



*PARAGLIDER*

Version 2.0

Date: 10.12.2014

***CORE 3***

Manual (E)

**IMPORTANT**

Swing Flugsportgeräte GmbH reserves the right to alter or add to the contents of this Manual at any time. You should therefore regularly visit our website:

[www.swing.de](http://www.swing.de)

where you will find additional information relating to your paraglider and any changes to the Manual. There is further information about the Swing website in the section “Swing on the World Wide Web”.

The date and version number of the Manual are given on the first page.

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## DEAR SWING CUSTOMER

THANK YOU FOR PURCHASING A SWING PRODUCT!

We hope that flying a Swing glider will bring you many years of enjoyment. The innovative design, first-rate materials and high quality workmanship of your paraglider set it apart from others. Your Swing paraglider was developed to comply with all of the current safety and certification requirements in Germany.

To enhance your flying enjoyment further, we recommend that you familiarise yourself with the information and instructions contained in this Manual regarding safety, equipment and service.

If you have any questions which are not answered in this Manual, please do not hesitate to contact Swing directly or your Swing dealer. Our contact details are in the Appendix.

The Swing Team



**WARNING**

**Read manual before first flight!**

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# 01 Introduction

## Manual

We recommend that you familiarise yourself with your new paraglider by reading this Manual before your first flight. This will allow you to acquaint yourself its new functions, to learn the best way to fly the paraglider in various situations, and explain how to get the best out of your paraglider.

Information in this Manual on design of the paraglider, technical data and illustrations are subject to change. We reserve the right to make changes without prior notification.

The Manual complies with the airworthiness requirements in LTF NFL II 91/09 and forms part of the certification.

There are a total of three parts to the Manual, which give the following information:

1. Manual (this document):  
Instructions on getting started and using the paraglider
2. Maintenance and Service Book (Download):  
Technical data and inspection information specific to the particular glider
3. Inspection Information (Download):  
General instructions and guidance on carrying out the regular inspection of paragliders

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## Special text



### WARNING

Sections of text headed 'Warning' indicate that there is a risk of injury.



### IMPORTANT

Sections of text headed 'Important' indicate that there is a risk of material damage.



### TIP

Sections of text headed 'Tip' give advice or tips which will make it easier to use your paraglider.

## Series of instructions

In this Manual, instructions which must be followed in a certain order are numbered consecutively.

- < Where there is a series of pictures with step-by-step instructions, each step has the same number as the corresponding picture.
- D Letters are used where there is a series of pictures in which a particular order need not be followed.

## Lists of parts

- Numbers circled in red refer to various parts of the item pictured. A list of the numbers and the part they are used to label follows the picture.

## Bullet points

Bullet points are used in the Manual for lists.

Example:

- risers
- lines

## **Paraglider Manual on the Internet**

Additional information about your paraglider and any updates to the Manual can be found on our website at [www.swing.de](http://www.swing.de).

This Manual was current at the time of going to print. This Manual can be downloaded from Swing's website prior to print.

## **Swing Flugsportgeräte and the environment**

Protection of the environment, safety and quality are the three basic values of Swing Flugsportgeräte GmbH and these have implications on everything we do. We also believe that our customers share our environmental awareness.

### **Respect for nature and the environment**

You can easily play a part in protection of the environment by practising our sport in such a way that there is no damage to nature and the areas in which we fly. Keep to marked trails, take your rubbish away with you, refrain from making unnecessary noise and respect the sensitive biological equilibrium of nature. Consideration for nature is required even at the launch site!

Paragliding is, of course, an outdoor sport – protect and preserve our planet's resources.

### **Environmentally-friendly recycling**

Swing gives consideration to the entire life cycle of its paragliders, the last stage of which is recycling in an environmentally-friendly manner. The synthetic materials used in a paraglider must be disposed of properly. If you are not able to arrange appropriate disposal, Swing will be happy to recycle the paraglider for you. Send the glider with a short note to this effect to the address given in the Appendix.

## 02 Safety



### WARNING

The safety advices and instructions contained in this Manual must be followed in all circumstances. Failure to do so shall render invalid the certification and/or result in loss of insurance cover, and could lead to serious injuries or even death.

### Safety advice

All forms of aerial sport involve certain risks. When compared with other types of aerial sport, paragliding has the lowest number of fatal accidents measured according to the number of licensed pilots.

However, few other sports demand such a high level of individual responsibility as paragliding. Prudence and risk-awareness are basic requirements for the safe practice of the sport, for the very reason that it is so easy to learn and practically anyone can do so. Carelessness and overestimating one's own abilities can quickly lead to critical situations. A reliable assessment of conditions for flying is particularly important. Paragliders are not designed to be flown in turbulent weather. Most serious accidents with paragliders are caused by pilots misjudging the weather for flying.

Paragliders themselves are extremely safe. In the type certification tests, all component parts of a paraglider must withstand eight times the load of normal flight. There is a three-fold safety margin compared to the maximum extreme load occurring in flight. This is higher than the two-fold margin usual in aviation. Accidents caused by material failure are therefore practically unheard of in paragliding.

In Germany, paragliders are subject to the guidelines for air sports equipment and must not under any circumstances be flown without a valid certification. Independent experimentation is strictly prohibited. This Manual does not replace the need to attend training at a paragliding school.

A specialist must test-fly and inspect the paraglider before your first flight. The test-flight must be recorded on the paraglider information label.

Carry out your first flight with the paraglider on a training slope. For this flight and for all other flights, you must wear an approved helmet, gloves, firm shoes with ankle-support and suitable clothing. Only fly if the wind direction, wind speed and current and forecasted weather conditions guarantee a safe flight.

The Manual must be passed on to any new owner if the paraglider is sold. It is part of the certification and belongs with the paraglider.

The Core 3 was developed and tested solely for use as a paraglider for foot-launch. Any use other than as intended is not permitted. Do not under any circumstances use the paraglider as a parachute. Acrobatics are not permitted.

Observe the other specific safety advice in the various sections of this Manual.

### Safety notices

Safety notices are issued when defects arise during use of a paraglider which could possibly also affect other gliders of the same model.

The notices contain instructions on how the affected gliders can be inspected for possible faults and the steps required to rectify them.

Swing publishes on its website any technical safety notices and airworthiness instructions which are issued in respect of Swing

products. We will also send you safety notices directly by email if you have registered your product (refer to “Product Registration” in the section “Swing on the World Wide Web”).



## WARNING

The paraglider owner is responsible for carrying out the action required by the safety notice.

Safety notices are issued by the certification agencies and also published on the relevant websites. You should therefore visit on a regular basis the safety pages of the certification agencies and keep up-to-date with new safety notices which cover any products relating to paragliding (refer to Appendix for addresses).



Services such as RSS are also available which allow internet users to follow various websites and changes to them without having to access them

individually. This allows much more information to be followed than was previously the case.

## Disclaimer, exclusion of liability and operating limits

Use of the paraglider is at the pilot’s own risk!

The manufacturer cannot be held liable for any personal injury or material damage which arises in connection with Swing paragliders. The certification and warranty shall be rendered invalid if there are changes of any kind (incl. paraglider design or changes to the brake lines beyond the permissible tolerance levels) or incorrect repairs to the glider, or if any inspections are missed (annual and 2-yearly check).

Pilots are responsible for their own safety and must ensure that the airworthiness of the glider is checked prior to every flight. The pilot should launch only if the paraglider is airworthy. In addition, when flying outside of Germany, pilots must observe the relevant regulations in each country.

The glider may only be used if the pilot has a licence which is valid for the area or is flying under the supervision of an approved flying instructor. There shall be no liability on the part of third parties, in particular the manufacturer and the dealer.

In terms of the warranty and guarantee conditions, the paraglider may not be flown if any of the following situations exists:

- the inspection period has expired, or the inspection has been carried out by the pilot him/herself or by an unauthorised inspector
- the take-off weight is not within the permissible weight range
- the glider is flown in rain or drizzle, cloud, fog and / or snow
- the canopy is wet
- there are turbulent weather conditions or wind speeds on launch higher than 2/3 of the maximum flyable airspeed of the glider (varies according to the total take-off weight)
- air temperature below -10°C and above 50°C
- the glider is used for aerobatics/extreme flying or flight manoeuvres at an angle greater than 90°
- the pilot has insufficient experience or training
- the pilot has incorrect or inadequate equipment (reserve, protection, helmet etc)
- the glider is used for winch-launching with a winch which has not been

inspected or by non-licensed pilots and/or winch operators

- there have been modifications to the canopy, lines or risers which have not been approved

## Glider categories and guidelines

The German Hanggliding and Paragliding Association (DHV) and its safety division have developed guidelines which are based on many years of analysing paraglider accidents and on the experience of flying schools, flying instructors and safety officers. These guidelines should help pilots to select the appropriate glider classification for their particular level of flying ability. The information below relates to the classification in EN/LTF-certification. There is also further information on the website of the relevant licensing body.



### WARNING

The descriptions of flight characteristics contained in this Manual are all based on experiences from the test flights, which were carried out under standardised conditions.

The classification is merely a description of the reactions to these standard tests.

