FLYSURFER

USER MANUAL VMG²

EN

CONTENT

01 SAFETY NOTES

Read the entire Gear Guide online thouroughly before using the kite, and strictly confirm to the procedures noted. T**he following safety guidelines are only guidelines and do not claim to cover every instance.**

01. Kitesurfing is a **potentially dangerous sport**, that holds **risks for the athlete or the people surrounding them**. Incorrect use of this product may result in **serious injury or even death** for the user or third parties. Every user should be qualified by a FLYSURFER kiteschool or a FLYSURFER dealer.

02. The user carries the **sole responsibility** for themselves and third parties when using this product. The user must check their equipment for wear, especially wearing parts, before each kite session. Do a test activation of your quick release before every launch. This will ensure the system is working and reinforces the release instinct of the kiter.

03. The product may **only be used with original spare parts**, and may not be modified.

04. This product has been designed for riders weighing 50-110kg. We cannot guarantee the proper functioning of the product outside of this weight range.

05. Never kite in unsuitable conditions such as storm fronts, lightning, or offshore winds. Check the weather and wind conditions carefully and choose the according kite size.

06. Check out the kiting spot beforehand. Make sure you are aware of any risks such as obstacles, shallows, currents and bans. Also be aware if a rescue craft can get to you in case of an emergency. It is always best to ask people (locals) who know the area well.

07. Keep a safety margin of at least two line-lengths downwind of you, and never kite near people or obstacles. Kiting near powerlines, roads, airports, cliffs, etc. is extremely dangerous.

08. Make sure that someone is looking out for you and that help is there if you need it. Never go out alone. Never kite further away from shore than you can swim back.

09. The incorrect usage of lines creates a high risk of injury for yourself as well as others. Body parts that get caught in the lines of the kite may suffer from severe injury or burns.

10. Only use bars with a safety system that you can open in emergency situations. Use a quick-release kite leash so that you can disconnect your body from the product in case of an unforeseeable emergency.

01.01 Do not fly with kites

A kite is not designed, tested or licensed as an aircraft or flying device. The use of a kite as a flying device is illegal and not covered by insurance. **Flying** with this product **can lead to death!**

02 OVERVIEW OF THE KITE

02.01 Description & rider requirements

The VMG is specially designed for the requirements of Hydrofoil-Racing competitions. Developed with the technological know-how of our R&D team and the intense experience of our athletes. The new profile, the line geometry and FLYSURFER's innovative Speed Mode, which makes it possible to control the angle of attack in turbulent air at high speeds, make the VMG undisputedly the most potent race-competition kite available!

02.02 Features

Two Level Design (A, B)
The first competition kite with a two-level bridle design in the history of kite sports. The low-stretch Edelrid Kevlar-bridle reduces drag to a minimum and activates the VMG's incredible upwind performance. The innovative kite changes its angle of attack in a highly efficient manner in contrast to the conventional change of the profile camber over the Z level. The result: the best angle at maximum speed on the racetrack.

Rigid Airfoil
The 2-level design requires a particularly rigid wing to perfectly support the reduced scale. The top sail of the VMG is additionally reinforced by glass fiber rods integrated into the rib construction. The rods are protected at the ends and can be exchanged. The VMG hardly deforms, the flow is clean and it has a high level of calm in the air, which constantly instills confidence to push the limit.

Speed mode
The VMG is controlled by a pulley on each wing side and has no mixer, the feeling is unique. The holding forces increase continuously with the force development of the kite, which enables particularly precise feedback at the bar, as if you had the entire surface of the kite in your hand. The profile only changes its angle of attack and gives you access to an enormous wind range, the ratio of power to depower is phenomenal.

High Performance Construction (HPC)
The VMG gets a special material mix: Inelastic Skytex32 on the leading edge, proven X-Light top and bottom sail as the best combination of weight and robustness and to support the inner structure, TX-Light hard finish rib material. The use of these high quality materials enables a very rigid wing and particularly low deformation from the center to the wing tips. The bridle lines therefore change very homogeneously, which has a positive effect on the stretching and shrinking of the construction, and the maintenance time is significantly reduced.

1 High-End Performance Bridle
The Kevlar lines have a special UV Protec coating to increase UV resistance and dirt and water resistance. In addition, they have excellent resilience, good resistance to kinking and bending and very good splice properties.

2 Integrated Fiberglass Rods
The flexible fiberglass rods are matched to the wing depth and sewn into pockets. They can be reordered and exchanged per kit size. After a hard crash, FLYSURFER recommends checking the bags and rods for damage.

3 Maintenance
The VMG does not have a mixer, it is recommended to check the bar setup regularly before the competition. FLYSURFER recommends shortening the back lines of all sizes up to 5cm.

