

ZOOM



XA

MANUAL

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WELCOME TO ZOOM!

With the purchase of your XA you become a team member of ZOOM and we are glad that you give us trust in our products!

ZOOM a brand of Papesh GmbH
Dorfstrasse 7
6212 Maurach – AUSTRIA

OPERATION MANUAL

Enclosed in this manual you'll find all essential information about your XA. Please take your time to read through this manual before your first take-off. In addition, you're welcome to download video tutorials of your XA from our homepage. If there are additional questions from your side regarding your XA, please contact your ZOOM dealer or pass an email to our ZOOM-support team. (support@zoom-paragliders.com).

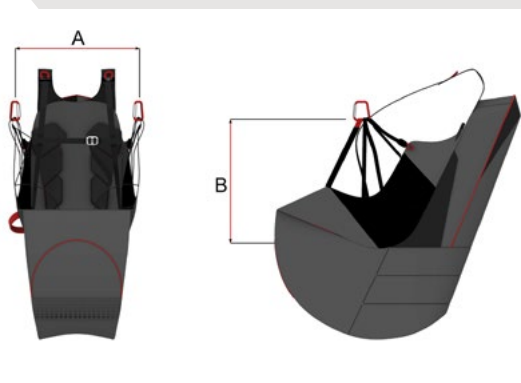
TARGET GROUP

Due to its safe and easy start- and flight-handling the XA is perfectly designed for the intense demands of training. Despite that, the XA has been fitted with a lot of high-end technical features, which gives that wing a precise and good handling and makes it as well a good choice as first wing after the training.

SUITABLE HARNESSES

The harness, which will be used contributes a lot to the flight behavior of your XA. During certification, the used harnesses must have an exact defined geometry. Therefore, for all the certification flights the following harness dimensions have been used:

Total take off weight < 80 kg:	Distance (A) 40 +/- 2 cm, Height (B) 40 +/- 1 cm
Total take off weight 80 – 100 kg:	Distance (A) 44 +/- 2 cm, Height (B) 42 +/- 1 cm
Total take off weight > 100 kg:	Distance (A) 48 +/- 2 cm, Height (B) 44 +/- 1 cm



TECHNICAL DATA

Size	85	95	105	115	125
Cells	45	45	45	45	45
Area projected (m ²)	20,28	21,59	22,95	24,34	25,78
Span projected (m)	8,45	8,72	8,99	9,26	9,53
AR projected	3,52	3,52	3,5 2	3,52	3,52
Area flat (m ²)	23,86	25,40	27	28,64	30,34
Span flat (m)	10,70	11,04	11,39	11,73	12,07
AR flat	4,81	4,81	4,81	4,81	4,81
Chord min. (m)	0,62	0,64	0,66	0,68	0,70
Chord max. (m)	2,78	2,87	2,96	3,05	3,14
Middle line length without riser (m)	5,78	5,98	6,18	6,38	6,59
Line consumption (m)	261	270	278	287	296
Weight (kg)	4,5	4,8	5,1	5,3	5,5
Recommended weight range (kg)	65-85*	80-95	90-105	100-115	110-125*
Certified weight range (kg)	60-90*	75-100	85-110	95-120	105-130*
Sym. brake travel max. (cm)					
Seats	1	1	1	1	1
Classification EN	A	A	A	A	A

Material top sail:	Porcher Skytex 38 Universal (38gr)
Material bottom sail:	Porcher Skytex 40 Easyfly (40gr)
Material internals:	Porcher Skytex 40 hard (40gr)
Top lines:	Liros DC60
Middle lines:	Liros DC60, Liros DSL70
Main lines:	Liros PPSLS180, Liros PPSLS125
Brake lines:	Liros DFLP232, Liros DSL 70
Riser:	20mm

CERTIFICATION

The XA has passed the certification (EN 926-1; EN926-2; NfL II 91/09) with EN A/LTF A. All certification results are only limited to the prevailing and most calm conditions during the test flights. Therefore, the certification can not give you all information about the reaction of the glider in turbulent or thermal conditions.

The XA is defined as a lightweight sport aircraft with an empty weight of less than 120 kg in the paraglider category.

