspections, the paraglider loses its certification and the respective SOL warranty becomes null and void.

Always check your equipment after an incident or in case the canopy has been stored for a long time. In case of excessive use (permanent spirals and other extreme maneuvers) the period of inspection has to be shorter. Repairs must be performed only by the manufacturer, distributor or authorized personnel. Minor repairs could be handled by yourself, although we recommend that repairs should be performed by the manufacturer

or authorized personnel. They have the necessary materials and tools to maintain your glider.

REPAIRS

TEARS

- Along with your kit you get small adhesives for repair. Small tears up to 10 cm away from the line points may be fixed by you. Beyond that we advise you the maintenance be made by the manufacturer or by the registered workshop.
- Clean the spot where the adhesive will be applied with a humid cloth;
- It must be at least 2,5 cm more of the adhesive than the tear;
- Make the edges rounded to avoid to unglue after is glue;
- Apply on both sides of the tear.

LINE BREAKAGE

Along with your kit you get a 1.1 thickness line to make a little repair. When you repair we advise you to sew the unsowed point after you check the measure. Do not knot because it may diminish up to 80 % of the line resistance.

SEALING

Along with your kit you get sealing for the carabines. Do not leave your risers without them because they avoid the movement of the screw nut making it impossible their opening.

ZÍPER

The backpack zipper must open and close softly. If there is any difficulty to move it you must apply paraffin or a spray lubricant to diminish the attrition among the components. You will notice the difference when you move it.

It is possible most of the times you fix by yourself the zipper. In case it does not close any more just pull it until the beginning of the position and with a pliers press both sides of the zipper.

Warning

- We advise you the maintenance and repairs be made by the manufacturer or by a registered workshop.

GARANTIA

Every paraglider manufactured has a Warranty of 3 Years or 300 Hours of Flight, whichever comes first. Our research technology in combination with the use of highly quality material and the adoption of new production methods allow us to offer to you, our client, this great advantage. This guaranty includes the cost free repair or substitution of material with new ones that are in perfect conditions. The criteria depend on the manufacture.

WARRANTY TERMS

1. This warranty is valid for all SOL Paraglliders with LTF, EN or AFNOR certification, rated for leisure use only. The warranty includes defective materials and production errors.
2. This warranty does not include paragliders rated for professional use (school, competitions, aerobatics, etc). All paragliders used for competition or acro have a 1 year warrant for production errors.
3. This warranty is defined as repair or substitution of the defective paraglider parts determined by the producer.

WARRANTY PRE-REQUISITES

1. A three-copied filled-out form: One copy to be sent to SOL Paragliders within 30 days after purchase; one copy to the sales person and one copy to the purchaser.
2. All flights must be logged providing information on date, place and length of flight.
3. The equipment must be kept in accordance with the instructions provided in this manual. All the storage, folding, cleaning and care instructions must be carefully taken.
4. Maintenance and inspections can only be performed by the manufacturer or authorized shop and must be properly documented.
5. The first inspection check is mandatory completing 24 months or 100 flights, whichever comes first.

6. After the first inspection any wing has to be checked yearly or at each 100 flights, whichever comes first. In any of these inspections may occur that a shorter period of time for the next inspection will be defined (f. ex. 6 months or 50 flights). It is of utmost importance to follow these guidelines. Without performing the mandatory inspections, the paraglider loses its certification and the respective **SOL** warranty becomes null and void.
7. All shipping and handling expenses are paid by the owner. 7. The final decision on exchanging or repairing the equipment will be decided by **SOL Paraglliders**. The corresponding equipment has to be sent to **SOL Paraglliders** in the following way:
 - a) Accompanied by a copy of all inspections and a log of all flights.
 - b) Accompanied by a copy of the SOL Paragliders warranty form.

THIS WARRANTY DOES NOT COVER

1. Any alterations on original fabric colors, lines and risers.
2. Any damage caused by chemical products, sand, friction, cleaning products or salt water.
3. Any damage caused as a result of errors during operation of the Paraglider, incidents or emergency situations.
4. Any damage caused by inadequate operation of the Paraglider.
5. Paragliders that may have been subjected of any alteration from the original design and without proper permission from SOL Paragliders.
6. Damages caused by inappropriate transport, storage or settings of the paraglider.
7. Damages caused by the use of not compatible components with the paraglider.
8. Damages caused by the use of inappropriate packaging for the transport.
9. Paragliders without original identification label and serial number.
10. Handling inadequately to the instructions given in the owner's manual.