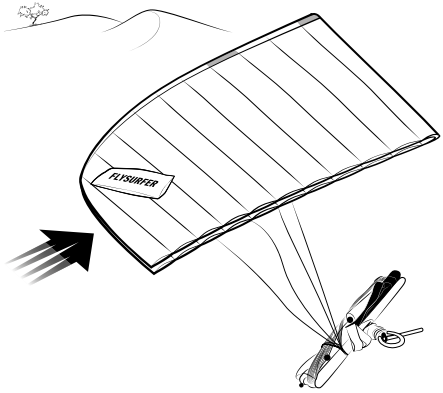
4 LCL & ADS
The Little Connection Lines (LCL) serve as a predetermined breaking point, can be used to trim the bridle and facilitate the exchange of individual lines. The automatic drainage system (ADS) is an important component for the self-rescue and the water relaunch.

03 HANDLING

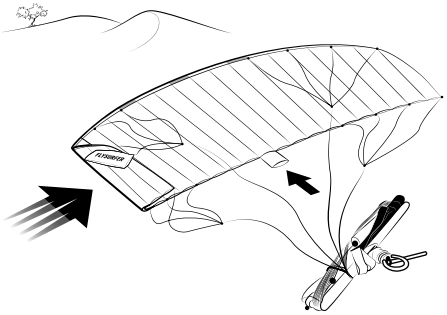
A kite needs to be secured properly even if the wind is light. A runaway kite can be a serious danger to people or animals downwind. To ensure a long lifespan of your kite, we recommend that you do not leave the kite flapping in the wind and sun for long periods.

03.01 Setting Up a Foilkite

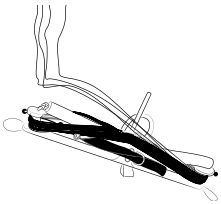
❶ Place the kite in front of you and roll it out leewards. First hold the tips and secure them with a weight adapted to the wind strength at the front edge (e.g. a sandbag). Place the bridle lines and the bar towards the rear edge away from the kite.



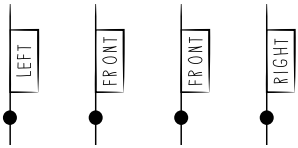
❷ Open the kite and if necessary, close the deflate valves.



❸ Check your bridle for tangles. Make sure that the bridle lines are firmly attached to the LCL's, that no damage has occured and none of the lines are caught around the leading edge of the kite.



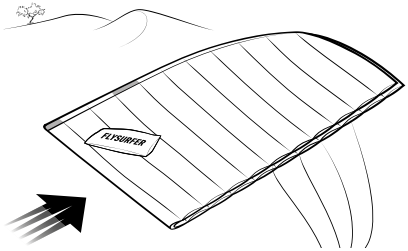
❹ When the bridle is sorted out, lay the front lines to the inside and the steering lines to the outside.



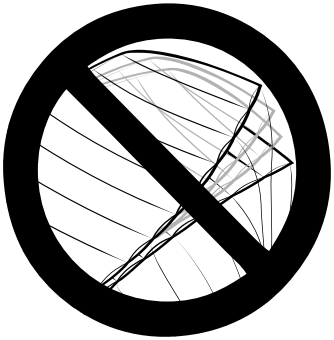
❺ Ensure your flying lines are connected correctly and clear of any potential hazards. Check for any damage or knots. Attach the front lines and steering lines of your control bar to the kite.

03.02 Securing a Foilkite

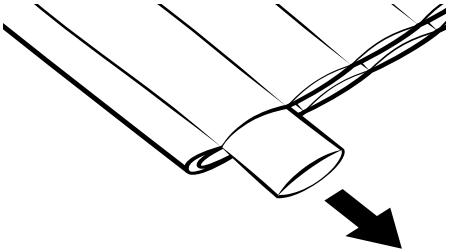
❶ Fold your kite in the middle and let the tips flow out downwind. The bottom sail and the bridle will be facing inwards. Weigh down the kite in the front third and on the tips of the topsail. This method prevents the tips from flapping in the wind. Opening the deflate valve(s) can also help.



❷ Make sure that the tips are not flapping too much. This can lead to the bridle tangling. The tips can be additionally secured with a bit of sand or other suitable object.



❸ Open the deflate valves. A deflated kite will flap around on the ground less.



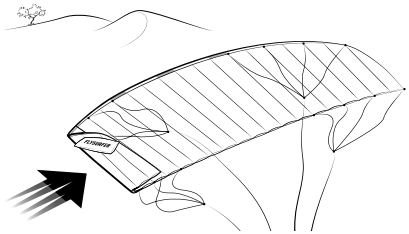
Tip: *We recommend packing the kite during a longer break and storing it in your bag.*

04 LAUNCHING

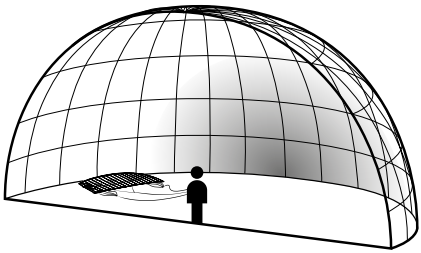
Please check not only the wind and weather conditions but also all your equipment, especially the safety system before launching. Do not use any kite outside of its recommended upper wind range. When launching in strong winds, we recommend that you have an assistant holding you from the back of your harness. During the launch, always pay attention that your bridle lines do not get caught on anything or become tangled.