SCOPE OF DELIVERY

With your XA you will get a compression innerbag, a repair kit, a mini windsock, a band, and a keychain. Each ZOOM glider must be test flown and inspected by a ZOOM dealer before delivering it to the customer. This flight must be registered on the type certificate on the glider with date and the name of the pilot. The warranty and service interval starts with the noted date on the type certificate. In the case of no entry on the type certificate on the wing, the warranty and service interval start with the delivery of the glider to the ZOOM dealer.

2 YEARS CHECK/ INSPECTION

The XA has to be periodically checked every 250 flight hours or latest after 24 months, whichever comes first. This check has to be performed at a certified ZOOM check company. During that check, the condition of the materials will be thoroughly checked. At the end the overall condition of the glider will be checked and documented in the check protocol.

Commercially used gliders (school gliders, tandems, ...) have to be checked on a yearly basis. This recommendation is also valid for heavy used gliders, e.g. for extensive ground handling and acrobatic flights. If the glider is flown in rocky, sandy areas as well as in salty coastal conditions ZOOM also recommends a yearly check interval. In all these harsh conditions it is recommended that the pilot checks the condition of his glider regularly for damages.

BASIC SETTINGS

The XA will be delivered with a approved setting in regard of trim and main brake lines. These setting must not be changed by the pilot as this will most likely change the flight behavior of the glider.

The acceleration system has to be correctly attached to the harness. With a too short, adjusted speed system, the glider will be accelerated unintentionally during flight. On the other hand, with a too long adjusted speed system you will not be able to accelerate your XA to the maximum speed.

FLIGHT

We recommend flying your new XA first in calm conditions in a known flight site. Some ground handling exercises in a flat area will be also recommended to get familiar with your new glider.

RISERS

The risers of your XA are fitted with colored stripes which makes it easier to attach the risers to the harness. The left riser and main brake are marked with an red stripe and the right riser and main brake with an grey stripe. This makes it easy to detect twisted risers during pre-flight.



START-PREPARATION AND CHECK

For each take-off the following checks are recommended:

1. Helmet, Harness and Karabiner closed? Rescue system checked?
2. Lines, Risers and Speed system, ok
3. Leading edges open, wing, ok?
4. Airspace free?
5. Wind direction and Windspeed ok?

START

The XA is easy to launch with forward as well as backwards start technique. To launch the XA use both A-risers. The wing inflates symmetrically from the center and rises continuously above the pilot. Even in light wind conditions the XA requires only a moderate impulse on the A-risers. It is in any case not necessary to "run into the lines" to launch your XA. A continuous force with your body and a moderate pull on the A-risers will guaranty a successful launch with your XA.



It is recommended to prepare your XA wing in an arrowed shape before the start to optimize the inflating and rise ability.

FLIGHT

In still air your XA glides at maximum Performance with full released brakes. Braking slightly lets the XA fly at minimum sink rate. In headwind or downdrafts, you have to accelerate using the speed system to achieve maximum glide range. Despite of its stable wing, the XA requires an active flying style in turbulent conditions. Active flying means to control and correct your angle of attack and your speed with your brakes. With this active flying style, you'll be able to avoid most of possible collapses in turbulent conditions.

TURNS

The XA offers a very precise turning ability. The wing reacts directly and progressive to brake inputs. In the "thermal working range" the XA has a light but gradually increasing brake pressure which helps you during long thermal flying. Beside that efficiency the pilot always gets a lot of feedback from the wing.



In case of a broken brake line, the XA can be turned using the B-Handles with care.

ACCELERATION

During accelerated flying in turbulent conditions, you can use your C-risers to control the angle of attack to get the maximum performance out of your XA. In addition, you can use your C-risers to achieve minor directional control efficiently.



During flight in strong turbulence, it is recommended to do not use your speed system and fly active with the brakes.



During the use of the C-risers it is necessary to do not wrap your brakes.



Pulling the C-risers to far down or pulling them too abruptly could result in stalling the wing.



Do not brake your XA during (full)accelerated flight. This could result in a collapse of the wing.

LANDING

The XA has an easy landing characteristic. During final approach let the XA glide with nearly maximum speed. At an height of approximately 1m start flaring the glider with applying brakes to increase your angle of attack. When the minimum speed is reached, pull the brakes to the max to land your XA. During strong headwinds adjust your brakes carefully. Only when the pilot is safely on the ground, the wing can be stalled with care. Landings with steep turns in the final segment of your landing shall be avoided (danger of pendulums)



A complete stall can result in a very hard impact of the pilot even from two meters altitude. Therefore, the brakes should be pulled down fully only just before touchdown.

