



ADVANCE |



Content

Thank you for flying ADVANCE	4	Winching	26
About ADVANCE	5	Acrobatics	27
XI – Allround Tourer	6	Tandem flying	27
Pilot requirements	7	Packing	30
General advice about paragliding	7	Maintenance and checks	32
Handle with care	8	Maintenance	32
Getting started	9	Check	33
Delivery	9	Repairs	34
Basic settings	9	Disposal	34
Speedsystem with SPI	10	Repairs and disposal	34
Suitable harnesses	13	Techniccal details	36
Weight range	14	Materials used	37
Flight characteristics	16	Certification	38
Takeoff	16	Service	39
Normal flight	18	ADVANCE Service Center	39
Turning flight	18	The ADVANCE website	39
Accelerated flight	19	Registering your product	39
Steering by the Pitch-Control-System	20	Warranty	40
Collapses	21	Wing parts	41
Rapid descents	22	Line plan	42
Stalling	24	Instructions Bowline Knot	44
Landing	25	Installation instructions Softlink	45
Flying with a wet paraglider (risk of deep stall)	26		

Thank you for flying ADVANCE

Congratulations on your choice of XI – a quality product from ADVANCE. We are sure that you will spend many rewarding hours in the air with it.

The user manual is an important part of the glider. Here you will find instructions and important information about safety, care of the glider and maintenance, and that's why we recommend that you read this document carefully before your first flight.

Register your XI online on www.advance.ch/garantie, so that you will receive product updates or safety-relevant information about the XI direct from us. This information can also be downloaded from our website on www.advance.ch. The latest version of the manual as well as additional information can similarly be found on www.advance.ch.

We wish you a lot of enjoyment with your XI, and always «happy landings».

Team ADVANCE

About ADVANCE

ADVANCE is a worldwide leading paraglider manufacturer based in Switzerland. Since its founding in 1988 the company has continued to follow its own policies and ideas in both development and production. The result is fully-finished products with distinctive characteristics.

The team of experts behind the ADVANCE brand share both the passion for and confidence in their ADVANCE products. At home in the air themselves, they bring valuable personal experience and dedication to the workplace.

Thorough checking of the production process and supervision of the working practices in ADVANCE's own factory in Vietnam guarantee high quality work. A long-standing relationship with cloth and line manufacturers means that ADVANCE know-how finds its way directly into the development of new materials.

ADVANCE place great importance on after-sales service, and have a well-developed worldwide service network. A continuous exchange of experience with customers keeps new knowledge flowing in, which has an influence on ADVANCE products – and so the «Circle of Service» is completed.

XI – Allround Tourer

Leave your own track behind and have your own story to tell: a new route in a new area, your first bivouac flight, a globe-trotting trip with your paraglider as baggage, long distance from a walk up or an evening Hike & Fly from a lonely summit. Your creativity is unlimited – XI.

Light with performance

The XI combines a light weight from 3.4 kg with outstanding performance and the passive safety of a high end B wing. Pitch control by C risers with partial B level influence provides convenient active flying during accelerated flight.

Full function

The XI is a fully-functioning paraglider. Despite its light 27 and 32 Skytex cloth it is robustly built, and has Sliced Diagonals and Leading Edge Wires inside, as well as short C-Wires. In fact it has all the state-of-the-art technologies; like all ADVANCE paraglider models.

Universal

The XI was conceived as an allround talent and is happy wherever you are happy: Hike and Fly, traveling, long cross countries and bivouac flying - of course. Extreme versions? Why not? The XI can do it, but it's up to you! You set the limits.

Pilot requirements

As a XC-Intermediate the XI is only suitable for the practised thermal pilot who has, at least, carried out some cross country flying and acquired the necessary feeling for a glider in active air. He flies actively, can recognize and prevent collapses at their onset, and can carry out the normal fast descent manoeuvres. Only if these requirements are met will he will be able to make full use of this wing's performance potential, and fly cross country relaxed and safe.

General advice about paragliding

Flying a paraglider calls for appropriate training and a sound knowledge of the subject, as well as, of course, the necessary insurance cover and licence. A pilot must be able to correctly assess the weather conditions before taking off. His or her capabilities must be adequate for the paraglider used. The paraglider pilot is also required bear a sense of responsibility towards the natural world, especially regarding the preservation of wildlife and landscape.

Wearing an adequate helmet, suitable boots and clothing, and the carrying of an emergency parachute are essential. Before every flight all items of equipment should be checked for damage and airworthiness. A proper pre-takeoff check must also be carried out.

Every pilot bears sole responsibility for their participation in the sport of paragliding. Neither the manufacturer nor the seller of a paraglider can guarantee or be held responsible for the pilot's safety.

Handle with care

The ADVANCE XI is designed to be as light as possible for its specific areas of use. This places significant demands on those who use and look after it. The owner should become very familiar with the product, its qualities and requirements. Because of its specialised materials and construction the XI can suffer wear and damage if it is carelessly or ignorantly used.

The XI should never be dragged over the ground. Pointed and sharp objects such as stones or twigs can damage the lines and fabric. ADVANCE recommend that you choose your takeoff surface carefully.

! **Caution:** ADVANCE considers it important that you are aware of and respect the XI's lightweight materials. The XI will provide long-term enjoyment, but only if you look after it carefully.



Getting started

Delivery

Every ADVANCE paraglider has to be flown by the dealer before delivery to check for correct settings and trim. The dealer finally enters the date of the first flight on the type placard fastened on a rib at the centre of the wing. This entry confirms that defects in the product that can be attributed to manufacturing faults are covered by the ADVANCE warranty. Register your paraglider under www.advance.ch/warranty, and benefit from the ADVANCE warranty for three years. See under "Warranty" in the "Service" section.

Delivery of a XI includes a COMPRESSBAG, a repair kit, a mini-windsock and a «Getting Started» booklet.

Basic settings

At delivery the basic set up of the XI will be the original trim situation that the ADVANCE test team found to be best. Certification was also gained in this condition. Any alterations or changes to the paraglider, such as altering the line lengths or fitting different risers or quicklinks, will result in a loss of the glider's certification. See section «Certification».

Adjusting the brake lines

The length of the brake lines has been set at the factory so that, with hands fully up, the trailing edge remains unbraked in accelerated flight – (no crease in the wing). Basically, this setting should be kept.

If the brake line length does have to be reset there should be 8 -10 cm (depending on the glider size) of initial free brake line movement between the brakes fully released position in unaccelerated flight, and that point where the lines first affect the trailing edge. We recommend a bowline knot for attaching the handles. See illustration in the appendix.

Speedsystem with SPI

Optimal cross country glide between two thermals requires an on-going choice of glider speed as a function of current headwind component, expected next climb quality and the influence of sinking air. The XI speed (accelerate) system has a Speed Performance Indicator (SPI) which helps the pilot make this choice of ideal speed-to-fly. Three positions **1** are indicated on the back of the rear risers: neutral/0 %, 50 % and 100 %. Depending on the relevant parameters the chosen SPI position can be accurately set. A red marker on the front riser **2** serves as an accelerate indication.

i Info: Thanks to its high stability the XI can be flown in accelerated condition in light turbulence without problem. The choice of accelerated speed for best glide does play an important role for this high performance glider.

Each of the XI SPI positions has an icon with a value for headwind, expected climb and sink rate. These indicated positions are effective for only one of their three values, taken in isolation – considered by itself. This means that either the headwind, or the expected rate of climb, or the sink rate applies to that position. The SPI principle is based on the simple (using headwind and sink) and the extended (including expected climb rate) McCready Speed-To-Fly theory.



SPI at 0 %/ indicates neutral position (no accelerate).



Caution: Even though the XI has a high degree of stability in accelerated flight you should only use as much speedbar as you feel comfortable with.