04.01 Self launching a Foilkite at the edge of the wind window

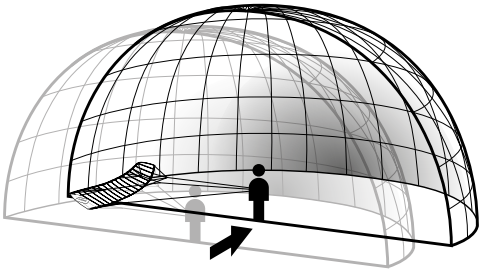
❶ Lay the kite out 90° to the wind. Fold over the windward wingtip and secure it near the leading edge.



❷ Pre-inflate the kite at least half way, for more control during the launch. The kite should be positioned 15-30° downwind of you when you slowly tension the lines for launch.

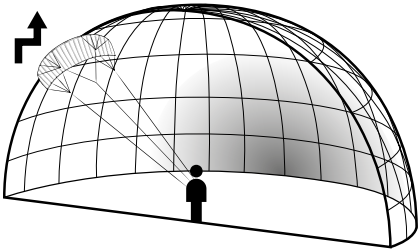


❸ Walk upwind a bit as the kite inflates.



❹ Pay attention that the downwind wingtip does not fold over upwind.

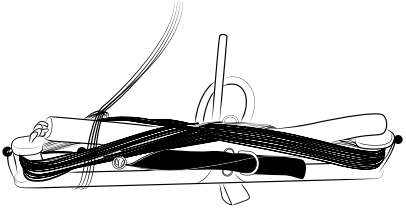
❺ Release the kite from the sand or object securing it with a step backwards away from the kite and carefully steer it.



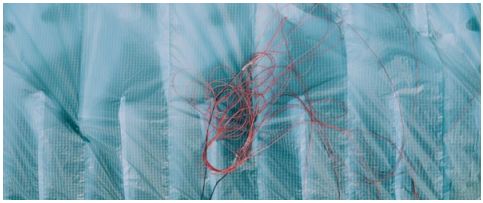
Tip: *You can prevent the lines getting caught around the bottom wingtip by folding over the tip once more and securing the second fold with e.g. sand.*

04.02 Sorting the bridle

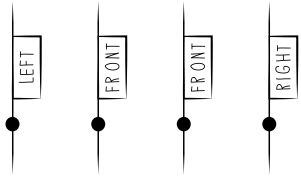
❶ Even a badly tangled bridle can be quickly sorted out with the right technique.



❷ If the bridle is tangled, lines from one side of the bridle may be running through the lines on the other side. Undo any loops, knots or bunches that may have formed.



❸ Lightly tension up the bridle again to check it. If necessary, repeat the last step till the left and right bridles are separated.



05 FLIGHT TECHNIQUES AND CHARACTERISTICS

Flight feeling on the water
The feedback from the VMG increases proportionally with the power you generate. This makes it very a predictable kite even in turbulent conditions, the VMG continuously gains forward speed. The depower is very efficient and provides the necessary security, the turning radius is large. FLYSURFER recommends pulling large radii during a jibe and keeping the line tension steady during maneuvers.

Flying the kite on the beach
The VMG gives hardly any bar feedback when you are not in motion or while it sits in the zenith. FLYSURFER recommends active flying of the kite or parking it at the zenith to avoid flying overhead in light wind. Shortening the back lines of your control bar by ~ 5cm supports this technique.

Body drag
Hold your VMG as close to the zenith as possible to prevent the wingtips from rolling. Especially in light wind, always keep your steering lines on tension. As soon as the kite is flown in the recommended wind range, there are no special handling techniques required.

Waterstart
The VMG must be sent into the opposite soft zone of your starting direction by using the steering lines. Make sure that the wingtips remain open and let the kite shoot through the power zone into your starting direction. Downlooping will not lead to a successful water start due to its large turning radius.

Relaunch
The rigid construction of the VMG makes it difficult to relaunch the kite. With the leading edge pointing towards the water, the kite tends to be better restarted by using two steering lines. If the VMG is used in marginal wind, it must be laid onto the upper sail and pulled up by using on steering line. We recommend our tutorial to master this technique.