NATURE AND ENVIRONMENT

Apart from self-evident things, like not leaving your rubbish behind, we would like to appeal for a thoughtful behavior towards animals, like birds of prey or game animals. If you notice, that your fly by affects those animals (like causing a shortening reaction) please increase your distance.

OUT OF USE

Disused paragliders need a proper disposal. If you are not sure about the correct removal, please send your glider to **SOL** or your flying school.



FINAL WORDS

Safety is the major theme of our sport. In order to fly safely, pilots must train, study, practice and be alert to the dangers around us.

In order to achieve excellent safety levels, we must fly regularly as much as possible, don't go beyond our limitations and avoid exposing ourselves to unnecessary dangers.

Learning to fly is a slow process and takes years, so don't pressure yourself. If conditions are not favorable, keep your equipment stored away.

Don't overestimate your skills and be honest with yourself. Every year we see many accidents which in most cases could be prevented with a minor adjustment.

We are a part of the community in which we live: friends, family and even people we don't necessarily know worry about us. Our obligation towards this community is to keep ourselves healthy and that at each landing we will be one landing happier than before. We fly so that we can feel more alive.

We wish you good and safe flights with your **ATMUS 2** .

SOL Paragliding Team !!



TECHNICAL FEATURES

TECHNICAL DATA

PORTUGUÊS	ENGLISH	FRANÇAIS	DEUTSCH	XS	S	M	L	XL	XXL	Unid.
Zoom	Zoom	Zoom	Zoom	0,93	0,965	1	1,033	1,075	1,12	
Células	Cells	Cellules	Anzahl Zellen	47	47	47	47	47	47	
Envergadura Projetada	Projected Span	Envergure projetée	Spannweite projiziert	8,84	9,17	9,5	9,81	10,21	10,64	m
Área Projetada	Projected Surface	Surface projetée	Projizierte Fläche	19,65	21,16	22,72	24,24	26,26	28,50	m ²
Alongamento Proj.	Projected A/R	Allongement projetée	Streckung projiziert	3,97	3,97	3,97	3,97	3,97	3,97	
Envergadura Real	Real wingspan	Envergure Réelle	Spannweite ausgelegt	10,88	11,29	11,70	12,09	12,58	13,10	m
Área Real	Real Surface	Surface Réelle	Fläche ausgelegt	22,62	24,35	26,15	27,90	30,22	32,80	m ²
Alongamento Real	REAL A/R	Allongement Réelle	Streckung ausgelegt	5,23	5,23	5,23	5,23	5,23	5,23	
Diâmetro das Linhas	Line Diameter	Diamètre suspente	Leinendurchmesser				1 - 1,5 - 2,1			mm
Altura	Height	Suspentage	Leinenlänge	708	733	758	781	811	843	cm
Perfil Máximo	Maximum Profile	Profil Max.	Maximale Profiltiefe	256	265	275	284	296	308	cm
Perfil Mínimo	Minimum Profile	Profil min.	Minimale Profiltiefe	70	72	75	77	81	84	cm
Peso da Vela	Weight	Poids	Gewicht	5,1	5,4	5,8	6,2	6,5	6,9	kg
Peso de Decolagem*	Take off Weight	Poids total volant	Startgewicht	65-80	75-90	85-100	95-110	105-125	120-140	kg
				143-176	165-198	187-220	209-242	231-275	264-308	lbl
Afundamento mínimo	Sink Rate Minimum	Taux de chute mini.	Minimale Sinkrate	1,1	1,1	1,1	1,1	1,1	1,1	m/s
Velocidade min.**	Minimum Speed**	Vitesse mini.**	Minimale Geschw.**	22+-1	22+-1	22+-1	22+-1	22+-1	22+-1	km/h
Velocidade**	Trim Speed**	Vitesse **	Geschwindigkeit**	37+-1	37+-1	37+-1	37+-1	37+-1	37+-1	km/h
Velocidade max.**	Maximum Speed**	Avec Accélérateud**	Mit Beschleuniger**	52+-1	52+-1	52+-1	52+-1	52+-1	52+-1	km/h
Planeio	Glide	Finesse	Gleitzahl	8,9	8,9	8,9	8,9	8,9	8,9	
Assentos	Places	Seat	Plätze	1	1	1	1	1	1	
Certificação	Certification	Certification	Zertifikation	Load	B	B	B	B	Load	

* Take Off Weight: Pilot , Glider, Harness and equipment(20kg-44 lb) ** Performance depends on pilot position and aerodynamic form of the harness.

The identification and information tag is found at the center of the wingtip.



PARTS LIST AND MATERIAL

All components are high standar and were chosen for a long life of your equipment.

PORTUGUÊS	ENGLISH	DEUTSCH	
Extradorso	Top	Obersegel	Wtx40 PU+Silicon Coating 40 gr/sm
Intradorso	Bottom	Untersegel	Wtx40 / Wtx36 Pu+Silicon Coating 40/36 gr/sm
Perfis/Reforços diagonais	Profiles/Diagonal Bands	Profile/Diagonalbänder	Pro-Nyl High Tenacity Nylon rip-stop Hard finish 42/36 gr/sm
Reforços	Reinforcements	Verstärkungen	Nylon Battens (Profile front)
Linhas	Lines	Leinen	1,0mm, 1,5mm, 2,1mm Cousin Technora
Tirantes	Risers	Gurte	Fitanew 15 x 2,0 mm flat multi Bl. 1.600 kg
Mosquetinhos	Carabiners	Karabiner	Ansung Precision 15 mm Bl 800 kg
Roldanas	Pulleys	Rollen	Sol PL14

Lines

The **ATMUS 2** lines consist of Vectran with high resistance to tension and has low distortion rate. The set is made of individual lines, with sewn ties on both extremities.

PORTUGUÊS	ENGLISH	DEUTSCH			
Tipo de Linha	Type of Line	Leinentyp	988-2,1	SL-1,5	SL-1,0
Fabricante de linhas	Line manufacturer	Leinenhersteller	Cousin FR	PC	PC
Resistência da Linha	Line resistance	Leinenresistenz	236,8 daN	139,3 daN	104,1 daN
Diâmetro	Diameter	Durchmesser	2,1 mm	1,5 mm	1,0 mm
Material do Núcleo	Material Core	Material des Kerns	Technora	Technora	Technora
Material revestimento	Material Cover	Material des Mantels	Polyester	Polyester	Polyester
Resistência pós teste de fadiga	Line Strength bended	Bruchlast nach Knicktest	151,1 daN	75,0 daN	40,0 daN



LINE LENGTHS

XS

	A	B	C	D
1	6402	6387	6398	6458
2	6455	6438	6458	
3	6634	6620	6641	
4	6679	6665	6694	
5	6790	6768	6805	
6	6852	6825	6868	
7	6939	6899	6951	7023
8	6914	6868	6929	7012
9	6934	6883	6950	7043
10	7001	6948	7018	7115
11	7028	6973	7047	7150
12	6993	6936	7014	7122
13	7015	6958	7037	7147
14	7093	7039	7116	7222

EAPR total length include risers

	F
1	6621
2	6630
3	6628
4	6636
5	6673
6	6761
7	6825
8	6879
9	7086
10	7301

M

	A	B	C	D
1	6857	6833	6845	6910
2	6901	6885	6911	
3	7097	7100	7121	
4	7147	7147	7177	
5	7268	7253	7293	
6	7332	7312	7358	
7	7431	7383	7437	7516
8	7405	7352	7412	7502
9	7426	7368	7433	7534
10	7498	7437	7507	7610
11	7526	7463	7539	7650
12	7488	7424	7504	7620
13	7511	7445	7527	7642
14	7596	7531	7611	7720

EAPR total length include risers

	F
1	7120
2	7135
3	7137
4	7147
5	7189
6	7284
7	7349
8	7404
9	7622
10	7846

S

	A	B	C	D
1	6628	6616	6627	6689
2	6678	6666	6685	
3	6870	6873	6894	
4	6918	6920	6949	
5	7032	7021	7059	
6	7096	7076	7122	
7	7189	7147	7197	7270
8	7163	7116	7172	7261
9	7184	7131	7194	7290
10	7254	7196	7266	7366
11	7281	7224	7296	7403
12	7245	7187	7260	7373
13	7268	7210	7285	7399
14	7349	7292	7365	7474

EAPR total length include risers

	F
1	6876
2	6890
3	6889
4	6901
5	6938
6	7030
7	7093
8	7151
9	7361
10	7579

L

	A	B	C	D
1	7071	7056	7068	7141
2	7124	7108	7135	
3	7323	7326	7355	
4	7373	7375	7412	
5	7495	7484	7527	
6	7563	7545	7595	
7	7664	7616	7676	7753
8	7634	7583	7650	7742
9	7657	7602	7672	7774
10	7734	7670	7746	7852
11	7761	7699	7778	7889
12	7722	7659	7742	7858
13	7748	7685	7766	7888
14	7833	7771	7851	7967

EAPR total length include risers

	F
1	7352
2	7364
3	7372
4	7384
5	7425
6	7525
7	7590
8	7648
9	7866
10	8096



XL

	A	B	C	D
1	7336	7325	7340	7413
2	7394	7378	7405	
3	7606	7607	7636	
4	7658	7659	7695	
5	7783	7774	7814	
6	7856	7835	7884	
7	7955	7911	7966	8051
8	7928	7875	7941	8040
9	7953	7895	7964	8069
10	8029	7966	8040	8150
11	8057	7994	8073	8190
12	8019	7951	8034	8157
13	8043	7975	8058	8182
14	8130	8064	8145	8260

EAPR total length include risers

	F
1	7635
2	7655
3	7661
4	7674
5	7719
6	7819
7	7889
8	7945
9	8173
10	8408

XXL

	A	B	C	D
1	7620	7607	7623	7699
2	7686	7667	7697	
3	7903	7904	7936	
4	7957	7957	7998	
5	8089	8075	8126	
6	8162	8140	8187	
7	8264	8217	8285	8373
8	8232	8178	8255	8357
9	8254	8194	8278	8391
10	8333	8269	8356	8474
11	8363	8296	8389	8513
12	8319	8249	8345	8477
13	8343	8274	8370	8503
14	8435	8368	8463	8591

EAPR total length include risers

	F
1	7950
2	7974
3	7981
4	7996
5	8041
6	8145
7	8215
8	8272
9	8504
10	8748





SOL Sports IND. E COM. LTDA
Rua Walter Marquardt 1180
CEP: 89259-565
Jaraguá do Sul-SC - Brazil
info@solsports.com.br
www.solparagliders.com.br

Gleitschirm - Paraglider SOL ATMUS 2

XS S M L XL XXL

Vor Gebrauch Betriebsanweisung lesen!
Before flying, read user's guide!

Jährliche Inspektion / Yearly Inspection:

Item / Item:	1	2	3	4	5
Tuch Fabric					
Leinen Lines					
Nähte Sewing					
Tragegurte Risers					
Zustand Overall State					
Geprüft durch Checked by					
Datum Date	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__

Angewandte Prüfrichtlinien:
Applied norms:
LTF 91/09; EN 926-2:2014 & EN 926-1:2006

Musterprüfstelle / Testlaboratory Center:
EAPR GmbH - Marktstr. 11
D-87730 Bad Grönenbach
www.eapr.eu

Schulungstauglich / Suitable for school use:
Nein / No

Betriebsgrenzen / Limitations

Gurtzeugbeschränkung / harness restrictions:
GH

Sitzzahl / Number of seats:
1

Windenschlepp / winch:
ja / yes

Nachprüfintervall / Periodical check:
24 Monate oder 100 Flugstunden
24 month or 100 hours of flying

Merkmale / Notes

Trimmer / Trimmer:
nein / no

Beschleuniger / Accelerator:
ja / yes 12cm

Bemerkung / Comment:
Keine / none

Tragegurte / Risers:
4 (A, A1, B, C)

	XS	S	M	L	XL	XXL
Klassifizierung Classification:	Load Test	LTF - EN B	Load Test			
Musterprüfnummer Type testing No:	-	EAPR-GS-0551/16	EAPR-GS-0542/16	EAPR-GS-0552/16	EAPR-GS-0553/16	-
Fluggewicht Total weight in flight:	65 - 80 kg	75 - 90 kg	85 - 100 kg	95 - 110 kg	105 - 125 kg	120 - 140 kg
Fläche projiziert Projected Surface:	19,65 m ²	21,16 m ²	22,72 m ²	24,24 m ²	26,26 m ²	28,50 m ²
Gewicht (ohne Packsack) Weight without bag:	5,1 kg	5,4 kg	5,8 kg	6,2 kg	6,5 kg	6,9 kg

Herstellungsdatum / Date of manufacture:

Serien-Nr. / Serial No.:

Testflug am / Test Flight:

 By

Sol Sports Ind. e Com. Ltda.

Rua Walter Marquardt, 1180 cp 370

89259-565 Jaraguá do Sul, SC BRAZIL

Telefone (+55) 47 3275 7753

E-mail: info@solsports.com.br

www.solparagliders.com.br

facebook: [solparagliders](https://www.facebook.com/solparagliders)

instagram [@solparagliders](https://www.instagram.com/solparagliders)