Setting up the speed system

The XI speed system can, with the help of the SPI, be adjusted so that the whole speed system travel can be used. The system is correctly set when pushing the first speed step gives you the 50 % position, and pushing the second achieves 100 % accelerate.

Setting the 2-gear speed system

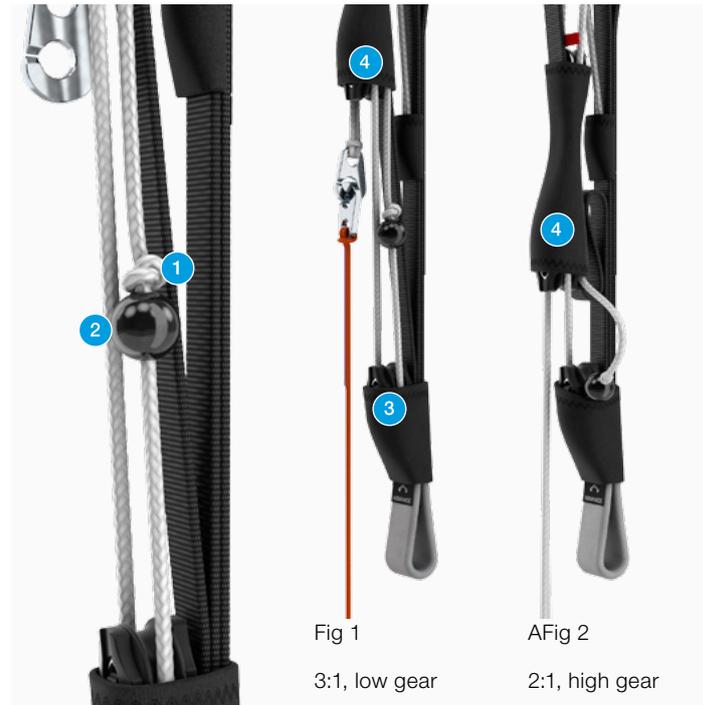
If your initial adjustment of the harness speed lines (to suit your own leg length) does not result in the 40 % (first step), 80 % (second step) settings described above, the geometry of the 2 gear accelerate system on the risers can be fine adjusted.

By moving the knots **1** and therefore the position of the locking balls **2**, the travel and loading of the accelerate system can be altered. The total travel of the system can be changed, and with it the position at which the 3:1 **3** + **4** (low gear, fig 1) ratio changes to 2:1 **4** (high gear fig. 2).

If the knots are moved down, the change from 3:1 (fig1) to 2:1 (fig 2) ratios happens sooner – here the speedbar loading is raised, but the total speed system travel thereafter is shortened. If the knots are moved upwards the gear change to 2:1 occurs later, and total travel is lengthened (longer legs).

The XI speed system is arranged so that the profile shape of the wing is fully retained over the angle-of-attack range of the speed system. This maintains the beneficial qualities of the profile at high speeds.

! **Caution:** The speed system is correctly adjusted when you can use the full travel available on the risers. Make certain that the speed lines are not set too short, thus causing the wing to be pre-accelerated all the time!



Suitable harnesses

Basically the XI can be flown with any harness that does not have rigid cross bracing (see section “Certification”).

The chosen harness should ideally have a carabiner distance of ca. 45 cm and a support height of between 40 and 48 cm.

As a single seat paraglider the XI comes under § 1 IV Nr. 1 AirVZO i. d. F. of 25.07.2013 in the “Light Air Sport Device with an empty weight of less than 120 kg” category. As proof of satisfying the necessary airworthiness requirements for this class according to § 11 AirGerPV the XI was tested by the accredited «Air Turquoise» test organisation and certified EN/LTF-B in all sizes.

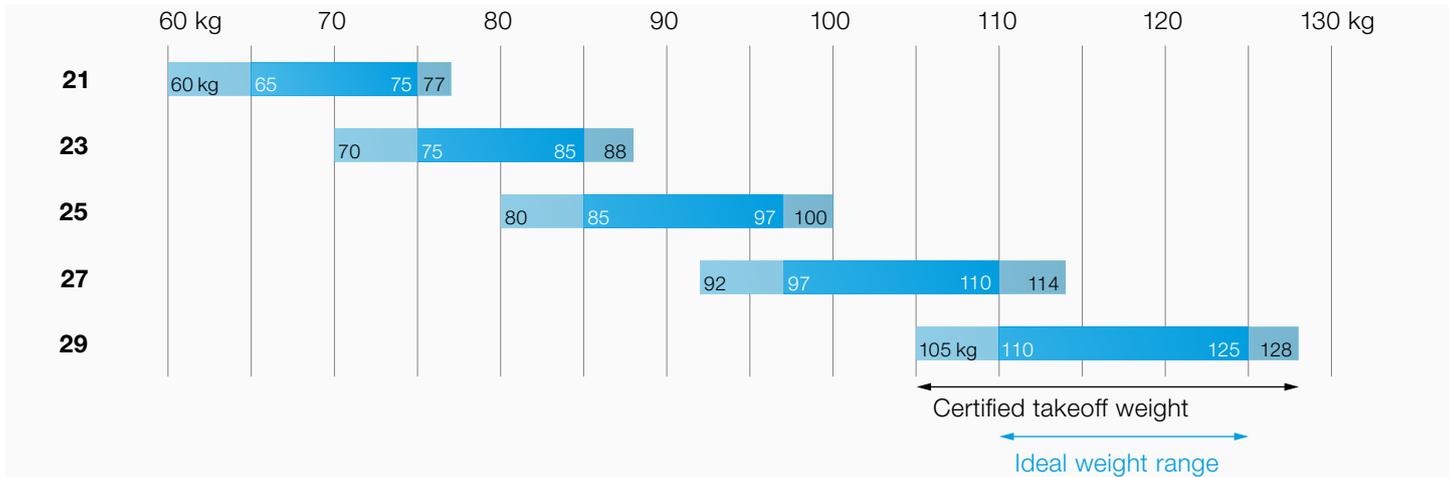
For the tests the following settings were used for the harnesses:

- All-up in-flight weight less than 80 kg: carabiner distance 40 ± 2 cm, height 40 ± 1 cm
- All-up in-flight weight 80 to 100 kg: carabiner distance 44 ± 2 cm, height 42 ± 1 cm
- All-up in-flight weight more than 100 kg: carabiner distance 48 ± 2 cm, height 44 ± 1 cm



Info: Experience has proved the theory – a streamlined harness can significantly improve gliding performance.

The XI was specially trimmed for use with a streamlined harness. For this reason we recommend a harness with speedbag in order to get the best out of the XI's great performance. The ADVANCE IMPRESS or LIGHTNESS harness is particularly suitable since the XI was designed and tested with them in mind.



Weight range

The XI comes out in five sizes. The weight ranges for the different wing sizes are listed in the “Technical Data“ section. The figures given there refer to total take-off weight. This includes the pilot’s body weight including clothing, as well as the weight of all the equipment (paraglider, harness, instruments, etc. – everything that’s going to fly).

Seamless Weight Ranges

The XI was planned for Seamless (continuous) weight ranges, with no overlapping. These arrange that any particular flying weight features in only one glider size. These XI Ideal takeoff Weight Ranges provide the best compromise between speed and climbing performance for all normal conditions, for each glider size.

For special requirements the choice of size still remains in the overlapping sections of the wider Certified Weight Ranges, as for previous models.

Flying outside the Seamless Weight Ranges, in other words near the lower or upper certified weight limits, can alter a paraglider’s flying behaviour and handling, but without affecting your safety. Glide performance remains the same over a complete weight range, but climb performance is altered.

If the XI is flown outside its Seamless Weight Range, in the upper part of its Certified Weight Range, the higher wing loading will raise its trim speed and produce more dynamic and agile flying characteristics.



Flight characteristics

We recommend that you make your first flights with your new glider in quiet conditions, in a familiar flying area. A few pull-ups at an easy site will give you confidence in the XI's handling qualities, from the very beginning.