RAPID DESCENTS

All rapid descent maneuvers should be practiced in calm air and with sufficient height to be able to use them in emergency situations with/without turbulence. All rapid descent maneuvers should be trained during a safety training under direction of an instructor. During all maneuvers it is imperative that the pilot monitors the height above the ground..

BIG EARS

To start the maneuver accelerate your XA using your speed system to approximately 25% and pull down the AS-3 lines (A2-riser with ears logo)at the line-karabiner. Pull both lines symmetric and gently but quickly down. This results in collapsing the outer parts of wing. During the maneuver you can adjust the sinkrate by varying the amount of speed system usage. To turn your glider with big ears, just shift your weight into the desired direction. Releasing the AS-3 lines (A2-riser) will open the collapsed wing parts.



Do not fly deep spirals with big ears, nor large directional turns. The increased loading of the remaining wing area could lead to damage to the material.



Please take note that flying with big ears increases the drag significantly and therefore there is a high risk of stalling the wing. Even a wet wing can influence the drag of the wing significantly. During flights in wet conditions the use of bi-gears is not recommended.

B-STALL

Grab the line-carabiner of both B-risers and pull them symmetrical 15–20cm down. Keep the risers on this position and the canopy will pitch back. The airflow on top of the profile detaches and the paraglider descends without flying forward. To exit the B-stall release quick and symmetric the B-lines. The paraglider will pitch forward and pick up speed. At no time you may use the brakes in this case!



Pulling hard on the B-risers increases the risk of the wing forming a horseshoe to the front. If this happens, recovery from the B-stall immediately!

DEEP SPIRAL

The deep spiral is one of the most demanding fast descent maneuvers and should only be trained at high altitude above ground and preferable during a safety training. The initiation can be divided into two phases:

First, you initiate a turn by applying one brake and by shifting your weight to the same side. This leads the glider increasing bank and turning speed. When the g-forces increase rapidly, and the leading edge will drop forward the steep spiral is established. On your first attempts to fly a deep spiral you should stop the turn well before a deep spiral is fully established to get used to exit the spiral with minimum pendulum swing. For exiting the steep spiral, the inner brake should be released with a neutral pilot shifted position. To achieve a pendulum free exit, the inner brake has to be applied during the decrease of bank. The deep spiral starts when the leading drop forward, nearly parallel to the horizon. At this moment the pilot will be shifted to outside of the turn in his harness. The pilot should allow this shift movement to avoid a stable deep spiral situation. Now the sinkrate can be controlled using the inner and outer brake. If the pilots weight shifts to the outer side of the turn, the spiral will get slower as soon as the pilot releases the inner brake. The exit of the steep spiral can be achieved as described above. If the pilot shifts and keeps his weight to the inside of the spiral turn, the XA could continue to spiral even when releasing both brakes. In this case an application of both brakes or braking on the outer side of the turn with shifting the weight of the pilot to the outer side leads to exit the deep spiral. As the sinkrate during the steep spiral can be between 10m/s and 20m/s with the G-load rising up beyond 4g the maneuver can lead to unconsciousness

depending on the physical constitution of the pilot. Therefore, it is imperative that train this maneuver slowly in order to master the maneuver actively and confidently, and to know the reaction of the body in this demanding situation of high g-forces.



Exiting a stable deep spiral requires an unusually large amount of body force due to the high g-load! Due to the high performance and dynamics of the wing you have to expect that the glider rises up some altitude after exiting the deep spiral. During that rise you could hit your own vortex turbulence.

COLLAPSE

When entering strong turbulent conditions, one side of the wing may collapse. The reason for such collapses can be a significant lowering of the angle of attack due to the turbulence which hits the wing on one side. This results in a loss of lift, unloading the lines and subsequently a collapse of the wing. When this collapse affects only a small part of the wing, the reaction of the XA will be moderate. If, for instance, more than 50% of the wing is affected, the glider will show a significant more dynamic reaction. Due to the increased drag of the collapsed wing, the XA will begin to turn in direction of the collapsed side. At the same time, the glider pitches forward because of the smaller loaded wing surface and therefore higher wing load and needed airspeed. The pilot can prevent the glider from pitching and turning, by shifting his weight to the non collapsed side and applying the brake on the non collapsed side. If a collapse occurs close to the ground it is essential to react early and correctly. This should be trained at high altitude above the ground, preferably during a safety training. If the brake input on the non collapsed side is too strong, it can lead to an asymmetric stall



Side collapses at full speed can produce a very dynamic reaction! When flying accelerated, always pay attention to sufficient safety height.