The complexity of the paraglider system means that it is not possible to give any more than a partial description of the glider's flight behaviour and reactions to disturbances. Even a small alteration in individual parameters can result in flight behaviour which is markedly modified and different from the description given.

## EN/LTF certification

The Core 3 received EN-D e classification in the final classification by the licensing body.

## Description of flight characteristics

Paragliders with demanding flying characteristics and potentially violent reactions to turbulence and pilot errors. Recovery to normal flight requires precise pilot input.

## Target group and recommended flying experience

Performance pilots with extensive flying experience of at least approx. 75 hours airtime per year, who wish to fly at a top performance level in, e.g. cross-country flying.

The Core 3 is suitable for OLC and World Cup pilots who have already acquired experience in how to fly a 2-line glider and who are familiar with the characteristics and extreme flight manoeuvres for this class.

If pilots wish to fly the Core 3 but do not have a sufficient level of experience with 2-line gliders, they should take part in an instruction course.

## Instruction course

The instruction course is recommended for all pilots, particularly pilots who do not have experience flying a 2-line glider. It includes the following points:

- Equipment: instruction in technical aspects, including B-line steering, handling the rigid structures and unsheathed lines, service intervals etc.
- Extreme flight manoeuvres, Part 1: demonstration using test video of the various extreme flight manoeuvres.
- Extreme flight manoeuvres, Part 2: description of how extreme flight

manoeuvres are initiated and the correct reaction to various flight attitudes.

- Safety training: points to note if attending safety training, flight behaviour and structural stress.

### **Description of pilot skills required**

Designed for pilots well-practised in recovery techniques, who fly very actively, have significant experience of flying in turbulent conditions, and who accept the implications of flying such a wing.

In addition, pilots must be familiar with the special requirements of flying a 2-line glider.

### **Suitability for training**

The Core 3 is generally not suitable for use as a training glider.

### **CCC certification**

The Core 3 is published on the CIVL website as CCC certified glider.

It is permitted to compete in FAI Category 1 Cross Country events.

To fulfil the requirements for CCC-Paragliders, it is necessary to install the CCC - Kit for Core 3. This is available directly at SWING.

## 03 Technical Description

### General layout

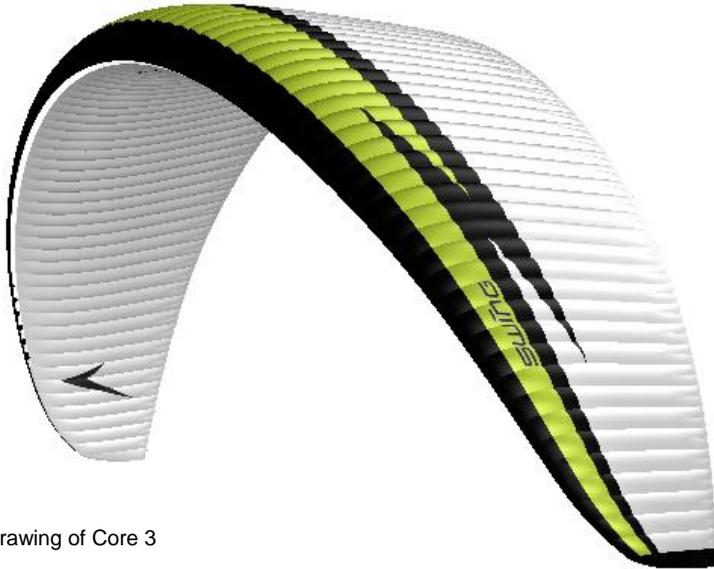


Fig. 1: CAD drawing of Core 3

### Core 3 – High end performance from Swing

One of the greatest challenges in paraglider development is to develop a competition glider which satisfies very stringent demands. It requires technical precision and capability which go right to the limits of what is feasible. With the new Core 3, our developers and designers have created a paraglider which epitomises our maxim “Powered by Passion” with a remarkable design.

The new Core 3 is based on the model being replaced, the Core 2 which, with eighteen months of testing and trialling, had one of the lengthiest development periods in the company’s history. The reason for this extensive testing was the new concept which Swing used for the first time with the Core 2: the canopy of this high-performance glider featured various rigid components and an innovative attachment system, which was generally referred to as “2 line attachment”.

This concept was continued in the Core 3. The design is a clear statement: the two-line system, unsheathed aramid lines and aerodynamically optimised components

emphasise its background – competition paragliding.

The new design gives the Core 3 a number of features with which pilots must familiarise themselves before flying the glider for the first time. Swing therefore offers a special instruction course for the Core 3 (refer to the section “Instruction Course”). The half-day course is intended for all pilots who wish to familiarise themselves with the special features of the Core 3.

This Manual also contains additional information on special aspects about flying the Core 3. We would therefore like to remind you again at this point to read this Manual carefully. It is also essential that you comply with the service intervals for the Core 3 (refer to the section “Inspection”).



### IMPORTANT

If you plan to attend safety training with the Core 3, it is essential that you take part beforehand in the special Core 3 instruction course. This will teach you about its special features, flight behaviour and structural stress.

## Line system

The Core 3 has A and B line levels, which fork twice from the bottom (riser) to the top (canopy) and which are divided into main, middle and top lines. The A-top lines also fork into a double A-attachment point. The individual line levels are connected with one another using the “handshake knot” (special hoop technology).

The Maintenance and Service book has a detailed line connection plan, showing the individual levels, connections and descriptions of the lines.

With the brake lines, the individual levels are bundled at the end with the main brake line. This runs through the brake pulley attached to the riser and is knotted at the brake swivel of the control handle. There is a mark on the main brake line which allows the control handle to be correctly positioned.

The main lines are all attached to Maillon quick links. They are fed through special elastic rings and attached to prevent the lines from slipping and to ensure that they sit in the correct position.



### IMPORTANT

The paraglider is delivered ex factory with the Maillon quick links secured using a strong thread-locking compound Loctite® to prevent unintentional opening. After service work, quick links which have been opened must be secured again against unintentional opening.



### WARNING

The service intervals for the lines given in the Maintenance and Service book must be observed under all circumstances.

The Core 3 has sheathed lines with diameters of less than 1mm. There is a risk of the lines breaking if there is improper use or if service intervals are not observed.

High-performance gliders with extremely thin line diameters are under no circumstances suitable for acro flying or radical extreme flight manoeuvres.

## Folding lines

Special folding lines were used when the Core 3 was going through certification. Without these folding lines, tucks and front stalls may vary from the EN-D guidelines.

The folding lines are in effect duplicates of the front A-risers. At the canopy, the folding lines are attached to special loops at the rear of the air inlet. At the lower end, their three main lines are attached to a special riser. This riser is longer than the normal riser for the Core 3, so that the folding lines do not affect the canopy in any way when they are not being used.

Please contact Swing if you have any questions regarding use of the folding lines and riser.

## Risers

The 12mm wide risers specially developed for the Core 3 with Kevlar reinforcement allow the pilot to use a pulley system to adjust the speed of the Core 3 to suit individual preference. There is more information on use of the speed system in the section "Flying the Core 3".

## Technical information and materials

The Maintenance and Service book has detailed technical information, including take-off weight, design information and speed range. It also includes extensive information about the canopy and line material used.

## 04 Setting up the Core 3 and test-flying

### Before the first flight



#### WARNING

A specialist must test-fly and inspect the paraglider before your first flight. The test-flight must be recorded on the paraglider information label.

During production, the Core 3 goes through several quality control checks before finally undergoing an exact type certification test. Conformity with the reference specimen is checked and certified before the glider is delivered to the customer. Extreme care is taken in the manufacture of all patterns, lines and riser lengths. They show a high level of precision and should not be altered under any circumstances.



#### WARNING

Any changes or improper repairs to this paraglider shall render invalid the certification and warranty.

### Adjusting the main brake lines

The Core 3 is delivered ex factory with a brake adjustment marked which complies with the test sample and which should not be altered. This adjustment will allow you to steer and land the paraglider almost without delay.

The main brake lines must be checked by an expert before the test flight, and must be fastened so that the mark is visible approx. 5mm above the knot.

#### Factory setting

Correctly installed brake lines have about 10cm of feed. This is how far you must pull down the brakes before the trailing edge of

the paraglider starts to move downwards and begins to brake. Note that the brake cascades already cause drag by their aerodynamic resistance.

Modern gliders such as the Core 3 have less tolerance with regard to adjustment of the brake lines. It is therefore normally not necessary to alter the length.

If you do nevertheless adjust the brakes, under no circumstances should you go above or below the tolerance levels given in the Maintenance and Service book.

#### Incorrect adjustment

If the brake lines are too long, the paraglider reacts slowly and is difficult to land. The brake lines can be adjusted during flight by wrapping them around your hands which will improve the flight characteristics. Adjust the brake lines to the correct length after you have landed. Changes to the braking distance should always be made in small increments of no more than 2 to 3cm and must be tested on a training slope. The left and right brakes must be adjusted symmetrically.

If the brakes are shortened, care must be taken that the paraglider is not slowed down in trim and accelerated flight because of the brake lines being too short. Safety issues may arise and performance and launch behaviour may deteriorate if the brake lines are shortened too much.