Takeoff

Connecting the Risers

The XI has an “Easy Connect System” on the risers, to simplify connecting the risers. Each riser has coloured sewing running up the back of the C-riser, red for left and blue for right, in the direction of flight.

The coloured sewing facing the pilot, and the riser running cleanly upward to the lines confirm that the riser has not been connected with an 180 degree twist. For additional assistance all ADVANCE harnesses will, in future, have the same marking on their suspension loops (red to red, blue to blue).

The “Easy Connect System” also enables you to clip in while facing the wing. This can be helpful for a reverse takeoff in windy weather.

Takeoff preparation

Before every takeoff carry out the following pre-takeoff:

1. Reserve checked: pins and cables correct, reserve handle stowed?
2. Harness and helmet secured?
3. Lines free?
4. Canopy open?
5. Wind direction and strength assessed?
6. Airspace and field-of-view clear?

The XI takeoff behaviour is very smooth and easy for both forward and reverse takeoffs. The canopy inflates quickly and rises progressively, without hanging back or shooting in front.

It is very important that the takeoff pull up impulse takes into account the wind, takeoff surface and slope because the XI rises exceptionally easily due to its light fabric, as a main factor. This means:

- In a lot of wind and/or on a steep slope the XI needs little or almost no pull-up impulse.
- In calm conditions and/or flat land a relaxed pull-up makes sense.

The XI has split A risers. We recommend that you use all the A risers for takeoff. The XI inflates reliably from the middle out, and rises very straight with little exertion.

 **Tip:** Before takeoff get your canopy into the right shape. Do this while sorting the lines, by pulling the brake lines in until you have the perfect curved shape.

 **Info:** You can also use the inner A lines for an XI takeoff, but handling is easier using all the A risers

Takeoff in light wind (forward takeoff)

The XI only needs a moderate pull-up impulse even in a light wind. It is not necessary to step back and 'run' into the lines. Guide the glider up with pronounced leaning forward, but without too much of a pull on the A-risers, until the canopy is overhead. During the pull-up phase any correcting should only be done by decisive going-under-the-wing, without using the brakes. After any necessary correcting and a satisfactory visual check a few determined steps with good leaning forward will achieve lift off, even in little wind.

Takeoff in stronger wind (reverse takeoff)

The reverse takeoff is mainly recommended for stronger winds. During the pull-up you should walk towards the XI as necessary. Turning round and taking off with the XI will then prove to be easy.

 **Tip:** Playing with the glider on flat ground in some wind gives a good feeling for the wing. You can get to know the XI's

characteristics very well, and try out takeoffs, stalling, shooting forward tendency and collapses – while remaining safely on the ground. The ADVANCE test team have a motto: one hour ground training is worth 10 high flights. N.B: Ground handling practice can increase wear on your glider.

 **Info:** The XI is very easy to take off. Just as for the forward takeoff you should also suit your pull-up impulse to the wind and slope when making a reverse pull-up (as described in section "Takeoff").

Normal flight

In calm air the XI best glide is achieved with fully released brakes. Light braking brings the glider to its minimum sink condition. When flying into a headwind, through descending air, or when proceeding to the next thermal, glide performance will be distinctly improved by appropriate use of the speed system. The SPI helps you do this. See section “Speed-Performance-Indicator (SPI)”.

Despite the wing's high stability an active flying style is recommended – collapses can be almost completely avoided. This means keeping the lightly-braked glider directly above you, in other words, countering roll and pitch disturbances.

- When the angle of attack increases (flying into a thermal; wing swings back) the brake lines should be temporarily released fully, until the glider returns to its overhead position.
- When the angle of attack reduces (glider dives forwards, pilot swings back) the wing should briefly be braked more..

It is often more efficient to disregard minor pitching rather than correct it by overcontrolling with the brakes.

Turning flight

The XI has short and precise brake travel when steering. It responds very directly and progressively to increasing steering inputs, as soon as brake line free travel has been taken up. When starting a turn be careful how you apply the steering brake – just the right amount; not too much. Active weight shift effectively assists steering. Angle of bank can always be increased, stabilised or reduced by brake line load.

The XI makes a very agreeable companion in thermals. You do not have to correct for large pitching movements, and this improves your climbing behaviour – and therefore your performance – significantly. When thermalling, choose the desired angle of bank and corresponding radius, and try to let the glider turn steadily at this attitude. Outside brake should be used to steady the wing tip and, in particular, control the rate of turn. Anything stronger will slow the wingtip down and lose the glider's good steering qualities.

A harness specifically designed to match the flying characteristics of the XI helps you to initialise and stabilise turns of this type, which should be as even as possible. See also section «Suitable harnesses».

 **Caution:** to keep good manoeuvrability make sure to fly your XI with enough airspeed while turning in thermals – not too much outside brake.

 **Tip:** if a brake line breaks you can steer the XI using the C risers.

Accelerated flight

The XI has a weight-optimised line and wing design as well as very balanced pitch behaviour in bumpy air. All this retains a very good glide performance with only modestly increased sink rate in accelerated flight. 3 line levels, and the profile chosen for the XI enables the wing to be efficiently accelerated with little expenditure of pilot energy.

The XI wing remains extremely stable even in accelerated flight. However, paragliders operate at a lower angle of attack while flying at their higher speeds, and the degree of stability is generally reduced. The higher aerodynamic forces involved at higher airspeeds mean that a collapse can be more dynamic (see also section «Collapses»).

When encountering severe turbulence while flying accelerated release the speedbar fully before applying the necessary stabilising brake. The XI's high degree of structural stability allows it to be flown in normally turbulent air while accelerated. Active speedbar should be employed for adjusting angle of attack under these conditions, instead of brake. Pitch attitude disturbances can be minimised in this way, and optimal

glide performance can be maintained. See also section «Speed system with SPI».

- when the angle of attack increases (e.g. wing pitches back when entering lift), the speed bar is briefly pressed harder
- when the angle of attack decreases (e.g. wing pitches forward), the speed bar is released

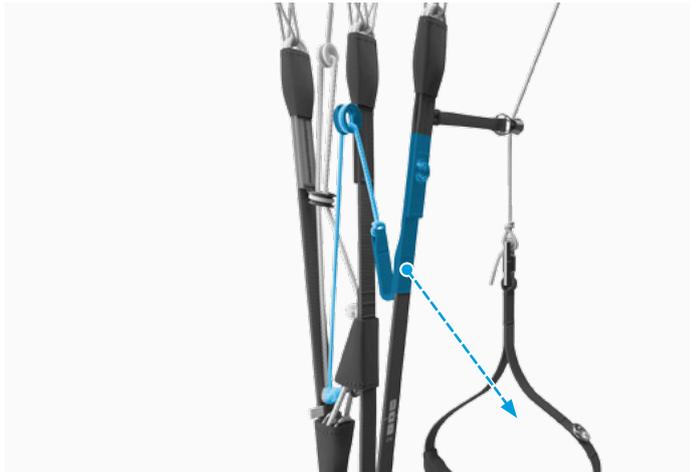
 **Caution:** even though the XI is very stable in accelerated flight you should only use as much speedbar as you feel happy with.

 **Tip:** make sure that brake is not applied at the same time as speed bar, otherwise you will find yourself in the worst possible gliding situation, without gaining any advantage.

 **Tip:** Always choose a suitable speed for best glide taking into account the actual headwind, sink rate (descending air) and expected next climb.

Steering by the Pitch-Control-System

The XI has a Pitch-Control-System. A Pitch-Control-Line from the C-Riser also affects the B-Level. When accelerated the XI can be actively flown and steered by the C/B levels instead of by speed system and weight shift. Steering with the Pitch-Control-System has the advantage that handling is more direct.