FRONTAL COLLAPSE

The front collapse, often misunderstood as a „front stall“, is also a consequence of turbulence and pilot errors. In difference to the asymmetric side collapse, the entire leading edge will collapse. In most cases, the XA will reopen the collapsed frontal part of wing without pilot inputs. To speed up the reopening, we recommend a small amount of both brake application.

SPIN

A wing rotates negatively when the wing loses airflow on one side. During the spin, the wing turns around a vertical axis with the center of rotation within the wing-span. The inner wing, which lost airflow, flies backwards.

There are two causes for the spin:

- during slow speed flying (e.g. tight turns in the thermals) the inner brake will be pulled too far down, resulting in a loss of airflow
- during start of maneuvers like deep spiral the inner brake is pulled too far down and/or pulled to impulsive.

If the pilot detects those errors at the beginning of a spin, releasing the brake immediately will result coming back to normal flight without further consequences..



If the pilot does not detect this error at the beginning of a spin and does not release the brake immediately the wing can pitch fast forward and results in a large asymmetric collapse with cravat/line over tendency.

FULLSTALL

The Fullstall is a complex maneuver and the correct technique can't be fully explained in this manual. Those who want to master this maneuver should do so under the supervision of an instructor or a safety training. The brake travel leading to a fullstall is dependent of the size of the glider. Additionally, in turbulent conditions, a stall can occur much earlier or later. Pilots, who wanted to use the full brake travel, must train this during many fullstalls to get a feeling for the partially or fully developed stall.



UTo able to fly a glider like the XA safely, it is essential that the pilot can fly a controlled fullstall in any condition and situation. Especially, after a cravat/line over the fullstall is most properly the only maneuver to correct the situation and come back to normal flight.

PARACHUTAL STALL

The parachutal stall is a flight condition without forward speed and with a significantly high sinkrate. The parachutal stall can be initiated by the pilot by strong symmetrical braking and is effectively the preliminary stage to a full stall. The XA automatically exits the parachutal stall by fully releasing the brakes. A very heavily used wing with a porous cloth and / or with an incorrect trim (for example, as a result of many winch starts or flown deep spirals) can stay in a stable parachutal stall. This can also happen, when the pilot exits maneuvers like B-stall too slow or after a large frontal collapse.

In addition, the tendency to a parachutal stall is higher with a wet glider or by flying in rain or in very cold air. In the case of a stable parachutal stall you should release any brake inputs and push the A-risers forward or pull them down, or even better, push the speed system. After a slight pendulum movement, the glider will return to normal flight. In the case of a parachutal stall close to the ground the pilot has to decide whether the altitude is high enough for a pendulum movement or it is better to prepare himself for a hard landing.



When the wing is in a parachutal stall, additional brake input may result in a fullstall!



Flying with a wet glider creates a risk of parachutal 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.

CRAVAT / LINE OVER

After a large asymmetric collapse or wrong exited fullstall, a part of the wing might be tangled up in the lines and won't reopen itself. This is what you call a cravat. In the rare case of a cravat, we recommend the following actions:

1. Counter braking and weight shift to the open side: Due to the increased drag, the wing wants to turn to the side of the cravat. Without correct pilot reaction with weight shift and brake on the open side, the wing will start turning quickly and end up in an stable deep spiral, which requires high brake forces to counteract exit this maneuver.
2. Opening the cravat by applying deep brake inputs. With this method some cravats can be opened. During that maneuver it's very important to keep the stabilize the wing with the brake on the open side.
3. Pulling the stabilo line: Some cravats can be opened by strongly pulling on the stabilo line.
5. Full stall: When the pilot masters the fullstall correctly, this can be a successful method to reopen cravats.
6. Rescue parachute: If you lose control of your wing, or if not sure that the remaining height above ground is sufficient for further attempts to reopen a cravat, don't hesitate to deploy your rescue parachute. Many pilots are waiting way too long before deploying their rescue parachute or do not use their rescue parachute at all despite the height above ground would have been sufficient. These accidents are often ending fatal. On the other hand, descends with a deployed rescue parachute are rarely involved with serious injuries. Therefore, train the grabbing of your rescue parachute handle on regular basis during flying. This will mentally prepare yourself for the worst-case scenario. In addition, many clubs or paragliding schools offer practicing of the deploying of the rescue parachute in a gym. The most realistic way of training is to use the reserve in real flight. Many safety trainings are offering that as part of their training. All that training leads you in not hesitating of deploying of your rescue parachute if the situation requires it.