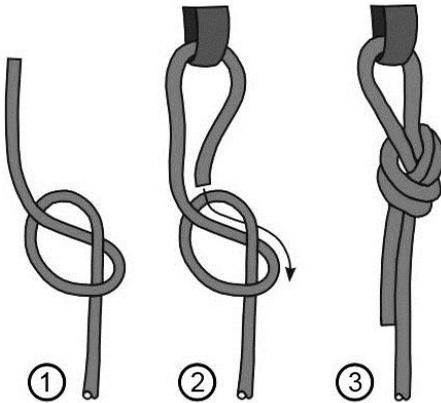
**WARNING**

If the brake lines are too short, the following risks could arise:

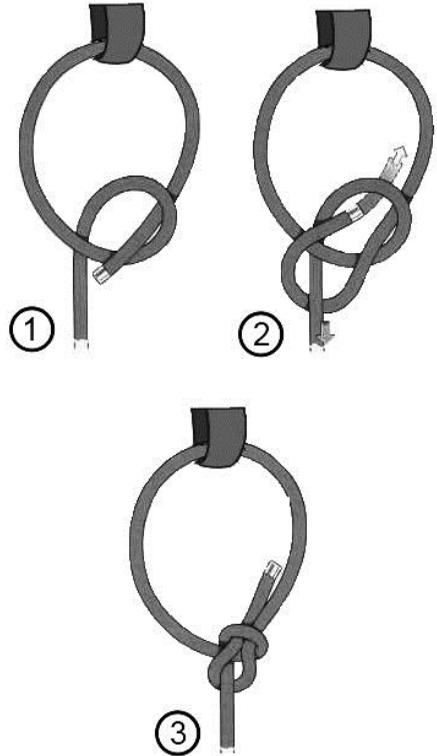
- there could be an early stall
- the paraglider does not launch well and there is a risk of deep stall
- the paraglider exhibits dangerous behaviour in extreme flying
- the trailing edge of the paraglider is braked in accelerated flight which, in an extreme case, could cause a frontal collapse

Brake knots

The overhand knot and bowline knot shown below are the most suitable for connecting the brake line to the brake handle.



**Fig. 2:** Overhand knot



**Fig. 3:** Bowline knot



**WARNING**

Loose, unsuitable or incorrectly tied brakeline knots can cause the main brake line to loosen and then lead to loss of control of the glider.

Ensure that only overhand or bowline knots are used and that they are tied correctly.

## Adjusting the brake handle

The Core 3 is fitted with Swing's Multigrip brake handles, which allows the stiffness of the grip area to be adjusted. The various options for stiffening the brake handles allow them to be adjusted to suit the pilot's particular preferences. There are 4 levels of stiffness possible using various combinations of the stiffening options. The pilot is able to choose the appropriate degree of stiffness by simply taking out or inserting the various parts.

**Fig. 4:** How to insert and remove the stiffeners into Swing's Multigrip brake handle



Multigrip brake handle on delivery with both stiffeners



To remove the stiffeners, turn the Multigrip brake handle inside out and push the two small rods out through the opening



Multigrip brake handles after removing both stiffening rods. These are the various parts:

- 1 Firm stiffening (bar)
- 2 Soft stiffening (tube)
- 3 Multigrip brake handle without stiffening
- 4 Brake swivel
- 5 Main brake line

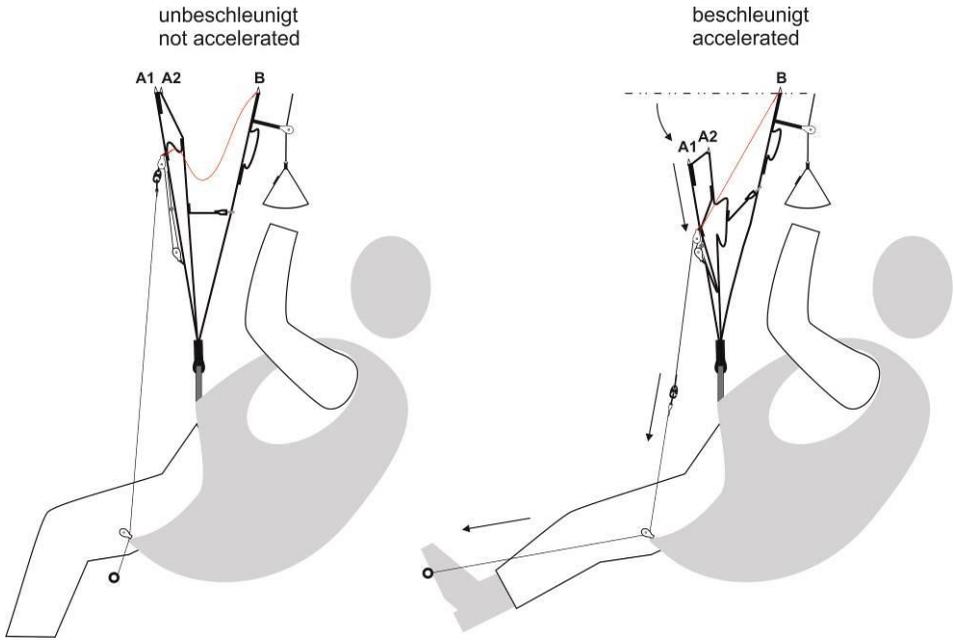
The procedure is the same to insert the stiffeners: turn the Multigrip brake handle inside out and push the two small rods into the handle again through the opening.

There is also a swivel 4 where the brake lines/brake handles connect to prevent the brake lines from twisting.

## Speed system

The Core 3 already has a high basic trim speed, but this can be increased considerably by using the additional speed system. It is particularly useful if there is a strong headwind, for valley crossings or to leave a dangerous area quickly.

The A-risers can be shortened using the speed bar. This decreases the canopy's original angle of attack and the speed of the glider increases.



**Fig. 5:** How the Core 3 speed system works

The speed system must be correctly fitted and adjusted to ensure it operates smoothly during flight. Before first launch, the length should be adjusted to suit the pilot and the speed system should be checked.

The speed bar and the riser are connected by special Brummel hooks. Adjust the length to the speed system so that your legs are fully stretched when at maximum accelerated flight (the two riser pulleys next to each other), otherwise you may experience symptoms of fatigue in long flights. You should still be in a comfortable flight position even when the speed system is used to its full extent.

You will not be able to use the paraglider's full potential if the speed system is too long.



## WARNING

Do not make the speed system too short. The glider must under no circumstances be pre-accelerated as a result of the adjustment being too short.

Problems (such as collapses or tucks) have a more drastic effect with increased speed than in unaccelerated flight. It is generally strongly recommended that you do not use the speed system in turbulent areas and when flying close to the ground, because of the increased risk of collapse.

Fasten the speed bar to the harness before launch to avoid tripping over it when preparing to launch or taking off.

## Certified Harnesses

The Core 3 can be used with any harness which has “GH” classification. There is more information about this on the licensing body websites (refer to Appendix).

Be aware when choosing a harness that the height of the attachment point affects flight behaviour. The lower the attachment point, the more agile the paraglider. The harness should also ensure that you can apply the maximum acceleration distance using the pulleys.

Be aware too that the relative braking distance can also alter with the height of the attachment point. Please contact Swing or your Swing dealer if you have any questions about using your harness with the Core 3.

## Reclined harnesses

Reclined harnesses are generally completely enclosed and often have a very low main attachment point. Active flying is very different with them than with an upright harness. To achieve the same level of efficiency and safety in flight with a reclined harness which you are accustomed to with an upright harness, you must systematically learn the appropriate techniques and gain a good deal of experience.

If any problems or disturbances are encountered when flying with a reclined harness, the pilot must immediately assume an upright seating position. Extreme flight manoeuvres flown in a reclined position drastically increase the risk of twist. In addition, pilots often underestimate the reduction in control travel caused by flying an extreme flight manoeuvre.

There is an increased risk of twist when using a reclined harness if a large section of the canopy collapses. If there is an asymmetric collapse and the pilot tips sideways, the resulting twist around the vertical axis with a poorly positioned harness leads to a reduction in control

travel. This quickly causes an unintended stall on the open side.



## WARNING

If using a reclined harness, be sure to practise in particular how to shift into an upright position so as to minimise the risk of twist.

## Reserve

It is a mandatory requirement to carry an approved reserve for use in emergency situations where the paraglider fails and recovery is not possible, for example after colliding with another aerial sports craft.

In choosing a reserve, you should be careful that you remain within the specified take-off weight. The reserve is fitted according to the manufacturer's instructions.

## Recommended weight range

The Core 3 must be flown within the permitted weight range, which is given in the Maintenance and Service book. The weight refers to take-off weight: pilot, incl. clothing, glider, harness and equipment. Determine your take-off weight by weighing yourself with all of your equipment and your backpack.

Swing offers the Core 3 in various sizes. If you are choosing between two sizes, your personal flying preferences will determine which glider to choose.

If you prefer very dynamic flight behaviour with fast reactions and without hesitation, you should choose a high wing-loading, i.e. the smaller model.

The dynamics reduce in the medium and lower weight range. Flight behaviour becomes more straightforward and many pilots select this weight range because they find it easier to centre in thermals. If these

features appeal to you, you should fly with less wing-loading and choose the larger model.