When accelerated, take hold of the C-risers over the brake popper with the sides of the hands resting on the line that goes from the C-risers to the Bs. Make sure you have released your wraps.

! **Caution:** The brake lines must not be tensioned in fully accelerated flight

By careful pulling of the C-Risers towards the shoulders, and careful releasing as well, pitch movements in light turbulence can be opposed. In addition you can compensate for low canopy pressure by this means, e.g. when a collapse threatens.

i **Info:** Because of the C-Riser connection to the Bs the pull required is very high during accelerated flight. This load reduces considerably when a collapse approaches. This is a sign that the riser must be pulled!

i **Info:** For effective and intuitive C-Riser control a lot of practice is required. Approach it slowly.

! **Caution:** Pull the C-Risers carefully – not too much. Too much too fast risks stalling!

! **Caution:** Control by C-Risers is only recommended for gliding in calm or lightly turbulent air.

 **Caution:** In very turbulent air ADVANCE recommend trim speed and active flying by brake lines.

Collapses

The XI features a very taut and stable canopy. With an active flying technique in normal flying conditions, collapses can be almost completely prevented. The wing gives very precise canopy feedback and makes it possible to sense an impending collapse early on, thus helping timely pilot reaction. Should a collapse occur the wing will fold in a predictable and progressive manner from wing tip towards the centre.

Asymmetric collapsing of the canopy

If the glider does, however, suffer a side collapse at trim speed, it will respond to collapses of 50% or more with a slight turning tendency, allowing heading to be easily held with light counter-steering. Normally, the wing will reopen without pilot action. With an asymmetric collapse in accelerated flight the wing will react more impulsively because of the higher forces associated with higher airspeed. The turning behaviour caused by a collapse at full speed is more dynamic, but can be well controlled.

If a collapse is slow to reopen, a deep but fast pull on the closed side brake will help. It is important to completely release the brake again to let the glider keep its flying speed. Be careful with the brake on the

open side, and only apply enough to keep straight – so as not to stall the wing.

Poorly flown wingovers can cause a wingtip to fold inwards from the side, causing it to catch in the lines and create a cravat. Due to the high drag they produce cravats can lead to strong rotation (spiralling). Stop an increase in rotation rate by just the correct amount of outside brake. Then open the cravated wingtip by pulling the orange stabilo line. Clearing a cravat can be also done more quickly by ‘pumping’. The appropriate brake should be applied to 75% brake travel within a maximum of two seconds, and then released immediately.

 **Caution:** If you want to make an accelerated collapse during safety training we recommend that you lead up to it slowly – starting with unaccelerated and then partially accelerated attempts.

Symmetric collapse (frontstall)

After a spontaneous or A-riser provoked collapse the airflow breaks away from the profile and the canopy will pitch back. The pilot swings back underneath after a short delay. Wait, without applying brake, until the wing is again above you and returns to normal flight. After a big collapse reopening may be delayed, but do not forcibly encourage reopening by the use of excessive brake, because of the risk of a fullstall.

 **Caution:** to simulate a front collapse all A-risers must be taken hold of and pulled down.

 **Caution:** after a very impulsively provoked front collapse in accelerated configuration (for example during SIV training) it can happen that the front of the canopy does not open by itself. Help the wing to open with a brief brake impulse by pulling the brakes to 75% within one second, immediately and completely release them, then be prepared to control the forward surge.

Rapid descents

For quick and efficient ways of getting down the ADVANCE test team recommend big ears (with or without speed bar) or the spiral dive – the choice depends on the situation.

 **Tip:** fast descents should be practised now and then in quiet conditions – so they won't become emergencies when you need them.

Symmetrical collapsing of the wingtips (big ears)

The XI has split A-risers, which make it easy to apply big ears.

To do this pull both outer A-risers quickly down at the same time. The wingtips will fold, and can be easily held in this position. To reopen

release the risers; if the wingtips do not open by themselves a brake impulse will help them.

Sink rate can be further increased by using the speedbar. Depending on the situation the glider can be steered using weight shift.

 **Remark:** big ears is also possible using two lines (per side) with the XI. Here it is important that the glider must be accelerated as well, and the trailing edge must not be braked.

 **Caution:** do not fly spirals or sharp changes of direction with big ears applied; the increased loading carried by fewer lines can damage the structure.

 **Caution:** be aware that flying with big ears brings the stall closer. Be careful with the brake lines when big ears are applied, and do not use this descent method if the wing is wet. See also section «Flying with a wet paraglider».

 **Tip:** if you want to lose height as quickly as possible and fly away from a danger zone at the same time we recommend the following: apply big ears and use as much speedbar as conditions allow.

Spiral dive

For the most comfortable way of doing this we recommend a neutral sitting position without active weight shift, and a shoulder-width carabiner distance (approx 45 cm).

Enter the spiral by progressively pulling one brake. Your head and field of view should be directed in the turn direction. As the angle of bank increases so will the rate of turn and centrifugal force.

The behaviour of the spiralling paraglider can be separated into two phases: in the beginning the glider begins with a normal turn which progressively tightens, with increasing angle of bank. In the second phase the paraglider engages its spiral mode. This means that the wing dives forward with an increase of acceleration. During this phase of the manoeuvre try to keep a neutral sitting position and give way to the centrifugal force – your body will be pushed to the outside.

Recovery from the manoeuvre is achieved by progressively releasing the inside brake. The body weight should be slightly displaced to the outside of the turn. While coming out of a spiral dive with high vertical and rotational speeds it is essential to release the brake carefully, and/or reapply a little inside brake if necessary, so that you can prevent the wing pitching back excessively, and then diving in front. Make sure that you start the recovery with plenty of height remaining above the ground. Generally speaking you should allow the same amount of

time to recover as it took to enter the manoeuvre, but remember that the sink rate will be higher.

The XI is a very agile and precise wing; this means that it goes into a spiral easily and quickly, and a very high descent speed (more than 14 m/s) can result - easily and quickly..



Caution: the XI only comes out of a spiral dive by itself if the pilot is in a neutral sitting position. From a steep spiral with a high sink rate – more than 14 m/s – recovery requires active outside brake with weight shift to the outside at the same time.



Caution: weight shifting to the inside of the turn results in increased acceleration and stable continued rotation. In this case, active counter-braking with simultaneous weight transfer to the outside of the turn is required to end the manoeuvre (push your body outwards).



Caution: the XI is approved for harnesses in group GH (without rigid cross-bracing). Harnesses in group GX (with cross-bracing) or those with very low suspension points (carabiners) may drastically change the flying characteristics in a spiral.



Caution: do not fly spiral dives or aggressive changes of direction with big ears applied: the raised wing loading carried by fewer lines can damage the glide.

! **Caution:** after recovering from a spiral dive it could be that the pilot flies into turbulence that he has caused. Fly actively to prevent a collapse.

Stalling

One-sided stall (spin)

When circling tightly in a thermal the XI indicates clearly, by strongly increasing brake load, the risk of a stall. Even so, if a wing does stall you will feel a marked reduction of brake load on the inside of the turn. If this happens you must immediately release both brake lines, so that the XI can return to normal flight by itself.

If a wing stalls completely the paraglider will go into a spin / negative rotation. The XI will react dynamically, but will still be manageable by the less experienced pilot. Even so – depending on the situation from which the paraglider is allowed to fly again – the reaction can be quite vigorous (shooting forward with a raised risk of collapse). The canopy can be arrested while shooting forward by well-judged braking. Normal flight can then be resumed without a further collapse.

i **Tip:** basically, in all out-of-control flight situations, but especially the onset of a one-sided stall, you should immediately release both brakes fully – hands up.

B-Stall

The B-stall is very demanding on the whole structure and profile of the paraglider. The XI is a lightweight design. ADVANCE advise against the B-Stall as a descent manoeuvre.

Fullstall

The XI has short brake travel when used for steering, but a long-arm stall point with very high brake loading. This means a high margin of safety for the pilot.