WINCH LAUNCH

The XA can be used for winch starts without restrictions. Please assure, that you climb in a flat angle from the ground. We recommend the use of a towing adapter.

GENERAL ADVICE

With proper and careful handling of the paraglider, it will remain in perfect technical condition for many years even when used intensively.

Please note the following:

- Don't expose your glider to unnecessary UV radiation – for example by leaving it on the landing site unpacked. When folding, you should not bend the polyamide rods at the leading edge more as necessary.
- If you pack the glider when it is wet or just damp, it has to be dried later. Don't leave it packed in a wet condition
- When you practice ground handling, avoid crashing the glider hard on the ground with the leading edge, as this might lead to damage.
- Avoid unnecessary dirt or sharp stones touching the lines and the cloth.
- Don't step on the lines if they are laying on a stony surface.
- Humidity combined with dirt can lead to shrinking of the lines and thereby to the wrong trim on your glider.
- Salt water (sweat) may damage the canopy and lines in the long run.

STORAGE

Store your glider uncompressed in an dry and dark place. Let your wet or damp glider dry in room temperature and unpacked.

TRANSPORT

When vibrations occur during transport (eg: motorcycle), make sure that the fittings (line locks) do not touch the sail cloth (use the riser bags).

CLEANING

To clean the wing, only use drinking water and a soft cleaning cloth. (Do not rub while cleaning with the cloth)

Never use any solvents.

If there is sand, dirt or small stones inside the canopy, you should remove them because they will damage the coating of the cloth and the seams in the long run. If your wing got in touch with salt water, wash it with drinking water.

REPAIR

Seams and lines are made with high precision. Therefore, glider repairs have to be carried out only by the manufacturer or by authorized service facilities. Only the manufacturer or an authorized service facility are allowed to change parts or change a damaged cell. Exceptions are small repairs of small tears or holes of the canopy using the repair set or changing lines. In any case, after an repair or the replacement of lines, the glider has to be pulled up on the ground and be checked. Each ZOOM glider will be delivered with a repair kit. Other spare parts can be ordered by your ZOOM dealer or directly at ZOOM. Tears or holes up to 3cm length, which are not positioned close to seam can be repaired with the ZOOM repair kit with consists of ripstop material. Please take care that the adhesive material is cut out round, oval and big enough to cover up the hole completely. The counterpart on the other side of the canopy should be cut out differently. A damaged line has to be changed mandatory. The lines can be ordered from a ZOOM dealer or be changed directly at ZOOM.

WARRANTY

In terms of warranty, we are obligated to repair or change all defects of our products, which are attributed to manufacturing defects. For a warranty claim to be made, ZOOM have to be notified immediately on discovering such a defect, and the defective product has to be sent in for inspection. Only the manufacturer will decide how a possible manufacturing defect has to be rectified (repair, replacement of parts or replacement of the product). In all cases, the legal warranty obligations of your country apply. The warranty and service interval starts with the noted date on the type certificate. In the case of no entry on the type certificate on the wing, the warranty and service interval start with the delivery of the glider to the ZOOM dealer. The ZOOM warranty does not cover any other claim. Claims in respect of damage resulting of 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 abnormal wear and tear.

Commercially used gliders (school gliders, tandems, ...) are excluded from the warranty.

NATURE AND ENVIRONMENTAL BEHAVIOR

Flying our paragliders motorless, we have taken a big step towards ecological awareness in our nature-friendly sport. In addition, the hike and fly community contribute the ecological goal at his best. Nevertheless, it should be one of our highest intentions to preserve the beauty and diversity of our nature. This requires every pilot to clean up his/her trash, stay on marked trails and don't cause unnecessary noise.