The Core 3 reacts to weight changes only by slightly increasing or reducing trim speed, with little noticeable influence on glide performance. You can therefore choose the size completely according to your own flying style.

## First flight

Carry out your first flights only during stable weather, and in a familiar area or on a training slope. You should steer gently and carefully to begin with so that you can become accustomed to the reactions of the glider without stress.



### WARNING

Do not overestimate your own abilities.  
Do not allow the paraglider category or the behaviour of other pilots to make you careless.

## 05 Flying the Core 3

The Core 3 was developed for performance and competition pilots with extensive flying experience. The basic types of flying described below should be second nature for such pilots, but have been included in this Manual for the sake of completeness.

### Laying out the paraglider and pre-flight check

Before launching, always check the following:

- Are there any tears in the glider or other damage?
- Are there any knots or tangles in the lines?
- Are the brake lines clear and attached firmly to the handle?
- Are the brake lines adjusted to the correct length?
- Are the quick links to the lines and risers closed and secured?
- Is the canopy dry?
- Are the risers and seams in good condition?
- Is the harness in good condition?
- Is the handle for the reserve chute secure?



#### TIP

A careful pre-flight check is required for any type of aircraft. Make sure that you exercise the same level of care each time carry out the check.

Place the paraglider with its upper surface against the ground and spread it out so that the leading edge is slightly curved.

Carefully sort out all the rigging lines and make sure that there are no lines underneath the canopy, tangled or caught up in any way.



#### WARNING

If there are obvious folds in the glider because it has been tightly packed or stored away for a long time, then the pilot should carry out some practice inflations before first launch and smooth out the trailing edge a little. This ensures that the flow profile is correct during launch. It is particularly important in low temperatures that the trailing edge is smoothed out.

### 5-point check

The 5-point check is carried out immediately before launch to check once again the most important safety points. It should always be carried out in the same sequence so that nothing is overlooked. The 5 points are:

1. Is personal equipment correct (harness, carabiners, reserve, helmet) and are all straps done up?
2. Is the canopy arranged in a half-moon shape and are all the air-entrances open?
3. Are all the lines untangled and are any lines under the canopy?
4. Does the weather, in particular wind direction and strength, allow a safe flight?
5. Are the airspace and launch area clear?

## Launch

We recommend a forwards launch if there is little wind. Pull up the glider with the lines stretched. It is not necessary to use any momentum to launch the Core 3 and/or to start running with slack lines.

While the glider is rising, guide the A-risers evenly upwards in an arc, without shortening them. Avoid pulling hard on the risers. The Core 3 launches very easily and is easy to control. Launching is even easier if the canopy is arranged in a half-moon shape.

The Core 3 is suitable for reverse-launching from wind speeds of 3m/s. The pilot turns around to face the glider with the updraft coming from behind. Pulling on the front lines makes the canopy start to rise above the pilot, as in a forwards launch. The pilot should turn around into the direction of flight when the canopy reaches its highest point, and can then begin to run and take off.

This method of launch makes it easier for the pilot to control the rising of the canopy and to carry out fine-tuning, so is therefore recommended in strong winds.

With a 2-line glider, the pilot must also take care that the part of the canopy behind the B-level is not caught up. If this happens, the Core 3 cannot be launched. Note also that, if there is strong wind, 2-line gliders have high dynamics during the inflation phase and can overshoot.



### TIP

The pilot must work actively to keep the glider on the ground in higher wind speeds (from approx. 6 m/s), otherwise the glider may rise above the pilot unintentionally.

## Level flight

When the brakes are open, the Core 3's flight is stable and level. The brake lines can be used to adjust the speed according to the flight situation, to ensure the optimum level of performance and safety.

The best glide speed in calm air on the Core 3 is achieved with the brakes fully open. Minimum sink is reached by pulling approx. 10 cm of brake. If the brakes are pulled more, the sink does not reduce any further, the control pressures increase noticeably and the pilot reaches minimum speed.



### IMPORTANT

Flying too slowly close to stall speed increases the risk of an unintentional asymmetric or full stall. This speed range should therefore be avoided and used only on landing.

## B-line steering

The positioning of the B-level allows the Core 3 pilot to make minor corrections and small speed adjustments using the rear B-risers. There are red grip balls attached to the risers for control.

If you make adjustments using B-line steering, keep hold of the brake handles and grasp the balls. This gives you direct control to alter the glider's angle of attack. A light pull reduces speed then, as soon as the balls are released, the glider flies at the same speed as before.



### IMPORTANT

With B-line steering, the canopy reactions are very direct and dynamic. If you do not yet have experience with this type of steering, you should first

test out the effectiveness and reactions of B-line steering in calm conditions.

B-line steering is suitable when flying in normal wind conditions. B-line steering is not recommended in strong turbulence, and normal brake input should be used.

## Turns

With the Core 3, Swing has developed a glider which reacts immediately to steering input and is extremely responsive. The Core 3 performs best in turns when it is flown with sufficient speed and weight-shifting. Too much braking increases the sink rate.

The Core 3 has minimal negative tendency, but nevertheless the glider's high aspect ratio and dynamics on tight turns and centering near slopes take some time to get used to. You should therefore maintain enough distance from slopes and observe safety margins during your first flights until you are familiar with the Core 3's steering.

If more brake is applied, the bank attitude increases and the glider will fly a fast turn increasing in steepness, which will eventually become a spiral dive (further information on this is in the section "Spiral Dive").

## Rapid descent methods

In many flying situations a very rapid descent is necessary to avoid a dangerous situation, e.g. the upcurrent from a cumulus cloud, an approaching cold front or a storm front.

The design of the Core 3 means that the B-stall and "big ears" manoeuvres are not possible. The spiral dive can be used as a rapid descent method. It should first be practised in calm conditions and at

adequate altitude so that it can then be used effectively in extreme conditions.

## Spiral dives

The spiral dive is the most effective method for making a rapid descent, and can allow sink rates of up to 20 m/s to be reached.

The high dynamics mean that you must always fly the spiral dive and recover from it actively.

### Starting the manoeuvre

Begin the spiral dive whilst flying at full speed by flying a turn which becomes tighter and tighter and by using weight-shifting to the inside (refer here to "Turns" also).

The bank angle and sink rate are controlled by carefully applying or releasing the inside brake.

Look down before and during the spiral dive to maintain a constant check on your distance from the ground.



### **IMPORTANT**

The outer wing tip may collapse during the spiral dive although this is no cause for concern. It can be avoided by lightly braking on the outside. Release the brakes carefully.

### Recovery

Recover from the spiral dive slowly and steadily over several turns. The inside brakes are gradually released. If the brakes are released too quickly, the increased speed can cause the wing to climb, become unsettled or partly collapse. Recovery can be assisted by braking lightly on the outside.



## WARNING

In the spiral dive, very high turn speeds can be reached with an increase in acceleration due to gravity (up to over 6g), so exercise care when attempting this manoeuvre. Take note of the following:

- Do not continue the spiral dive for too long: it could cause a loss of consciousness.
- Always maintain ground clearance of 150 – 200m.
- If you lose control over the flight manoeuvre and sink rate, the glider will go into a stable spiral. If this happens, immediately deploy your reserve!

Stress loading and/or loss of consciousness can occur during the spiral which make subsequent recovery impossible.

above the ground, the brake lines are pulled down as far as they will go, so that the paraglider has been fully braked just before the ground is reached.

The brakes should be applied in a more regulated manner if there is a strong headwind. Landing out of a steep turn or a rapid change of direction before landing should be avoided because of the pendulum effect caused.



## WARNING

Always fly with sufficient speed when you are near the ground (well above stall speed) to avoid an unintentional stall.

## B-stall

The design of the Core 3 means that the B-stall is not possible.

## Big Ears

The design of the Core 3 means that the “big ears” manoeuvre is not possible.

## Landing

When landing the Core 3, always allow for its high basic speed and glide. Larger landing areas are therefore recommended for your first flights so that you are able to practise the landing approach without any risk.

Prepare for landing by making a straight approach flight into the wind and allow the glider to decelerate at trim speed. At 1m

## 06 Types of use

The Core 3 was developed and tested for use solely as a paraglider for foot launch. Any use other than as intended is prohibited.

### Winch launch

The Core 3 does not have certification for winch launch.

### Motorised flight

The Core 3 does not have certification for use in motorised flight.

### Tandem paragliding

The Core 3 does not have certification for use in tandem paragliding.

### Aerobatics

In Germany, it is prohibited to perform aerobatics using a paraglider, which under German law is included under the term “aerial sports equipment” - *Luftsportgerät*. Aerobatics is defined as flight manoeuvres at an angle greater than 135° along the longitudinal (roll) axis or lateral (pitch) axis.

The Core 3 was not developed or tested for aerobatic use.



### WARNING

Any type of acrobatic manoeuvre at all on the Core 3 is contrary to law and illegal. The pilot would be putting his/her life at risk. Acrobatics involves a risk of unpredictable flight attitudes, which could lead to damage to material and structural failure.