Entry to the fullstall is achieved by progressive and symmetrical pulling down of both brake lines. Forward speed reduces. Wind noise decreases.

When minimum speed has been reached the paraglider goes into a brief phase of parachutal stall. Further pulling the brakes will cause the airflow to completely break away from the wing, and the paraglider will fall back in fullstall.

With modern paragliders the airflow will not usually break away from the whole trailing edge uniformly, at the same time. Flow separation usually begins at the outer wings/ears.

To be able to fly a clean fullstall with a uniform flow detachment at the trailing edge we recommend the following technique. As the stall point

is reached, and the ears start to go back, raise the brake hands to the position where the canopy remains above you and the ears change to a slightly forward appearance. This position corresponds to 20 to 30 % brake. Only then pull the hands down again for the stall. Here it is important that the hands are not held fully down during the stall procedure, thus omitting this incipient flyback step, because the ears will then go forward and try to inflate after the complete stall. This usually happens just past the stall point. Now inflate the canopy by slowly and symmetrically raising the brakes, then release them completely when the canopy has been preinflated. The XI then reflies relatively gently, without excessive surging.

 **Info:** The XI shows a strong desire to refly by itself, but is easy to hold in the stalled condition.

 **Tip:** A half wrap with the brakes is recommended for the full stall.

 **Caution:** Correct flying of the fullstall needs a lot of practice. We recommend that you only do this during SIV training over water

 **Tip:** Fundamentally, you should fully release both brakes in all out of control situations, then be prepared to carefully control any resulting shooting forward (surging).

Deep stall

Stable parachutal stall cannot be established, whether attempted by brake or B-stall. In rain, or if the canopy is wet, the XI, like all paragliders, is more vulnerable to parachutal stall. If the wet glider were to go into parachutal stall you should recover only by accelerating using the speedbar. See also section «Flying with a wet paraglider».

Landing

Always make a proper landing circuit with a well-planned final approach. As the ground approaches progressively increase brake to level the flight-path, before applying full brake to completely arrest the forward speed.

 **Caution:** Steep turn reversals lead to strong swinging of the pilot, and should not be done near the ground.

 **Caution:** Braking will reduce your speed and increase your sink, but it will certainly seriously restrict your ability to manoeuvre.

 **Caution:** Getting below minimum speed leads to stalling: this should unquestionably be avoided when top landing, and on final approach.

 **Handle** with care: Never let your glider fall to the ground on its leading edge. The overpressure so caused inside the wing can

rip the cell walls and damage the leading edge.



Handle with care: After landing in water the canopy can quickly fill up, and become very heavy. The canopy should be lifted out of the water by its trailing edge, giving the water a chance to run out. Otherwise it might tear under this unaccustomed heavy load.

Flying with a wet paraglider (risk of deep stall)

Flying with a wet glider creates a risk of deep stall. Deep stall is often the result of a combination of factors. The weight of the wet canopy goes up, and this increased weight increases the angle of attack, which always puts the glider nearer the deep stall limit. Added to this, water drops on the top surface have a detrimental effect on the laminar flow of the boundary layer near the leading edge, which distinctly reduces the maximum lift coefficient. If the wet glider is also being flown at its lower weight limit there is a further small effect of increasing the angle of attack, as well as there being a lower airspeed because of the reduced wing loading.

In order to avoid the risk of deep stall with a wet glider, the wing should be braked as little as possible, and big ears not used at all. As a further preventative measure apply moderate (25-40%) speed bar. These actions have a small effect in reducing the angle of attack. If the wet glider does go into deep stall you should recover by using the speed bar only. See also section “Deep stall“.

Winching

The XI is suitable for winch launching. When taking off in windless conditions, ensure that the paraglider is laid out in an arched or even wedge shape (to avoid risk of the glider rosetting):

Winch launch is only permitted if:

- the pilot has completed a tow training course (only Germany/DHV);
- the winch system is certified for use with paragliders;
- the winch operator has been fully trained in paraglider winching.

Acrobatics

The XI is not suitable for acro flying because of its lightweight construction.

Tandem flying

The XI is not certified for tandem flying.



Packing

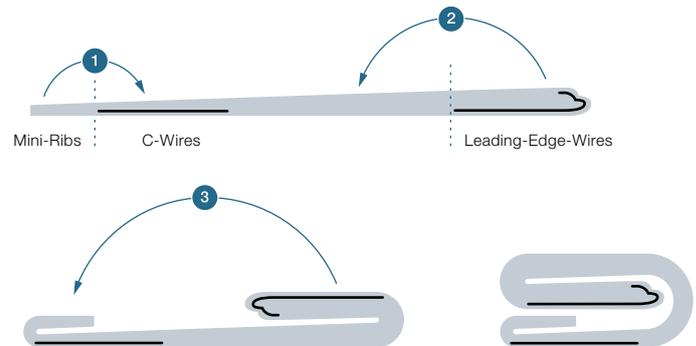
General

The XI should be packed cell on cell. There are various methods. We recommend the following: First gather the cells at the leading edge, beginning at the wing centre. Collect one side to the centre, then the other side. Make sure that the Rigid Foils (wires) of the leading edge lie as flat as possible on each other and (important) at the same height. This will ensure that all leading edge wires will automatically be at the same level (important for later folding). Then follow the same process at the trailing edge – except that the ends of these cells will not be at the same level because of the elliptical shape of the wing – the ribs get shorter as the wingtips are approached. Do not disturb the positions of the leading edge and C-wires – already carefully gathered.

Now turn the collected left and right lanes over into the centre, then fold one over the other. Regularly change the position of this final crease to save wear on the same lane.

Now fold the paraglider to the width of the inner bag as usual (see pic.): fold the trailing edge in, at the ends of the C-wires, and then the leading edge, below the rigid foils. Finally fold the leading edge half over the lower section. **1** First fold in the mini-rib section of the trailing edge, **2** Now fold the paraglider to the width of the inner bag as usual (see pic.): fold the trailing edge in, at the ends of the C-wires, and then the leading edge, below the rigid foils. Finally fold the leading edge half

over the lower section. then fold the leading edge bundle over, below ends of the leading edge wires. **3** Finally fold the leading edge half over the trailing edge end of the package. Be aware that careless packing will shorten your XI's life. Do not leave the wing unnecessarily in the sun, and never subject it to large temperature changes. Always store your XI in a dry place. As for all paragliders, avoid excessive compression and extra-tight packing. Finally fold the leading edge half over the trailing edge end of the package. Be aware that careless packing



will shorten your XI's life. Do not leave the wing unnecessarily in the sun, and never subject it to large temperature changes. Always store your XI in a dry place. As for all paragliders, avoid excessive compression and extra-tight packing.

 **Info:** ADVANCE recommend packing and storing the XI in a cell bag. The ADVANCE Tubebag (304 gms) is very suitable.

Packing with the Tubebag

Packing in a sausage bag is good for the wing, and is easy to do. It avoids undesirable sliding over the ground. Also the shape-retaining storage in a Tubebag promotes long glider life.

Lay your wing, mushroomed as after landing, on the spread Tubebag. Next spread the centre chord out to Tubebag length. Arrange the lines and stow the risers on their tabs. Now gather the leading edge cells as described in "General" above, except that all cells make up one pile – no secondary folding into the centre. Then fasten the upper Tubebag strap over the collected leading edge foils so that it holds them neatly together. Follow the same basic process at the trailing edge. Pull the centre lane straight then flatten and collect the outlying cells as already described above. Do this gently: do not disturb your leading edge and C-Wire positions. Final close the Tubebag then fold the Tubebag ends at the same wing positions as described in "General" above.

Maintenance and checks

Maintenance

Ultraviolet light, heat, humidity, sea water, aggressive cleaning agents, unsuitable storing and physical abuse (dragging across the ground) speed up the ageing process.