DISPOSAL

ZOOM paragliders chooses his material with high emphasis in regard of environmental compatibility. We're obliged to use only high-quality materials, which are harmless to nature and will continuously assure its quality and environmental safety. If your equipment reaches its end of lifetime, please remove all metal parts such as shackles, pulleys, etc. All lines, material and risers can be disposed at a recycling center. Metal parts be disposed at a metal recycling center.

GENERAL SAFETY ADVISES

To fly a paraglider requires adequate training and a good knowledge of aerodynamics, meteorology and landscape. Beside that, it is mandatory to take care of necessary insurance cover and personal license. A suitable trained must be able to assess the prevailing weather conditions before taking off. Beside that, the flying skill of a pilot has to match the demand of his equipment. The responsibility against the landscape and natural world, as well as the preservation of wildlife and landscape should be one of the main goals of each pilot. Wearing an adequate helmet, suitable boots and clothing, and carrying an emergency reserve (rescue parachute) are essential. Before each take-off, all items of the equipment have to be checked for damage and airworthiness. A pre-takeoff check must also be carried out. Each pilot has to take full responsibility for all risks, including injury or death. Neither the manufacturer nor the seller of a paraglider can guarantee or be held responsible for the pilot's safety.

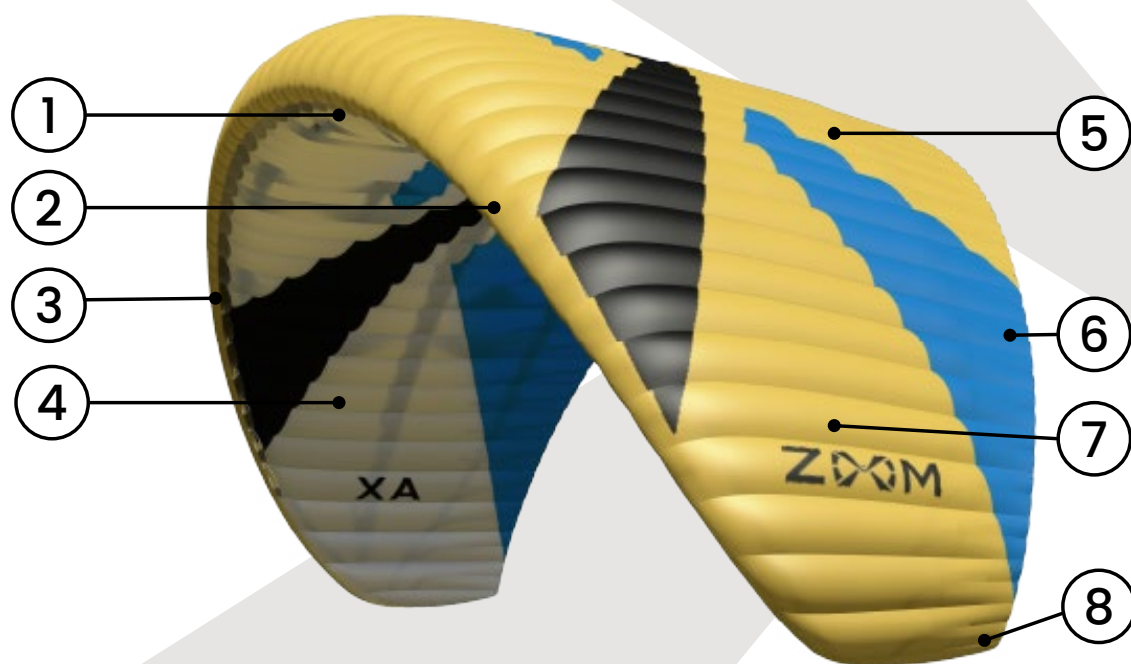
LINE LENGTH

All line length details can be retained on the ZOOM homepage (www.zoom-paragliders.com/dl/XA) or please scan the following QR-Code