## 07 Dangerous situations and extreme flying

### Dangerous situations

Pilot error, extreme wind conditions or turbulence which goes unnoticed by the pilot for too long may leave the wing in an unusual flying position, requiring special reaction and skills on the part of the pilot. The best way to learn how to react calmly and correctly in a serious situation is to attend safety training, where you will learn how to manage extreme situations under the guidance of a professional.

Ground-training is another safe and effective method of familiarising yourself with your glider's reactions. Launch can be practised, as can small flying manoeuvres, such as stall, asymmetric collapse, front stall etc.

Any pilot who flies in turbulent conditions or who makes an error in handling the glider is at risk of getting into an extreme situation. All of the extreme flight figures and flight attitudes described here are dangerous if they are carried out with inadequate knowledge, without the right safety altitude or without training.



### WARNING

Always keep within the recommended limits. Avoid aerobatics and extreme loading such as spirals and big ears. This will prevent accidents and avoid over-loading the glider.

In turbulent conditions, always keep enough distance from rock faces and other obstacles. Time and sufficient altitude are needed to recover from extreme situations.

Deploy your reserve if the corrective manoeuvres described in the following

sections do not return the glider to a controllable flying position or if there is not enough altitude for correction.

### Safety training

If you plan to attend a safety training (SIV) course with the Core 3, it is essential that you take part beforehand in the special Core 3 instruction course. This will teach you about the Core 3's special features, flight behaviour and structural stress.

The Core 3 is optimised for competition paragliding and is intended only for professional pilots who are able to demonstrate above-average experience in safety training. The Core 3 is under no circumstances suitable for a pilot's first experience with safety training.

Special folding lines were used for certification of the Core 3 (refer here also to the section "Folding lines"). Without these folding lines, tucks and front stalls may vary from the EN-D guidelines.

### Material stress and damage

SWING advises against subjecting the materials of the Core 3 to excessive stress during a safety training course.

Uncontrolled flight positions can occur during safety training, which are outside the manufacturer's limits for the paraglider and which can put the glider under excessive stress.

Trimming the line lengths and canopy material after safety training can lead to a general deterioration in flight characteristics. Damage as a result of safety training is not covered by the warranty.

## Collapsing the paraglider

### Asymmetric collapse

Asymmetric collapses are caused by the stagnation point moving to the trailing edge of the glider. A negative angle of attack makes part of the canopy collapse and tuck under, and the glider may plunge down, turn away or spin.

#### Recovery

Should an asymmetric collapse occur, counter-brake slightly on the side of the glider that is still inflated to stop it turning away and to stabilise it, until the glider flies straight ahead again. With large asymmetric collapses, it is important to counter-steer carefully so that the glider does not stall completely and go into a full stall. After an asymmetric collapse, first control the direction and fly away from the slope.

If you are not able to stop the glider turning, without causing the inflated side to stall, allow the glider to turn slightly while you open the collapse.

Counter-steering and weight-shifting are generally enough to re-inflate the collapsed part of the glider.

If the collapsed part does not open automatically or does not open completely, re-inflation can be assisted by applying light brake pressure on the collapsed side (but not hectic “pumping”) while counter-steering on the opposite side. Make use of the full braking distance, but be careful not to stall the glider on one side.



### WARNING

Counter-steering too strongly on the inflated side of the glider can result in a stall and to further uncontrolled flight manoeuvres (cascade of events).

### Asymmetric collapse with tangling

Following a very large collapse, the wing-tip of the collapsed side may become trapped in the glider lines. Here too counter-braking and weight-shifting must be used to stop the glider from turning away. The trapped end can generally be opened by a short, fast pull on the brake lines.

If this does not release the trapped side, pull the red stabilo line as far as possible. This will often correct a tangle. More serious tangles require more pull on the stabilo line. Always pay attention to your use of the brakes when doing this and do not allow the glider to stall on the open side.

If the tangle has not come free after several attempts, you still have the option to open it like a deep stall or a full stall. These flight manoeuvres always require adequate altitude and a high level of pilot skill.



### WARNING

Deploy your reserve if the corrective manoeuvres described in the following sections do not return the glider to a controllable flying position or if there is not enough altitude for correction.

### Front stall

A negative angle of attack can also cause part or all of the leading edge of the glider to collapse.

#### Recovery

The Core 3 will normally recover automatically from a front stall, but re-inflation can be assisted by rapid, light symmetrical brake input on both sides. This also prevents the wing tips moving forwards during the front stall. In the case of extreme front stalls across the entire wing chord, the wing tips may move forward. Stop the glider

forming a U-shape by timely and energetic use of the brakes. There is a risk that the wingtips will become tangled if they touch each other.

## Types of stall

When a paraglider flies through the air, a laminar and turbulent boundary layer is created. Extremely dangerous flight configurations can result if the laminar boundary layer is interrupted, with practically the entire airflow along the top surface braking away. This happens in particular when the angle of attack is too great.

There are three different types of stall in paragliding.



### IMPORTANT

Full stall and spin are manoeuvres which can be fatal if recovery is not correct. These manoeuvres should therefore be avoided. However, it is important to learn how to recognise the indications that a glider is about to stall so that you can take immediate action to prevent it.

### Deep stall

Paragliders can go into a deep stall for a variety of reasons: brake lines too short (no slack), old or damaged glider material which therefore has increased level of permeability, altered trim/line length and changes to profile characteristics caused by moisture (e.g. flying in rain). Paragliders have a particular tendency to stall if the wing-loading is too low.

In a deep stall, the airflow from the front reduces and the glider goes into a stable flight attitude without forward momentum. The paraglider sinks almost vertically at 4-

5m/s and there is noticeably less flight noise.

### Recovery

Remain in an upright position and push the A-risers in the direction you are flying, so as to shorten them by 5-10cm.

If you have a speed system, you can also use it to accelerate, so that the glider goes into a normal flying position from the deep stall.

After you have landed, the glider and the length of the lines must be checked.

### Full stall

The full stall happens when the wing partially deflates and loses its arched shape. It is triggered when the maximum possible angle of attack is exceeded. The most common cause is going below the minimum speed or flying near the minimum speed combined with the effects of turbulence.

In full stall, the paraglider loses its forwards travel, surges backwards and deflates. If the brakes are held down, the canopy comes up over the pilot again. The result is an almost vertical descent with a sink rate of approx. 8m/s.

### Recovery

Because of the Core 3's high aspect ratio, during a stall the wing-tips tuck and move behind the canopy. They return to their original position when the brakes are released. Slowly release the brakes, making sure that this is done symmetrically. As soon as the glider is completely open above the pilot, the brakes are released.

As this is done, the canopy accelerates forwards dynamically and picks up speed. Do not brake too soon (otherwise it could go into a full stall again), and be careful to avoid a front stall by making sure that it does not shoot too far forwards.

**WARNING**

If the canopy has gone back during the full stall, the brakes must be held down, otherwise the canopy may surge forward and, in an extreme case, end up underneath the pilot. Hold the brakes down until the canopy is above you again.

**Spin**

The spin is a stable flight attitude, in which one side of the canopy stalls, while the other side continues to fly forward. The glider turns around the stalled side of the wing.

Recovery

To recover from the spin, the pilot must quickly release the brakes. The stalled side of the wing will then speed up again. Depending on recovery and the dynamic of the circular motion, one side of the canopy may shoot forwards and suffer an asymmetric collapse. If the pilot suspects that the glider has unintentionally been put into a spin, the brake which has been pulled down too far must be released immediately.

**IMPORTANT**

If the spin does not stop, check whether you have released the brakes fully!

**Emergency steering**

If for some reason the brake lines are not working, e.g. if the knot on the brake handle has come undone or a brake line is defective, the Core 3 can also be steered and landed using the rear risers (there is further information on this in the section on “B-Line steering”). In this case, stall happens more quickly and the pilot must

compensate for the changed flight behaviour by pulling carefully on the risers.

**Other tips for dangerous situations****Stalling in rain**

In general, there are two reasons why a paraglider may go into deep stall in rain:

1. The first risk lies in the fact that the canopy weight increases if a glider is flown in rain for any length of time. The centre of gravity and angle of attack then shift, which can result in airflow separation/stall. It is relevant here that if a glider absorbs more water (as older gliders do because they lose their water-repellent coating over time) and is closer to the deep stall limit because of its design and age, less water absorption and thus weight increase will put the glider into deep stall.
2. When it is raining, there can be so many water droplets on the top surface of a glider that almost the entire upper surface is affected but, even so, the drops “bead” so the surface is not wet through. This makes the top surface so “rough” in texture from the drop formation that the airflow over the top of the wing separates from the surface. This phenomenon has been known for some time from hang-gliding and gliding. With new gliders, the droplets are absorbed less quickly by the fabric. Thus, the newer a glider is, the greater the number of droplets caught on the top surface and the bigger those droplets are, the greater the risk that there could be airflow separation. We were able to recreate these conditions by practical tests and computer simulations, but they occur very rarely.

It is the case in both of the above situations that the control travel and braking distance first reduce and then the deep stall is

caused, mostly by alteration of the brake travel or angle of attack, e.g. by a gust or thermal.