05.01 Technische Daten

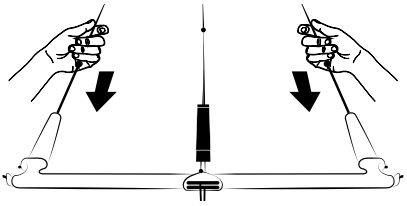
VMG²	8	9	10	11	13
Area (projected)	6.80	7.65	8.50	9.35	11.05
Aspect Ratio	6.60	6.65	6.70	6.75	6.80
Cells	55	55	55	55	55
Flat Wing Span (cm)	715	761	805	848	925
Weight = canopy + complete bridle + mixer (kg)	1.84	2.00	2.14	2.30	2.60
Recommended barsize (cm)	55	55	55	55	55

VMG²	15	18	21	23
Area (projected)	12.75	15.30	17.85	19.55
Aspect Ratio	7.00	7.20	7.30	7.40
Cells	63	63	63	63
Flat Wing Span (cm)	1009	1122	1221	1286
Weight = canopy + complete bridle + mixer (kg)	2.76	3.18	3.58	3.86
Recommended barsize	55	55	55	55

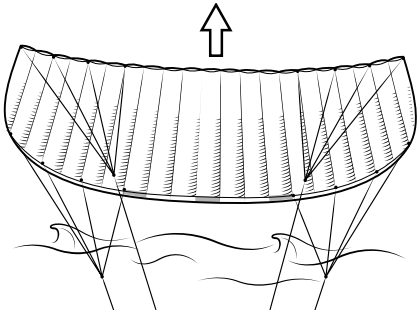
06 RELAUNCH

06.01 Reverse Launch

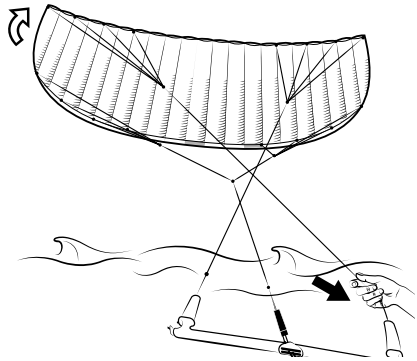
❶ Grab the leader lines above the floaters as high up as you can. Make sure that the bar is the right way up. Do not cross over your hands.



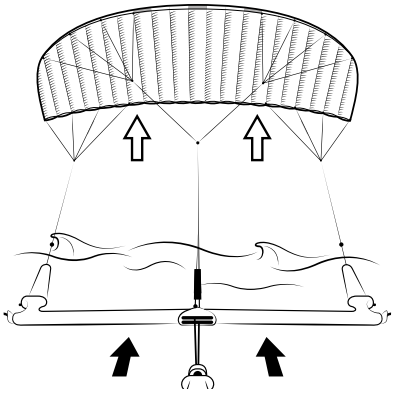
❷ Pull in both leader-lines as far towards yourself as possible to reverse the kite off the water. Strong pulls or pumping the lines may help in light winds. If the kite does not release from the water, grab the leader lines higher up.



❸ When the kite is at least one wingspan above the water, let go of one of the leader lines. Make sure you keep hold of the other one and the bar is in the right position.

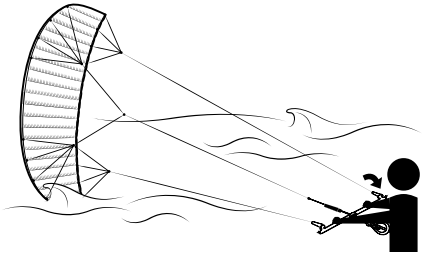


❹ The kite will now spin around. As soon as the leading edge of the kite points up let go of the remaining leader line and put your hand back on the bar. Depower the kite till its back in the sky towards the zenith.

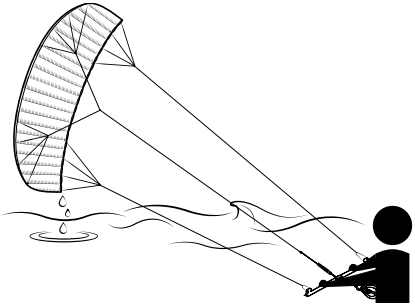


06.02 Drainage

❶ The drainage system ensures that water or dirt are automatically removed from the kite. The kite has to be turned upright onto its side. Try to achieve this by pulling on one steering line. Try to prevent the upper wingtip from collapsing.



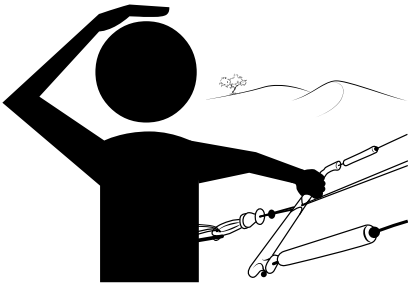
❷ The excessive water/dirt should now flow out of the tip until it is ready to be launched again.



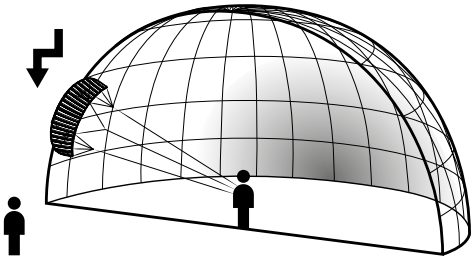
07 LANDING

07.01 Landing with an assistant

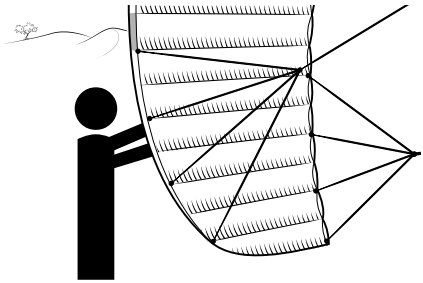
❶ The easiest and safest way to land your kite is with the help of an assistant. Signal a helper who knows how to land your kite, that you want to land. The helper should be standing well upwind of the kite.



❷ Lower the kite towards the helper along the edge of the wind window. Hold the kite slightly powered to avoid undercutting the lower wing half.

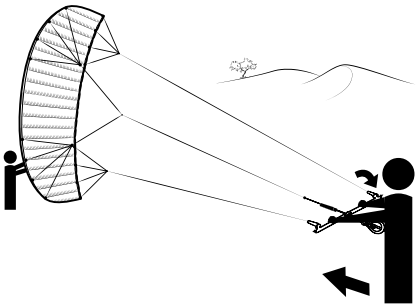


❸ The helper can now approach the kite and grab hold of the leading edge of the kite.



!!! ***Warning:*** *The helper should never grab any lines.*

❹ As soon as the helper has the kite securely in their hands, walk towards them until all flying lines are no longer under tension. This way the kite will flag out downwind of the helper.

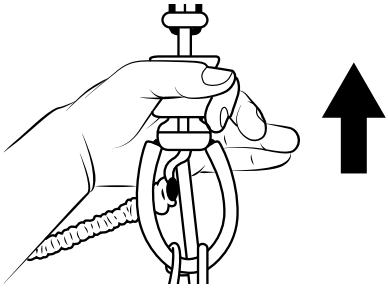


❺ Secure the kite as described in "Securing the Kite".

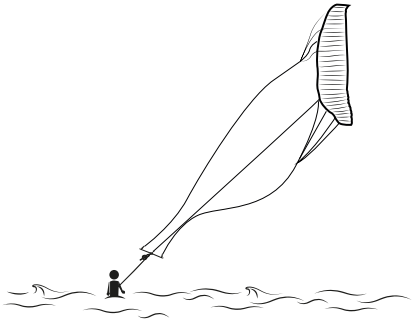
Warning: *Landing without helpers is not recommended due to the special construction of the VMG and can lead to damage!*

08 SAFETY SYSTEM

❶ The kites are designed to work with the FrontLine Safety (FLS) system. After you activate your quick release, the control bar will slide up until it reaches the Mixer.



❷ The kite will flag out on this single front line.

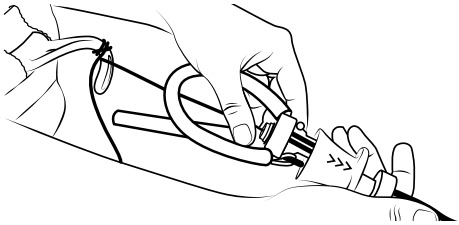


08.01 Reactivating the kite

After triggering it, it is possible to reassemble the Quick Release while on the water and start the kite again.

We recommend reading our Bar Safety Guide in detail!

❶ Work your way up the safety line until you get to the control bar. When you reach the bar, secure the safety line to your harness hook. Now the quick release can be reset with both hands.



❷ Hook in the chickenloop and secure it with the chickendick. Slowly release the safety line bit by bit. Make sure that it has not wrapped itself around any part of your body. Do not let the safety line slip too quickly through your fingers to avoid getting burns or cuts.

Note: *Reactivating the VMG is very unlikely.*

09 EMERGENCIES

In an emergency situation it is important not to panic, and to react purposefully and goal orientated.

*Especially in very gusty conditions **the kite can overfly its pilot**. This can be corrected by powering up the kite by pulling the bar towards you or pulling in the leader lines (red and green). It is also possible to counter the kite's overflying, or get it back into the wind window by flying it back and forth.*

Should the center of the kite collapse towards the pilot (e.g frontstall) it is important to activate the quick release before it opens again, as the kite can develop a lot of power when it opens again in the wind-window.

*A **backwards flying kite (backstall)** can be recovered by depowering (pushing the bar towards the kite). In very light winds you can grab hold of the adjuster and give short effective pulls to accelerate the kite.*

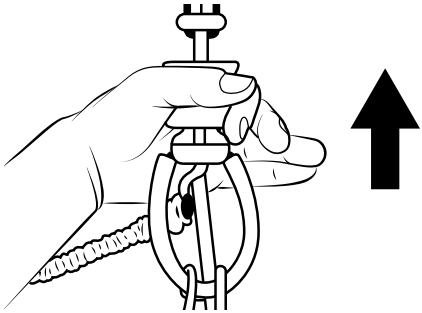
If one is in danger of drifting away from the shore with an un-relaunchable kite, then it may be prudent to abandon the kite and swim back to shore if possible. Otherwise it is wise to stay with your kite, as it will make you easier to spot for rescuers.

***Caution:** It is very easy to get caught up in the bridle lines that are floating around. Avoid unnecessary swimming movements. A line knife in your harness is a very useful tool in a worst case scenario.*

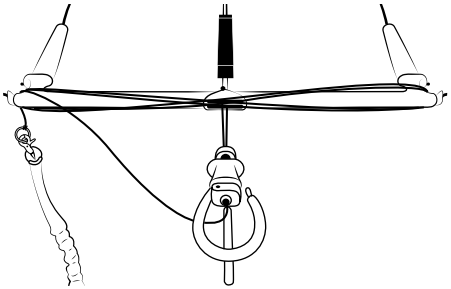
09.01 Self-Rescue with a Foilkite

Packing down in deep water is only recommended for experienced kiters and should be practiced beforehand.

❶ Activate the quick release.

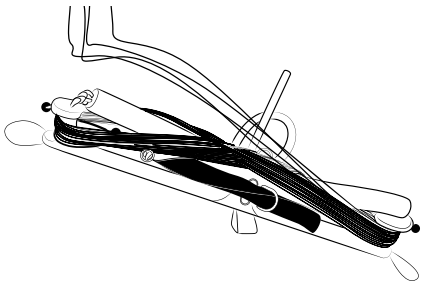


❷ Work your way up the safety endline to the control bar. Wind the loose endline round the bottom of the bar in a figure of 8.

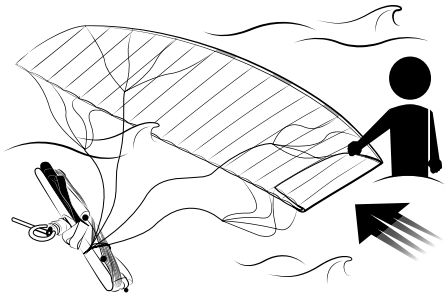


***Tip:** The flagged out kite can be pulled behind you on the safety leash when swimming back. However, this needs a lot of strength and is only recommended for very short distances.*

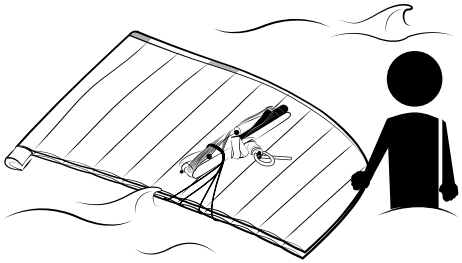
❸ Now roll the flying lines onto the bar and secure them with the bungies or even better using a half hitch.



❹ Grab the kite.



❺ Lay the tips on top of each other, and then the bar on top and roll up the kite. Be careful with the bridle lines and stow them as best you can within the two halves of the kite when rolling it up. You can open the deflate valves to make rolling it up easier.

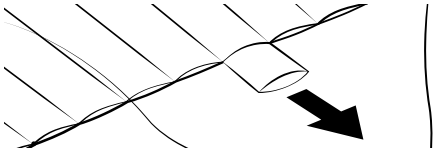


10 PACKING UP

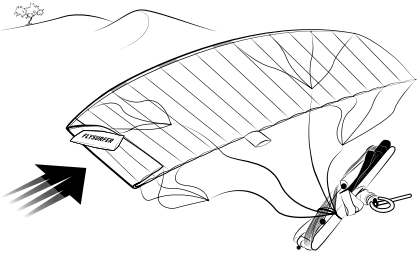
A FLYSURFER kite can be packed into its bag very quickly. It is important that the bridle is securely packed inside the kite.

10.01 Packing up – wingtip on wingtip

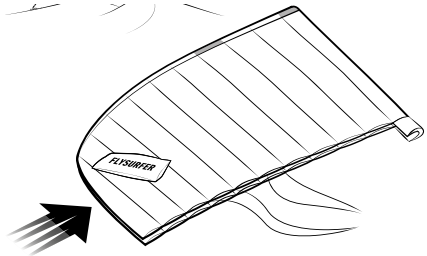
❶ Open the deflate valve.