The life of a paraglider can be extended significantly by observing the following advice:

- Allow a wet or damp glider to dry by leaving it completely unpacked at room temperature, or outside in the shade.
- If the glider gets wet with salt (sea) water rinse it thoroughly with fresh water.
- Clean the glider only with fresh water, and a little neutral soap if necessary. Do not use solvents under any circumstances.
- If the glider has been subjected to increased stress (such as a tree landing) have it examined by an expert.
- Regularly remove sand, leaves, stones and snow from the cells. Openings with Velcro closures are provided at the wing tips for this purpose.
- Do not leave the glider out in the sun unnecessarily before and after flight (UV light).
- Do not subject the packed glider to excessive temperature

fluctuations, and do ensure adequate air circulation to prevent condensation forming.

- Do not drag the glider across the ground.
- When landing, make sure that the canopy does not fall on its leading edge.



Handle with care: All these points should be observed because the XI is a lightweight wing..

Lines

The Edelrid “Magix Pro” Aramid lines on the XI are considerably stronger than conventional covered lines, and this continues to apply as time and use go by. After the standard kink test (5.000 bendings from new) residual strength is 17 % more than a comparable covered product. In addition, the thousands of routine line snapping tests carried out by ADVANCE after at least a year’s use show Edelrid Aramid line strength to be 20 % higher – again when compared to a covered line.

Extensive preparation and inspection complete a depiction of this high quality product. According to the current requirements uncovered Aramid lines have to have at the least the same lifespan as conventional covered line. Despite comprehensive coating (mainly UV- Protec-Coating and Thermo Shield treatment) however, this product also needs the same care as other lines: damp storage, dust, physical

abuse by stones or boots – all reduce the lifespan massively.

Compared with other products the XI has virtually no Dyneema line. Dyneema lines withstand loading very well, but are generally not stable in length compared to Edelrid Aramid line. We do not expect a XI to need retriming – for this reason.

If, after much use, line surface roughens and makes sorting more difficult, the lines can be treated with candle wax. Run a white candle along the entire line several times until it is shiny and smooth. The lines will again become easy to sort.

Check

A new ADVANCE paraglider must be given a check every 24 months (2 years), > 100 flying hours per year, or > 100 flights per year whatever comes first. When a check is carried out the condition of all materials is assessed in accordance with strict guidelines, and tested with great care. Finally the overall condition of the glider is rated and recorded in a test report. You can find additional information about the check in this manual in the section “Service”, or at www.advance.ch.

The general check procedure for paragliders is a constituent part of the XI manual. This manual also contains basic technical information and the line lengths of the glider.

Repairs and disposal

Repairs

A paraglider is a lifting surface of complex construction. Seams and lines have been made with great precision. In general, therefore, an unauthorised individual should not carry out paraglider repairs. Only the manufacturer or an authorised Service Organisation should replace components with identical parts, or refit complete cells.

Small repairs become exceptions to this principle. Examples could be repairs to small tears or holes with self-adhesive Ripstop material, or replacing lines. In every case of repair or line change the paraglider must be pulled up on the ground before its next flight, and visually checked.

Your paraglider is delivered with a repair kit containing self-adhesive Ripstop. Other parts, such as lines, quicklinks, softlinks or risers can be obtained from your ADVANCE dealer, an ADVANCE Service Center or direct from ADVANCE. Addresses are on www.advance.ch.

Canopy Repairs

Tears up to 3 cm in length, and very small holes that do not meet a seam, can be patched with the self-adhesive Ripstop from your repair kit. Make sure that the patch is cut out in a round or oval shape, and is big enough to generously overlap the damage. The similar piece of sticky Ripstop on the inside of the repair should be of a different size. Detailed instructions can be found on [Eine detaill www.advance.ch](http://www.advance.ch).

Line repairs

A damaged line must be changed, without exception. The easiest option is to go to an ADVANCE Service Centre or your ADVANCE dealer. Alternatively you can order the specific replacement line direct from ADVANCE or an ADVANCE dealer and fit it yourself. All the addresses are on: www.advance.ch. Under “Service” on www.advance.ch there are detailed instructions for identifying your line so that you can order it, and then fit it correctly on the wing.

What to do if the leading edge gets damaged?

If a leading edge wire breaks or its seam rips the glider must be taken to an ADVANCE checking facility where the wire can be replaced or sewn back in. To guarantee a long lifespan it is important that the wing is not allowed to fall on its leading edge after landing, otherwise the fabric can be damaged by abrasion. But mainly there is a risk, as in all paragliders, that the crossports could tear.

Disposal

Environmental protection plays an important role in the selection of materials and the manufacture of an ADVANCE product. We use only non-hazardous materials that are subjected to continuous quality and environmental impact assessments. When your paraglider reaches the end of its useful life in a number of years time, please remove all metal

parts and dispose of the lines, canopy and risers in a waste incineration plant.

Techniccal details

XI		21	23	25	27	29
Flat surface	m ²	21.8	23.7	25.7	27.7	29.7
Projected surface	m ²	18.8	20.4	22.1	23.9	25.6
Ideal weight range * **	kg	65–75	75–85	85–97	97–110	110–125
Certified takeoff weight **	kg	60–77	70–88	80–100	92–114	105–128
Glider weight	kg	3.40	3.60	3.80	4.05	4.30
Aspect ratio		5.6	5.6	5.6	5.6	5.6
Projected aspect ratio		4.23	4.23	4.23	4.23	4.23
Flat span	m	11.1	11.5	12.0	12.5	12.9
Projected span	m	8.9	9.3	9.7	10.0	10.4
Certification		EN/LTF-B	EN/LTF-B	EN/LTF-B	EN/LTF-B	EN/LTF-B
Number of cells		57	57	57	57	57
Number of risers		3+1	3+1	3+1	3+1	3+1
Maximum chord	m	2.43	2.53	2.63	2.73	2.83
Max length of the risers	cm	49	50	51	53	55
Accelerator travel max.	cm	10	13	14	15	15.5
Max length of the lines with the risers	m	6.84	7.15	7.41	7.73	7.95
Trims		–	–	–	–	–
Max. sym. brake travel at max. weight	cm	65	66	69	70	72
Other adjustable / removable / variable devices		none	none	none	none	none

* Takeoff weight range in which the XI shows the best relationship between flying speed and climb.

* ** Pilot, wing, equipment

Materials used

We routinely inspect and test our materials many times over. Like all ADVANCE products the XI is designed and produced as a result of the latest developments and contemporary knowledge.

We have chosen all the materials very carefully, under conditions of the strictest quality control.

Leading edge	32 Universal, 70032 E3W
Upper surface	Skytex 27 classic 2 70000 E3H
Lower surface	Skytex 32 Universal, 70032 E3W, Skytex 27 classic 2 70000 E3H
Supported ribs	Skytex 32 hard finish 70032 E4D
Unsupported ribs	Skytex 27 hard finish 70000 E91
Base lines	Edelrid A-8000U-230 / 190 / 130 / 090, uncovered, 1.3 mm / 1.1 mm / 0.9 mm / 0.8 mm
Gallery lines	Edelrid A-8000U-130 / 090 / 070 / 050, uncovered, 0.9 mm / 0.8 mm / 0.7 mm / 0.5 mm
Brake lines	Edelrid A-8000U-070 / 050 uncovered, 0.7 mm / 0.5 mm
Steering lines	A-7850-240, covered, 1.9 mm; A-8000U-190 / uncovered, 1.1 mm
Risers	Techni Sangles, Polyester / Technora, 13 mm, 850daN
Soft links	Softlink DC 300

Certification

The XI has EN and LTF certification. The test reports can be downloaded from www.advance.ch.

Certification ratings can only provide limited information about a paraglider's flying behaviour in thermally active and turbulent air. The certification grading is based primarily on provoked extreme flight manoeuvres in calm air.