## WARNING

Flying in extremely humid weather or in rain is outside of the operating limits of the glider. If you are not able to avoid flying in rain, please observe the following:

- it is advisable to fly with slight acceleration during and after the rain (min. 30% or more)
- use no brake input or as little as possible
- control travel reduces
- avoid tight turns, especially in the final approach. If conditions allow, you should also fly slightly accelerated in this phase
- avoid large angles of attack and the possible early stall near the ground (release the speed bar only slowly)

## Advertising and adhesives

Always make sure before attaching advertising to the glider that the adhesive planned will not alter the glider's flight behaviour. If you are in doubt, we recommend that you do not attach the adhesive.



## IMPORTANT

Attaching adhesives to the glider which are large, heavy, or made of unsuitable material may result in revocation of the certification.

## Overloading

The glider structure is put under high levels of strain in particular on extreme flight manoeuvres, rapid descent methods (spiral dives) or prohibited aerobatic manoeuvres. They considerably accelerate the aging process of the structure and should therefore be avoided.

The glider must be inspected earlier than is usually the case if it has been put under more than the usual degree of strain.

## Sand and salt air

In many cases, sand and salt air cause the lines and fabric to age much more rapidly. If you often fly near the sea, the glider should be inspected more frequently than normally required.

## Temperature range

Temperatures under  $-10\text{ }^{\circ}\text{C}$  and over  $+50\text{ }^{\circ}\text{C}$  can make the paraglider unfit to fly. The manufacturer's warranty will lapse if the glider is used outside of this temperature range.

## 08 Storing and looking after the paraglider

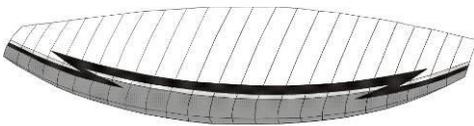
### Storing the paraglider

#### Packing the paraglider

It is very important to pack the glider carefully in order to ensure the longevity of the leading edge reinforcements. Fold up the Core 3 as shown in the diagrams below. The leading edge reinforcements (Mylar and Rigid-System) on the front edge are placed on top of each other to avoid bending or misshaping them. This method of packing ensures that the leading edge is treated carefully, which will increase the glider's life, performance and launch behaviour.

If the reinforcements have been bent or misshapen, they distort more easily during flight, creating an altered air inflow which can lead to a loss in performance and changes in flight behaviour.

The leading edge reinforcements also perform an important function on launch. Therefore, the less they have been bent, the more easily the glider will inflate and launch.

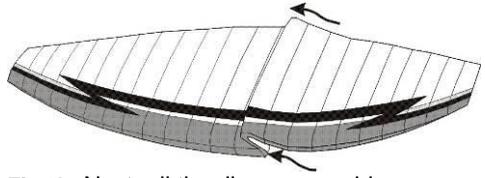


**Fig 6a:** Spread out the paraglider completely on a smooth surface

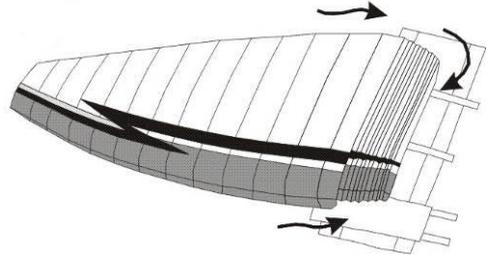


#### IMPORTANT

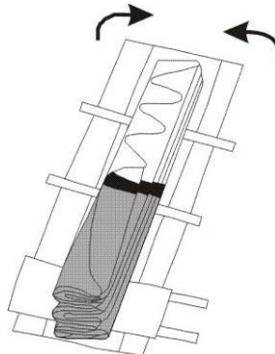
Do not drag the paraglider across any rough surfaces such as gravel or asphalt. This may damage the seams and surface coating.



**Fig 6b:** Next, all the ribs on one side are placed one on top of one another, so that the leading edges are not bent.



**Fig 6c:** Now place the internal protection bag provided underneath the section of glider which has been folded together, and turn it around 90°, so that the ribs are all lying along the length of the protection bag. Then continue as in the second step, placing the leading edges one on top of the next until you reach the tip of the glider.



**Fig 6d:** The glider is now folded up along its length, and the leading edges are on top of each other without having being bent.

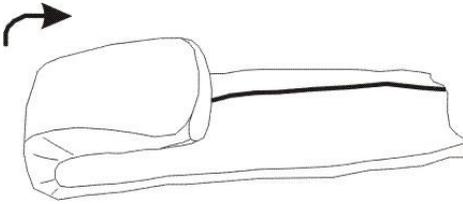
Fasten the Velcro straps near the leading edges, so that they do not slip, and the two straps in the middle and at the end of the glider.



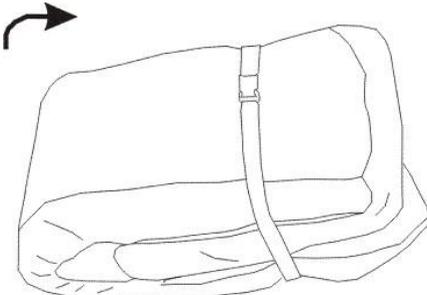
**TIP**

Make sure that the leading edge reinforcements lie flat and are not bent or twisted by doing up the Velcro too tightly.

Next, do up the zip, making sure that none of the lines or fabric is caught in the zip.



**Fig 6e:** Fold up the glider along its length, with the first fold below the leading edge reinforcements. Pay particular care not to bend any of the rigid reinforcements!



**Fig 6f:** Fold the glider again. Then place the compression strap around the glider and fasten it by pulling gently. Make sure that the glider is only loosely folded and is not bent or compressed excessively.

**Storing and transporting the glider**

Even if your paraglider was completely dry when it was packed up after the final flight of the season, for long-term storage you should if possible take it out of the backpack and spread out the canopy a little in a clean, dry place away from direct light. If you do not have the space to do this, then open the backpack, internal bag and belt as much as possible and avoid compressing it. It must be stored at a temperature between 10° and 25° C and in relative humidity between 50 and 75%. Make sure too that the paraglider is not stored in a place where animals such as mice or cats could use it as a place to sleep.

Do not store the paraglider near any chemicals. Petrol, for example, causes the material to disintegrate and can cause considerable damage to your paraglider. When your equipment is in the car boot, keep it as far away as possible from any spare petrol cans or oil containers.

The Core 3 should not be exposed to extreme heat (e.g. in the boot of the car during summer). The heat may cause any moisture present to be pressed through the fabric, thereby damaging the coating. High temperatures accelerate the process of hydrolysis, particularly when combined with moisture, which damages fibres and coating. Do not store your paraglider near radiators or other heat sources.

Always transport your glider in the special inner bag and use the backpack provided for the rest of the equipment.

## Looking after the paraglider

### Fabric

Swing uses a specially developed polyamide fabric for the Core 3 which has a high-quality coating for improved UV resistance, colour fastness and air permeability. This fabric undergoes rigorous laboratory tests and was tested for several months under extreme conditions and heavy use in flight.

Care is essential to ensure that the fabric and glider remain durable and retain their qualities. The glider should therefore be protected from unnecessary UV light. Do not unpack your glider until immediately before flight and pack it up straight after landing. Modern paraglider fabrics have better protection against the sun, but UV rays in particular are still one of the decisive factors in how the fabric ages. The colours will fade first and then the coating and fibres will begin to age.

When the Core 3 is manufactured, the side of the fabric with the coating is kept to the inside. This provides relatively good protection from damage for the coating which is of key importance to the fabric's features. When choosing a place to launch, try to find somewhere which is smooth and free of stones and sharp objects.

Do not stand on the glider. This weakens the fabric, especially if it is on a hard or stony surface. Pay attention to the behaviour of spectators at the launch site, especially children: do not hesitate to draw their attention to the sensitive nature of the fabric.

When you are packing up your glider, make sure that there are no insects trapped inside. Many insects produce acids when they decompose, which can cause holes in the fabric. Grasshoppers make holes by biting through the fabric and also excrete a dark liquid which stains. Keep animals away

when you are packing up. Insects are not attracted by any particular colours, contrary to what is commonly believed.

If the glider gets wet or damp, it should be dried as soon as possible in a well-ventilated room (but out of the sun). It may take several days before the canopy has dried completely because the fibres absorb water. Mould may form if the paraglider is stored wet and the fibres may rot, particularly when it is warm. This can make the paraglider unsuitable for flying within a short time.

A brand-new glider will often be compressed when delivered. This is solely for the initial delivery and the glider should not be compressed in such a way again. Do not pack your glider too tightly after use and, even though it is very comfortable, never sit on the backpack with the glider inside.

If salt water gets on the glider, it should be rinsed immediately in fresh water (refer to the section "Cleaning").

### Lines

The Core 3 has various different high-quality and accurately manufactured lines which have been selected according to the load and area of use. You should also protect the lines from unnecessary UV light because, as with the fabric, UV light in particular will weaken the lines.

Dyneema lines, which are used in the area of the main brake lines, for example, are very temperature-sensitive and can be permanently damaged at temperatures above 75° C. Therefore your glider should never be stored in a hot car especially during summer.

Be careful that there is no abrasion caused to the coating on the lines by rubbing, particularly when ground-training with crossed risers.

Do not walk on the lines after the glider has been spread out and watch out for spectators or skiers who may inadvertently go over the lines.