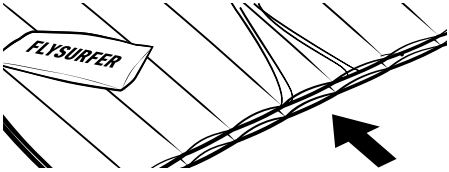
❷ Wind the lines round the bar until you get to the mixer. Secure the lines with the elastics or a half hitch. Disconnect the flying lines of the control bar from the kite.



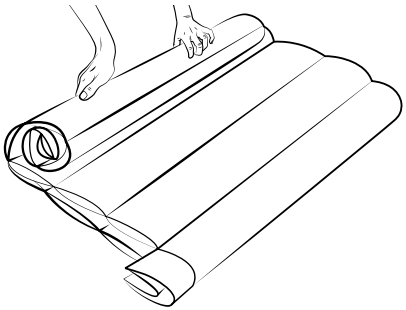
❸ Fold the kite in half along the middle (tip on tip) and make sure that the bridle lines are on the inside. Also make sure that there are no bridle lines folded over the topsail.



❹ Throw the bridle lines in between the folded kite.



❺ Make sure that no sharp objects on the beach damage the cloth. Roll the kite with the wing halves on top of each other from end to middle.

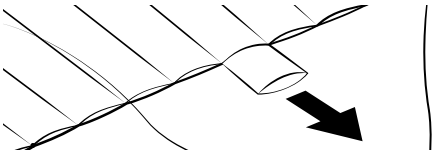


Warning: *Do not fold the kite!*

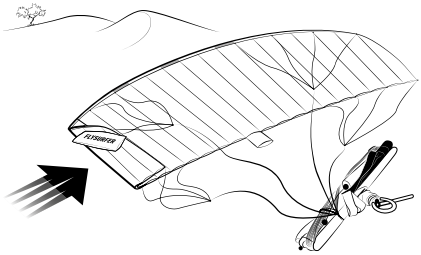
❻ Stow the kite in the corresponding VMG bag.

10.02 Packing up both tips individually

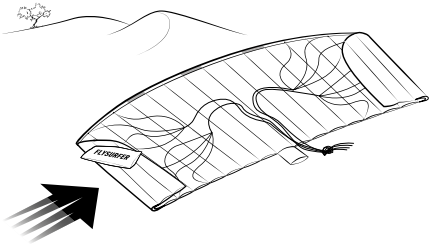
❶ Open the deflate valve.



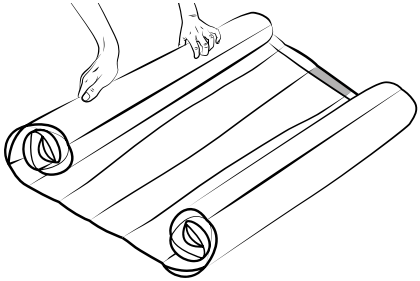
❷ Wind the flying lines onto the bar and secure them with the bungies or even better using a half hitch. Disconnect the control bar from the bridle lines.



❸ Secure the collected ends of the bridle lines with a lark head knot. Place the bridle lines on the bottom sail of the respective wing side and stow the ends with the mixer in one of the air intakes. Make sure that no bridle lines are on the outside.



❹ Roll up the kite starting with one wingtip. Put some weight on the already folded wingtip and roll the second side to the middle. Make sure that no sharp objects on the beach damage the cloth.



Warning: *Do not fold the kite!*

❻ Stow the kite in the corresponding VMG bag.

11 KITE CARE

FLYSURFER kites are very durable and very UV and saltwater resistant. With proper care, your kite may last even longer. Eventual color changes of the cloth can be caused by environmental causes, UV-exposure, mechanical strain as well as it getting dirty. A color change has no influence on the flight characteristics whatsoever and is not covered by warranty.

Drying
If a kite is packed away wet and left for a long period of time it can develop ugly mildew spots, rust on the metal parts or color bleeding of the cloth. This does not effect how the kite performs, but will reduce the value of your kite. In extreme cases the kite may get mouldy. To dry, simply continue to fly the kite until the canopy is dry.

Tip: *Drying of the kite can be accelerated when the kite if flown with an open air drainage valve on land. Otherwise a fan or hair-blower can help, but please never use hot air!*

Rinsing
Rinse your kite from time to time with clear water, after using it in salt water, and leave it to dry in the shade. Do not use any detergents. The warranty will be void after the use of detergents on the cloth.

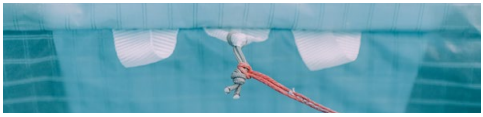
Check
Check all parts of the kite before each use. Especially parts that can wear out. Material failure on those parts can lead to further damages, or put the kiter at risk.

12 MAINTENANCE

The main parts that wear on the VMG are the LCLs, bridle lines, rods, and rollers. Depending on use, other components must also be serviced over the lifespan of the kite. If you do not service these parts, it can lead to damage and will void the warranty.