OVERVIEW GLIDER

1. Type lable
2. LE Miniribs
3. Cell openings
4. Bottom sail
5. Top sail
6. TE Miniribs
7. Cells
8. Dirt hole



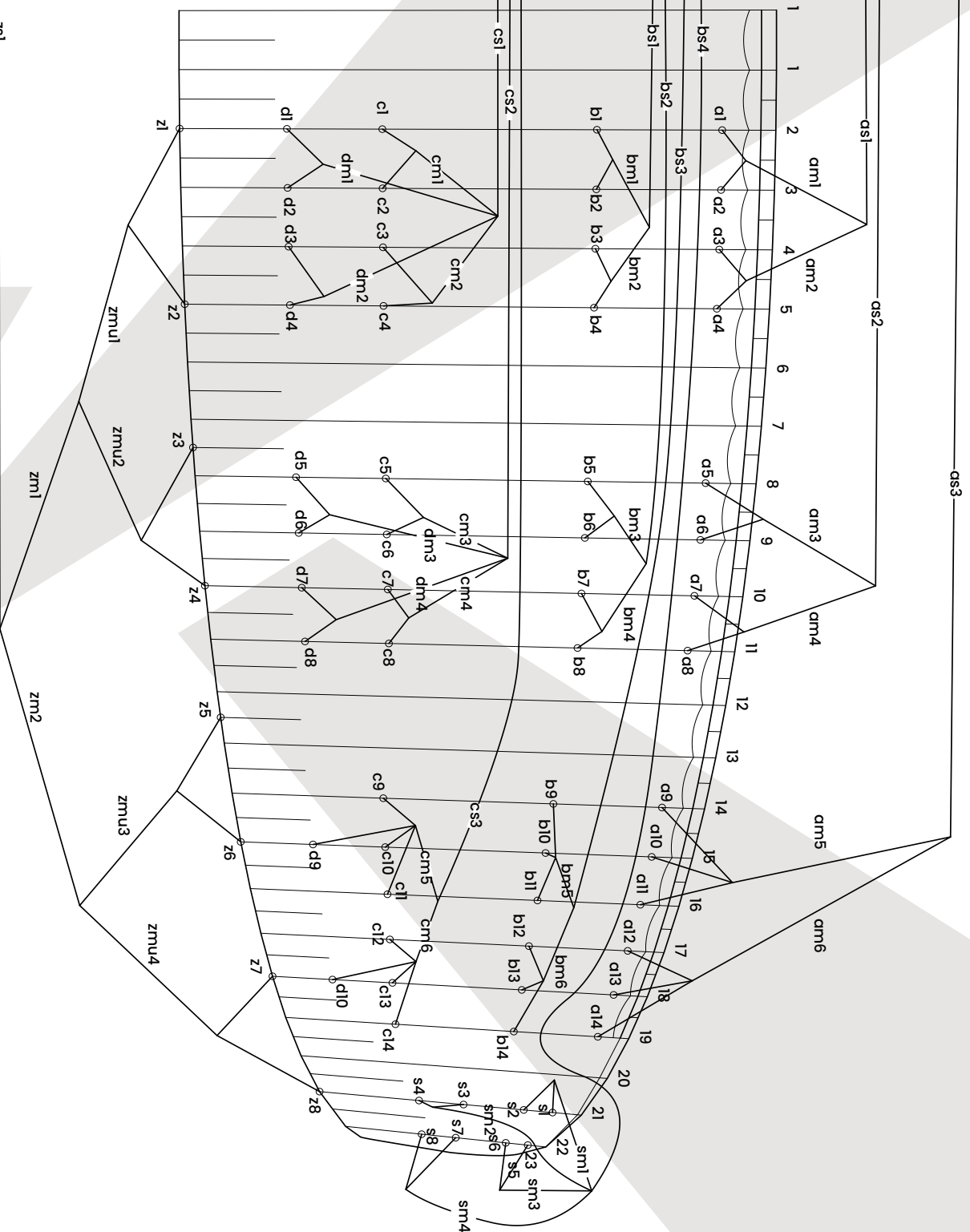
A2 Riser

AI Riser

Riser

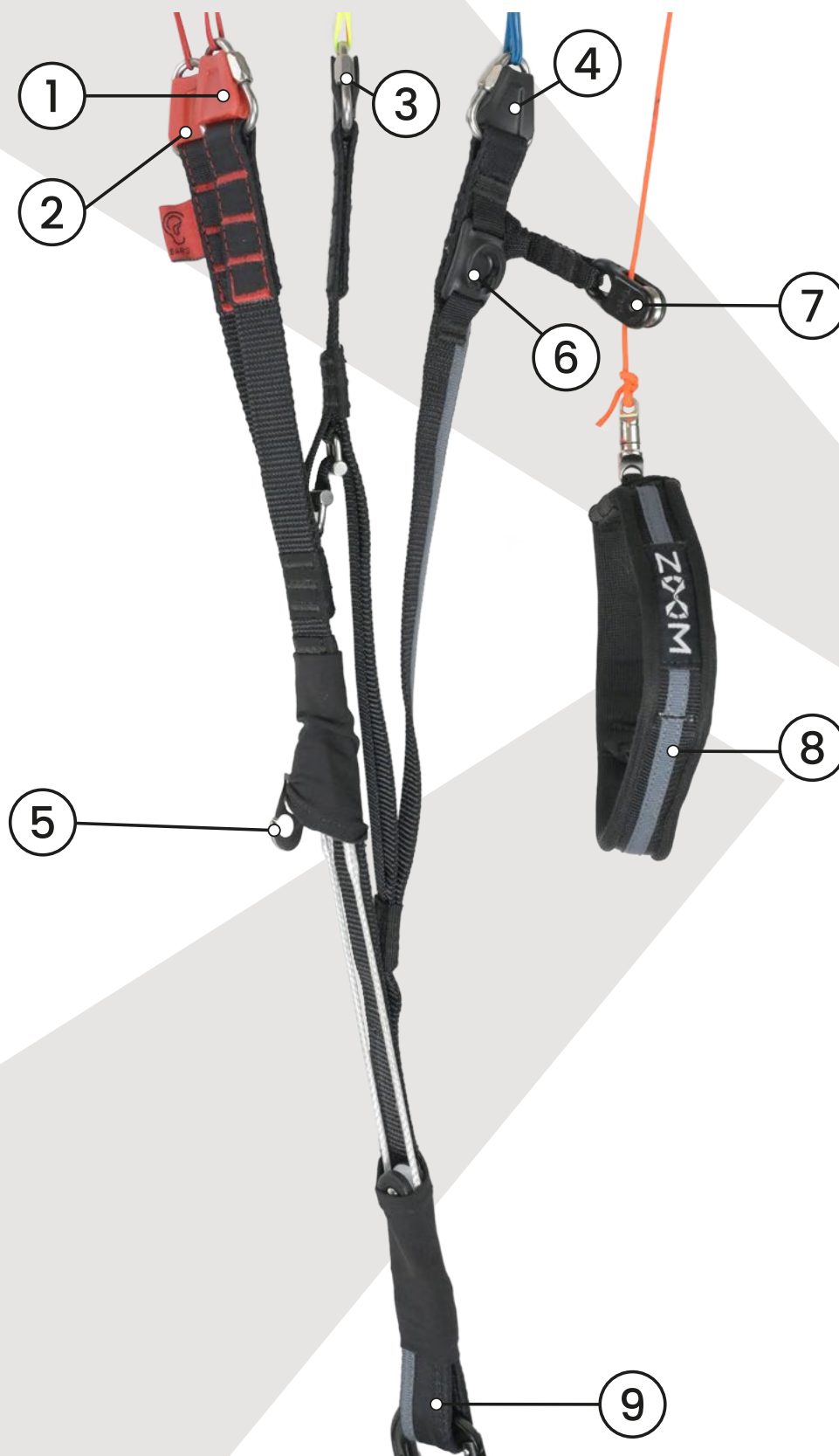
C Riser

Brake



OVERVIEW RISER

- | | | |
|-------------|-------------------|--------------------------|
| 1. A1-Riser | 4. C-Riser | 7. Brake pulley |
| 2. A2-Riser | 5. Brummelhook | 8. Brake handle |
| 3. B-Riser | 6. Fidlock-Magnet | 9. Main suspension point |



RISER LENGTH

normal:

A1: 520mm
A2: 520mm
B: 520mm
C: 520mm

accelerated

A1: 360mm
A2: 360mm
B: 413mm
C: 520mm



BRAKE HANDLE

At your XA you can change the stiffness of your brake handle. First put the leash (1) out of the tube webbing. Then you can put out the rubber tube (2). Thereafter put the leash back into the intended opening of the tube webbing



SCOPE OF DELIVERY