When you are packing up the glider, be careful to avoid putting any unnecessary kinks in the lines and use only the overhand knot or bowline knots described for the brake lines.

## Rigid construction

Various forms of plastic rod are used in the Core 3 (rigid construction), which create the leading edge's shape and the canopy's stability.

To ensure that the plastic rods keep their shape, it is important that you pack the glider as described in the section "Packing the paraglider".

The plastic rods on the Core 3 can all be replaced through small pockets. If you notice that a plastic rod has been damaged or misshapen because of incorrect use, this can be replaced by Swing or a Swing-authorized workshop.

## Cleaning

If you do have to clean the glider, use only lukewarm fresh water and a soft sponge. Use a weak soap solution for stubborn stains, and then rinse it out carefully and thoroughly. Leave the glider to dry in a place which is well-ventilated and in the shade.



### IMPORTANT

Do not under any circumstances use chemicals, brushes, rough cloths, high-pressure cleaners or steamers to clean the glider, as these can damage the fabric coating and weaken it. The glider becomes porous and loses braking

strength.

Do not under any circumstances put the glider in the washing machine. Even if washing powder is not used, the glider would be badly damaged by the mechanical action of the machine. Do not put the canopy into a swimming pool - chlorine will damage the fabric. If you have no choice but to rinse the glider, e.g. following a landing in the sea, gently wash it down inside and out with fresh water. Frequent rinsing accelerates the aging process.

## 09 Repairs, Inspections and Warranty

### Type designation

Swing paragliders have an exact identification on the underside of the stabilo lines or on the centre rib, which is obligatory for all paragliders. The information required is set out in the airworthiness requirements.

It is helpful to provide the type designation of the paraglider if you are contacting your Swing dealer with any queries or ordering replacement parts or accessories, to ensure accurate identification.

### Repairs

#### Swing workshops

All repairs and servicing should be carried out by a Swing-authorized workshop or directly by Swing. Swing workshops have trained staff, original Swing parts and the necessary know-how, all of which will ensure top quality.

#### Small repairs to the glider

You can repair small tears in the wing yourself using self-adhesive sail material, provided that the tears are in places which do not bear heavy loads, are not at the seams and are no bigger than 3cm. Replacement lines for the Core 3 can be ordered direct from us online at:

[www.swing.de](http://www.swing.de) → Service → Line service

### Regular inspections

The following parts and materials must be inspected regularly for damage, abrasion and correct operation, e.g. after landing:

- Risers and quick-links
- Lines
- Fabric

#### Lines

Measuring the length of the lines is part of the regular paraglider inspection. The lines must be measured with a load of 5kg, in order to ensure reproducible results for a comparison with the lengths in the check sheets. The line lengths for the Core 3 are listed in the Maintenance and Service book.

The lines have a considerable influence on flight behaviour. Correct line length and symmetry are also important for performance and handling. Swing therefore recommends an inspection every 50 to 100 hours or once a year.

Lines age and lose strength even if the paraglider is used infrequently or not at all. This can affect the safety and function of your paraglider. Signs of wear are slight bumps or changes in flying characteristics. The lines must then be replaced immediately. Use only inspected and approved lines, which can be obtained through Swing.



#### IMPORTANT

A damaged line can result in loss of control of the glider. Always replace lines which are damaged.

If you need to replace damaged or worn-out parts, use only original parts or approved parts from the manufacturer.



## WARNING

Do not under any circumstances use knots to shorten the lines. Any knot will weaken the line considerably and may cause the line to break in case of high load.

The overhand knot and bowline knots described are permitted only for connecting the main brake lines/brake handle.

## Inspection

### General

Swing's service programme as set out in the Maintenance and Service book should be followed so that the same high level of flight safety, operational safety and reliability is ensured for your glider in the future as well.



## IMPORTANT

Read the Maintenance and Service book and follow the terms therein to ensure the validity of Swing's warranty, the glider's certification and insurance cover.

Failure to observe the inspection periods shall render invalid the certification and warranty. A properly completed logbook with details of all flying and training will help you to comply with these periods.

There is additional information on inspections in two separate booklets, both of which form part of this Manual:

1. Inspection information (required only in Germany and Austria), and
2. Maintenance and Service book (one booklet for each size and model).

These can be downloaded from our website at:

[www.swing.de](http://www.swing.de) → Products → Core 3

### Inspection periods

In Germany, Swing gliders must be inspected as follows (check the situation in your country):

- A) Gliders used by schools, EN-D 2-line gliders and tandem gliders (if used commercially) must be inspected (the same as the 2-yearly check) every 12 months from the purchase date.
- B) Gliders for personal use and tandem gliders (not used commercially) must be inspected every two years from the purchase date.
- C) The glider must be inspected after 100 hours of use (including ground handling) if this occurs prior to the period given in A) and B) above.

Ground handling time must be at least doubled when calculating the total hours of use because of the increased wear and tear on the glider.

### Validity of inspection

It is very important that your glider is serviced at the required intervals throughout its entire life. In order to benefit from Swing's warranty:

- you must have your paraglider inspected by Swing or an inspection agent authorised by Swing
- the documentation and the result of the inspection must be clearly identifiable (date and place / name of the inspector) and be entered near the glider information/certification sticker.

## Inspection by the pilot

Under § 14 para. 5 of the German Aeronautical Products Investigation Order (LuftGerPV), pilots in Germany are able to carry out the inspections themselves or appoint a third party to do so (e.g. manufacturer/importer), provided that the requirements are all fulfilled. However, if this is done, the liability and warranty of Swing Flugsportgeräte GmbH will lapse.

The DHV recommends that inspection is carried out by the manufacturer/importer or by an inspection agent authorised by it and approved by the DHV.

or other Swing product must be sent to Swing Flugsportgeräte GmbH for inspection.

Swing generally includes all email addresses provided in warranty cards in its distribution list. If you only wish to register for the warranty and do not wish to receive any further safety and information email messages, please do not give your email address on the warranty card.

## Warranty

Swing's warranty is a comprehensive service package, which fulfils high standards for customer service and customer care. The terms of the warranty are in the enclosed warranty card. You must register your paraglider or other Swing product in order to be able to rely on the warranty. You are able to complete the warranty card and post it to Swing or register quickly and easily online. Go to the Swing website:

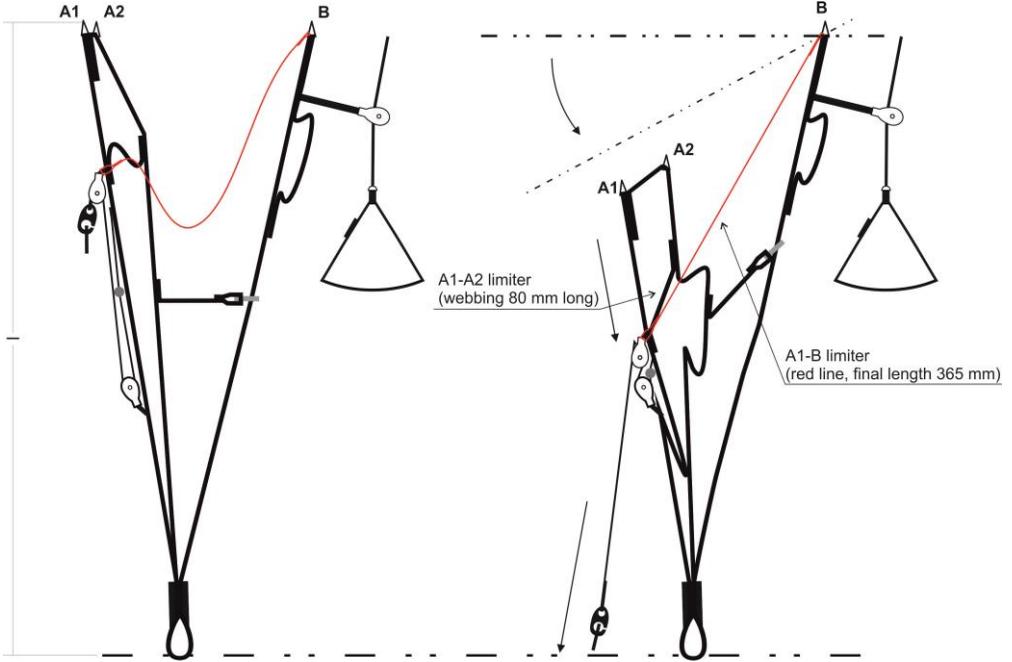
[www.swing.de](http://www.swing.de) → Service → Online warranty

Complete the registration within 14 days after purchasing the paraglider. If this is done online, you will receive a confirmation email. If you do not have an email address, enter 'info@swing.de' in the mandatory field. Registrations by post or without a personal email address will be recorded by Swing but will not receive confirmation. We therefore recommend that you register online with an email address.