12.01 Check the LCL before starting

The Little Connection Lines (LCL) are integrated predetermined breaking points. The Kevlar-bridle of the VMG efficiently cuts through the Dynemma LCLs to prevent the attachment points from being torn out. Check your LCLs after a kite crash and replace them if they are damaged.

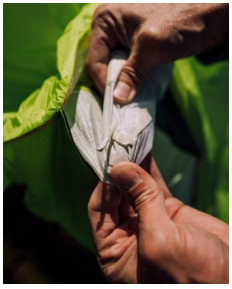


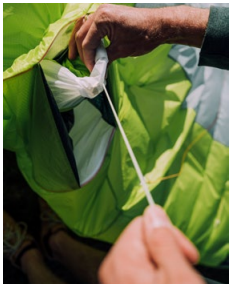
12.02 Replacement of the fiberglass rods

After a crash, check the sewn-in rod pockets at the front and rear for damage before you fly it again. If the pocket of the fiberglass rod is damaged, it must be repaired by a professional. If the fiberglass rod is damaged, it has to be replaced, it can't be repaired. To do this, reach into the air intake on the leading edge and do a visual check of the stitching, then carefully pull the rods out of the pocket.

Tip: *To replace a broken rod, we recommend a helper who holds the trailing edge to prevent the pocket from being damaged from the broken fiberglass rod.*

Carefully insert the new fiberglass rods.





Attention:
The fiberglass rods must not be kinked too much. The rod can break!

12.03 Repairing the Cloth

In case you get a small tear (e.g. through contact with a sharp object) we have included a repair kit with your kite. The area that needs to be repaired must be clean, dry and grease-free. Temporary repairs are possible with spinnaker repair tape, but the tear should be taped from the inside of the kite. It is recommended that you round off the edges of the repair tape. A special binding agent (silicone sealing compound) for the X-Light Cloth is available through Flysurfer sales partners or directly at FLYSURFER. A repair manual is included with the binding agent. There is the possibility to have a professional repair done by us. We can exchange whole parts of the canopy, so that there will be no trace of the damage.

Tip: *When a tear is close to a seam (less than 5cm), we recommend using sewing to repair the damaged area.*

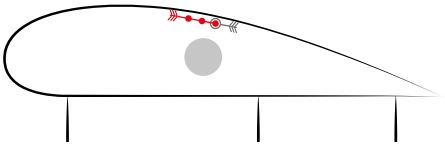
13 TRIMMING

As all lines change length over time, we have built in a way to correct the flying characteristics quickly and easily. Adjustments after heavy use over years should be done to keep the products performance and ensure a long-term use of the kite.

13.01 Profile Moment Adjuster (PMA's)

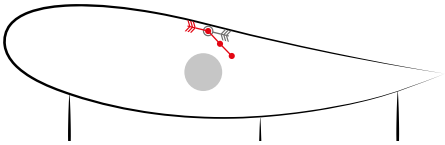
Note: *It is important to check the kite first as it is shown in the bar manual in the trim check section. Changing the PMAs should only be done by a professional when the bar, lines, mixer, bridle and sail have been checked.*

The PMA's are small knotted lines with two settings which are stitched into the aerofoil on the top and bottom. Therbeby the aerofoil can be directly adjusted as illustrated below.



Standard form (Neutural position)

If you shorten a PMA on the top of the wing, the aerofoil becomes slower and more stable.

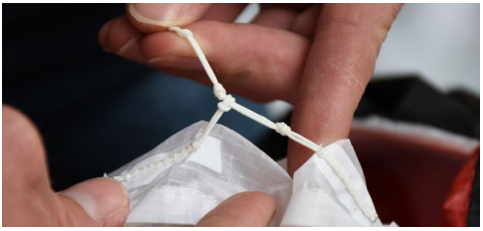


Shortened PMA's on the top

❶ Reach into the closest air intake valve to get to the PMA.

❷ Pull it out through the outer opening.

❸ Adjust the PMA by moving the larks-head-knot.



Generally it is possible to shorten the PMA's by up to two knots, but one is okay for most users.

Tip: *We recommend to adjust every second PMA first. Then test the kite and if still needed adjust each one.*

14 REPAIR & SPARE PARTS

Repairs can be done at either our workshop in the head office, or by a FLYSURFER sales partner who offers a repair service. High quality original spare parts for all our Flysurfer products can be ordered directly from our Online-Shop: **shop.flysurfer.com**

FLYSURFER

FLYSURFER Kiteboarding
Brand of Skywalk GmbH & Co. KG
Windeckstr. 4
83250 Marquartstein, GERMANY

WEBSITE: www.flysurfer.com EMAIL: info@flysurfer.com PHONE: +49 (0) 86 41 69 48 - 30