During the development of an ADVANCE paraglider, the emphasis is first and foremost on flying behaviour and handling, and not exclusively on the certification test. The result is a well-rounded product with the familiar ADVANCE handling. Nevertheless, the certification rating occupies a significant proportion of the specifications that have to be met.

Service

ADVANCE Service Center

ADVANCE operates two company-owned service centres that carry out checks and repairs of all types. The workshops based in Switzerland and France are official maintenance operations, which have many years' experience and in-depth product-specific expertise. The ADVANCE worldwide service network includes other authorised service centres that provide the same services. All service facilities use original ADVANCE materials exclusively. You can find all information on checks and repairs and the relevant addresses at www.advance.ch.

The ADVANCE website

At www.advance.ch you will find detailed information about ADVANCE and its products, as well as useful addresses which you can contact if you have any questions.

Among the things you will be able to do on the website are:

- complete the warranty card online up to 10 days after purchasing the glider, enabling you to enjoy the full benefits of the ADVANCE warranty.
- find out about new safety-related knowledge and advice concerning ADVANCE products.
- download an application form in PDF format which you can use

when sending your glider in for a check at ADVANCE.

- find an answer to a burning question among the FAQs (Frequently Asked Questions).
- subscribe to the ADVANCE Newsletter so that you will be regularly informed by e-mail about news and products.

It is well worth visiting the ADVANCE website regularly because the range of services offered is continuously being expanded.

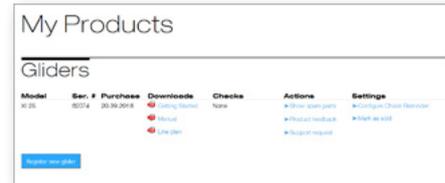
Registering your product

Set up a MyADVANCE-Account on www.advance.ch/garantie and register your wing direct online after purchase. You will then benefit from the extended ADVANCE Warranty. This is valid for 3 years and covers defects that can be attributed to manufacturing faults

In the MyADVANCE-Account you can arrange for a Check Reminder by E-Mail. In addition you can find all the documentation for your wing as PDF, e. g. manual, line plan, check protocol and other information. You can also look at spare parts for your product and ask ADVANCE support direct.

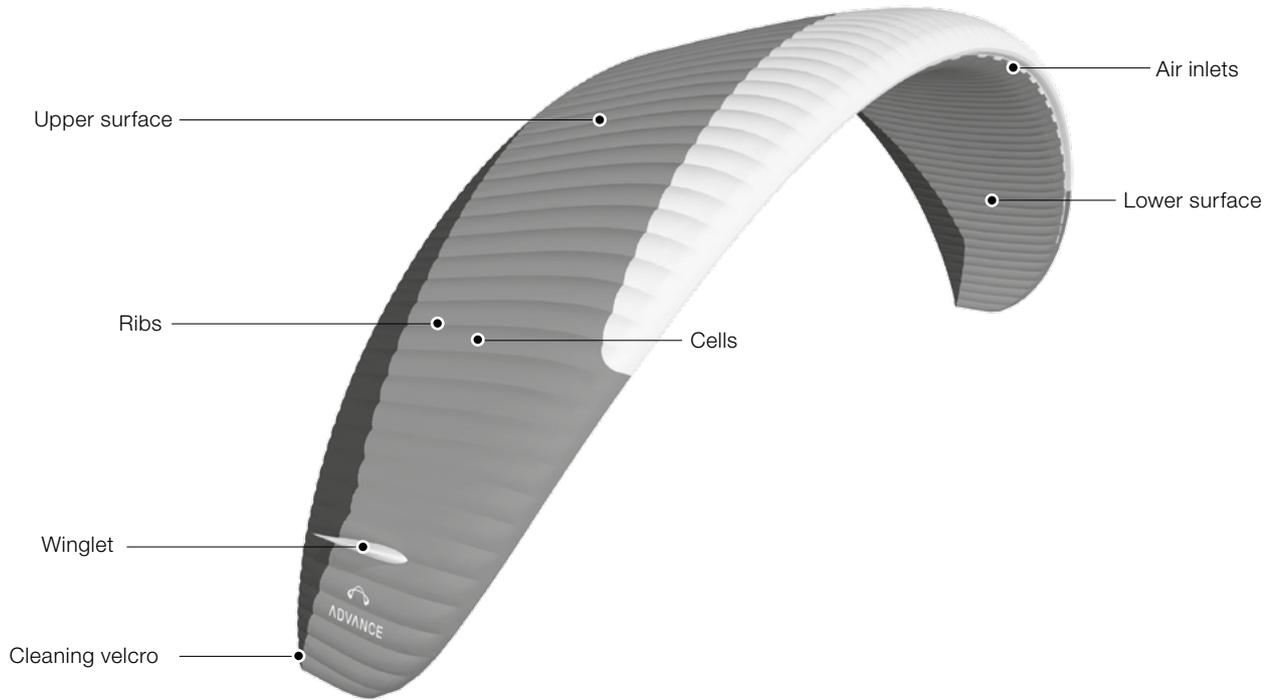
Warranty

As part of the ADVANCE warranty, we undertake to rectify any defects in our products that are attributable to manufacturing faults. In order for a warranty claim to be made, ADVANCE must be notified immediately on discovery of a defect, and the defective product sent in for inspection. The manufacturer will then decide how a possible manufacturing fault is to be rectified (repair, replacement of parts or replacement of the product). This warranty is valid for three years from the date of purchase of the product. Warranty and Service Intervals begin from the date of the glider's first flight, recorded on the identification plate. If no date is evident the applicable date is that on which the glider was transferred from ADVANCE to the ADVANCE dealer. The ADVANCE warranty does not cover any other claim. Claims in respect of damage resulting from careless or incorrect use of the product (e.g. inadequate maintenance, unsuitable storage, overloading, exposure to extreme temperatures, etc.) are expressly excluded. The same applies to damage attributable to an accident or normal wear and tear.

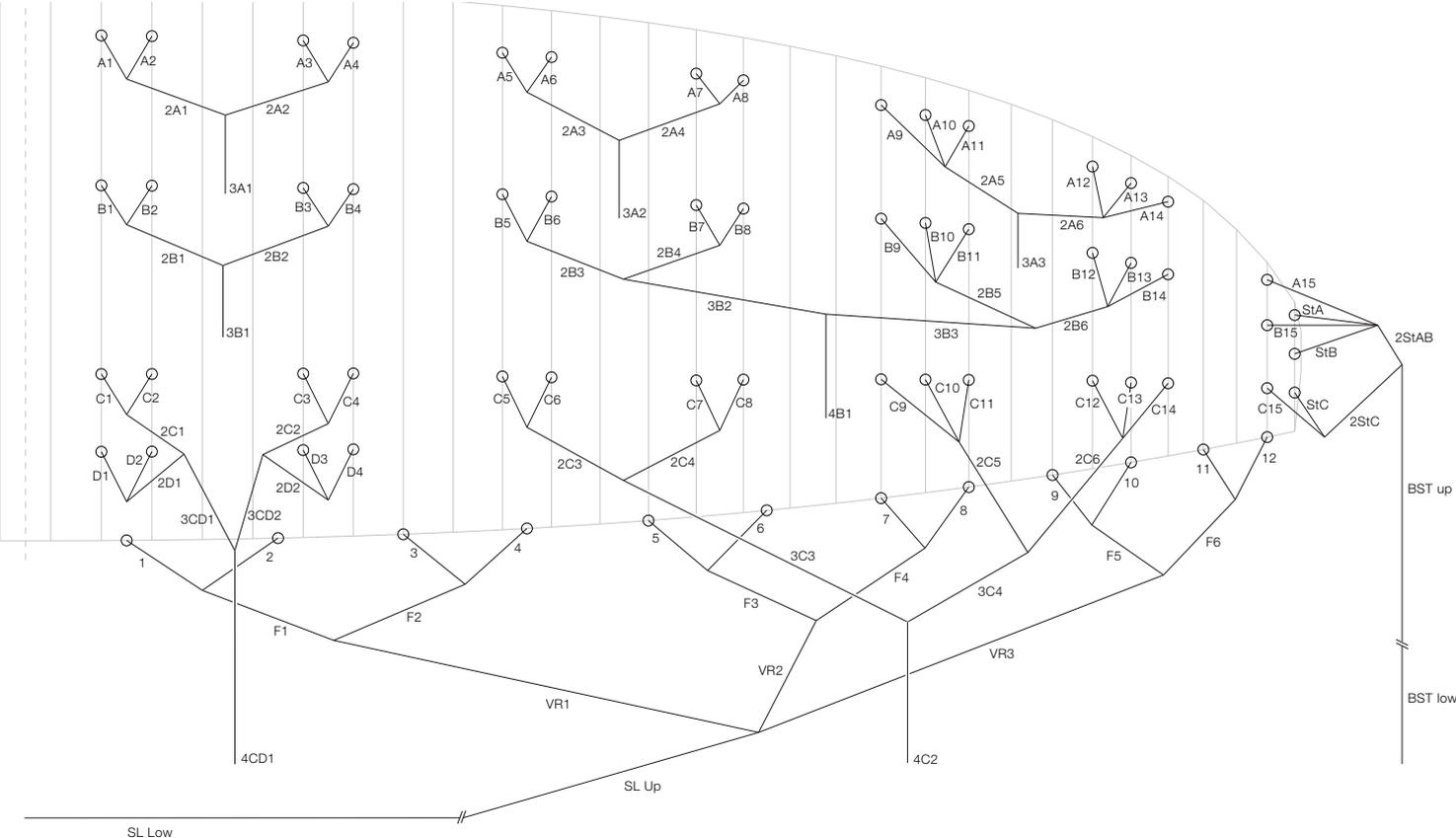


MY ADVANCE

Wing parts

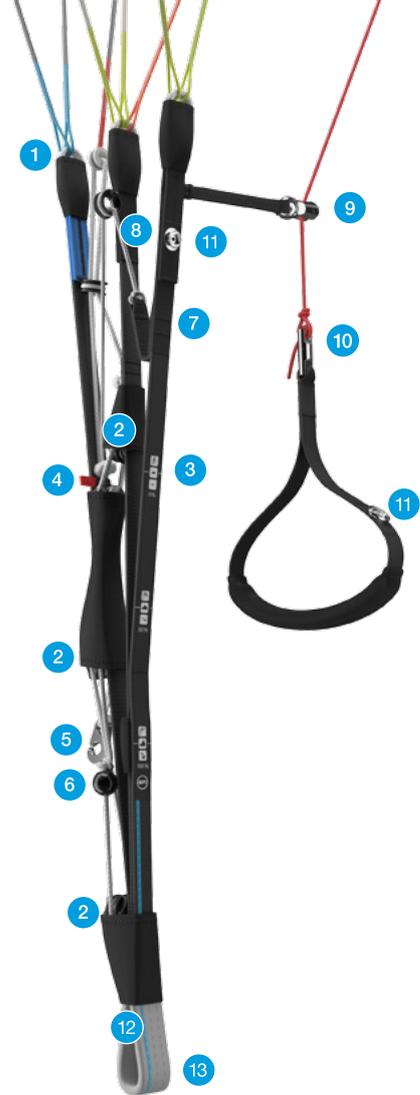


Line plan



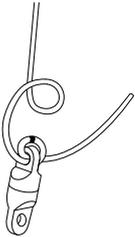
Riser

- 1 Softlinks
- 2 Pulley Speed System
- 3 Speed Performance Indicator (SPI)
- 4 Graduation on SPI
- 5 Brummel Hooks
- 6 2 Phase Speed System
- 7 C-Riser Control
- 8 Pitch Control Line
- 9 Easy-running Brake Pulleys
- 10 Swivel
- 11 Popper
- 12 Easy Connect System
- 13 Support Point



Instructions Bowline Knot

Step 1



Step 2



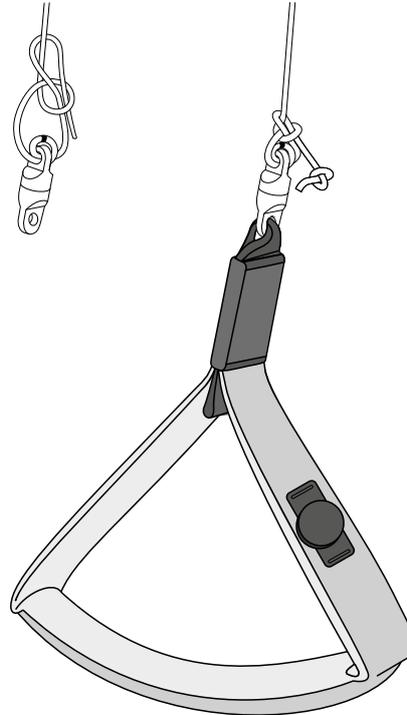
Step 3



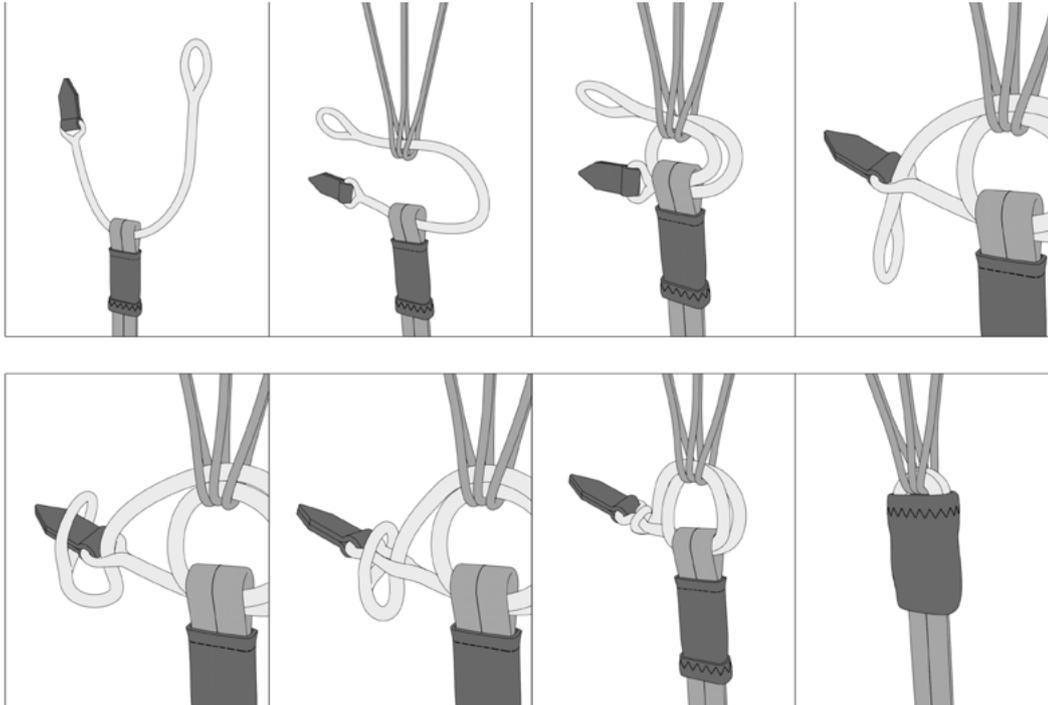
Step 4



Step 5



Installation instructions Softlink



ADVANCE

advance thun ag
uttigengstrasse 87
ch 3600 thun

+41 33 225 70 10
www.advance.ch

info@advance.ch
support@advance.ch