The manufacturer must be notified immediately of any defects in the product, variations or changes in flight behaviour and any warranty claims. If necessary, the glider

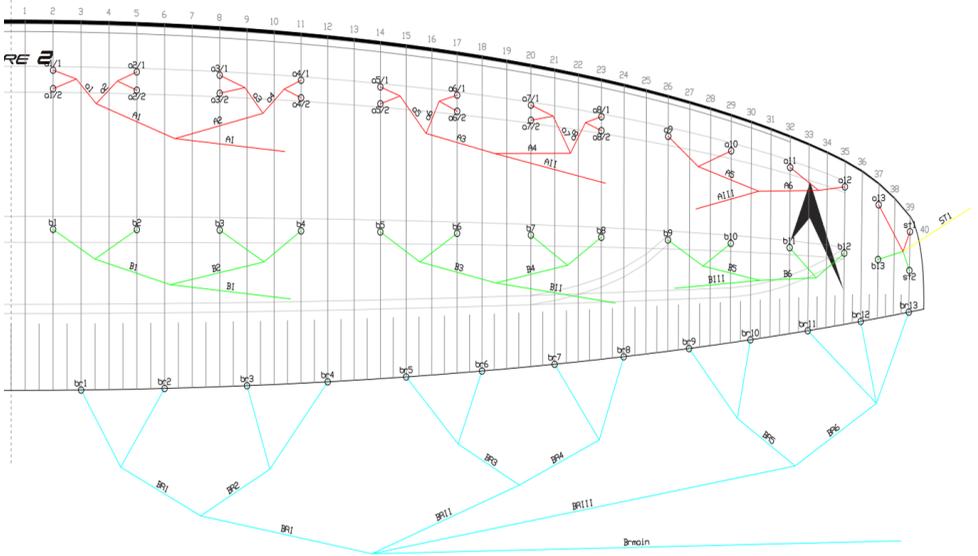
# 10 CCC - Documentation

## Riser Drawing



Riser length									
from bottom riser to top maillon on each branche	A1	A2	B			calculate d $\Delta t$	Tension	Manual tolerances	Attachment rod diameter in mm
Neutral	545	545	545			0	5KG	+/-5mm	10
<b>Full speed setting</b>									
A1-B	125							+/-5mm	
A2-B	90							+/-5mm	
Total Speed Range	125							+/-5mm	

## Glider drawing and line plan



## Measurement file Core 3.22

Absolute line length from bottom riser to canopy							
LINED RIB NUMBER	Aa	Ab	B		BRAKES	Tension	Manual tolerance s
1	7945	7915	7920		8110	5KG	+/-10mm
2	7825	7800	7805		7930	5KG	+/-10mm
3	7790	7765	7770		7805	5KG	+/-10mm
4	7850	7825	7835		7820	5KG	+/-10mm
5	7785	7760	7770		7665	5KG	+/-10mm
6	7680	7660	7670		7560	5KG	+/-10mm
7	7640	7620	7635		7525	5KG	+/-10mm
8	7675	7660	7670		7565	5KG	+/-10mm
9	7530		7530		7450	5KG	+/-10mm
10	7405		7405		7335	5KG	+/-10mm
11	7320		7315		7250	5KG	+/-10mm
12	7290		7275		7200	5KG	+/-10mm
13	7090		7085		7255	5KG	+/-10mm
14			6980			5KG	+/-10mm
15			7040			5KG	+/-10mm
16						5KG	+/-10mm

## Measurement file Core 3.23

Absolute line length from bottom riser to canopy									
LINED RIB NUMBER	Aa	Ab	B			BRAKES	Tension	Manual tolerance s	
1	8105	8075	8080			8280	5KG	+/-10mm	
2	7980	7950	7955			8090	5KG	+/-10mm	
3	7935	7905	7910			7955	5KG	+/-10mm	
4	7980	7955	7965			7955	5KG	+/-10mm	
5	7895	7870	7885			7780	5KG	+/-10mm	
6	7775	7755	7770			7665	5KG	+/-10mm	
7	7735	7715	7730			7625	5KG	+/-10mm	
8	7775	7765	7775			7680	5KG	+/-10mm	
9	7630		7630			7560	5KG	+/-10mm	
10	7500		7495			7435	5KG	+/-10mm	
11	7405		7400			7350	5KG	+/-10mm	
12	7390		7380			7315	5KG	+/-10mm	
13	7190		7190			7405	5KG	+/-10mm	
14			7100				5KG	+/-10mm	
15			7155				5KG	+/-10mm	
16							5KG	+/-10mm	

## Measurement file Core 3.24

Absolute line length from bottom riser to canopy									
LINED RIB NUMBER	Aa	Ab	B			BRAKES	Tension	Manual tolerance s	
1	8295	8265	8270			8470	5KG	+/-10mm	
2	8175	8145	8150			8285	5KG	+/-10mm	
3	8140	8110	8115			8160	5KG	+/-10mm	
4	8195	8170	8180			8175	5KG	+/-10mm	
5	8130	8105	8120			8020	5KG	+/-10mm	
6	8025	8000	8015			7910	5KG	+/-10mm	
7	7985	7960	7975			7875	5KG	+/-10mm	
8	8015	8000	8015			7915	5KG	+/-10mm	
9	7870		7865			7795	5KG	+/-10mm	
10	7740		7735			7680	5KG	+/-10mm	
11	7650		7645			7585	5KG	+/-10mm	
12	7615		7600			7530	5KG	+/-10mm	
13	7405		7405			7585	5KG	+/-10mm	
14			7295				5KG	+/-10mm	
15			7350				5KG	+/-10mm	
16							5KG	+/-10mm	

## 11 Swing on the World Wide Web

### Swing website

Swing has a comprehensive website, which provides additional information about the Core 3 and many other issues related to paragliding. Swing's website is the first port of call for Swing's worldwide following:

**[www.swing.de](http://www.swing.de)**

On Swing's website, you will find an extensive range of accessories for your paraglider, useful products for pilots, as well as additional information and accessories for your Core 3.

You will also find links there to other services and websites:

- Product registration
- Swing's Online Shop
- Facebook, Twitter & youtube

These websites and their content are provided for your use. The content of Swing's websites has been made available for your use on an "as is" and "as available" basis. Swing reserves the right to alter the websites at any time or to block access to them.

### Product registration

Registration of Swing paragliders is easy and gives you many advantages. In addition to important safety notices, you will receive advance information about, e.g. new products, upgrades, events and special offers.

Registration is a prerequisite for a valid warranty (refer here also to the section "Warranty"). In addition, Swing sends any safety notices and information for the

registered product immediately to the email address submitted. Your email address will not be provided to any third parties.

### Swing-Online Shop



At Swing's Online Shop you are able to obtain directly from Swing the full range of paraglider accessories, clothing and accessories and reserves. It is easy to place an online order and payment is made by credit card or Paypal.

### Facebook, Twitter & youtube



Swing is very active with the new media of Facebook, Twitter and youtube and has various websites which are updated daily on various topics related to aviation and Swing products.

### Paragliding

[www.facebook.com/pages/Swing.Paragliders](http://www.facebook.com/pages/Swing.Paragliders)  
<http://twitter.com/swingparaglider>

### Speedgliding

[www.facebook.com/SwingSpeedflyingTeam](http://www.facebook.com/SwingSpeedflyingTeam)  
<http://twitter.com/SSTSpitfire>

### Swing TV



On Swing TV, Swing puts official video footage and footage by pilots, under these categories:

- Paragliding
- Speedflying
- Accessories
- Video footage by pilots

[www.youtube.com/user/SwingParagliders#p/a/u/0/1\\_T7QrzaEtU](http://www.youtube.com/user/SwingParagliders#p/a/u/0/1_T7QrzaEtU)

# 11 Appendix

## Addresses

### Swing Flugsportgeräte GmbH

An der Leiten 4  
82290 Landsberied  
Germany  
Tel.: +49 (0) 8141 3277 - 888  
Fax: +49 (0) 8141 3277 - 870  
Email: info@swing.de  
www.swing.de

### Paraglider recycling

Swing Flugsportgeräte GmbH  
- Recycling Service -  
An der Leiten 4  
82290 Landsberied  
Germany

### DHV

Miesbacher Str. 2  
Postfach 88  
83701 Gmund am Tegernsee  
Germany  
Tel.: +49 (0) 8022 9675 - 0  
Fax: +49 (0) 8022 9675 - 99  
Email: dhv@dhv.de  
www.dhv.de

### EAPR

European Academy of Parachute Rigging  
Marktstr. 11  
87730 Bad Grönenbach  
Germany  
Tel: +49 (0) 8334 - 534470  
Fax: +49 (0) 8334 - 534469  
Email: info@para-academy.eu  
www.para-academy.eu

### DULV

Mühlweg 9  
71577 Großerlach-Morbach  
Germany  
Tel.: +49 (0) 7192 93014 - 0  
Email: info@dulv.de  
www.dulv.de

## Versions

### Version 2.0

Date: 10.12.2014  
Second version of the Instruction Manual

## Glider details

<b>Model:</b>	<b>Size:</b>	<b>Colour:</b>	<b>Serial number:</b>
Core 3			Co3 __/__/ - __/__/ - __/__/

Check flight (date):                    \_\_/\_\_/ - \_\_/\_\_/ 201\_\_

Mark and signature: \_\_\_\_\_

## Pilot details / Proof of ownership

### 1. Owner

Name:

Address:

Phone:

Email:

### 2. Owner

Name:

Address:

Phone:

Email:

### 3. Owner

Name:

Address:

Phone:

Email:





