VMG³ USER MANUAL



Version 03-2024

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ENGLISH

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RELEASE OF LIABILITY

01 RELEASE OF LIABILITY

Release of liability, claim wavier, assumption of risk

By assembling and/or using this FLYSURFER product, you agree that you have read and understood the entire FLYSURFER product manual, including all instructions and warnings contained in that user manual, prior to using the FLYSURFER product in any way. You additionally agree that you will ensure any additional or subsequent user of your FLYSURFER product will read and understand the entire FLYSURFER product user manual, including all instructions and warnings contained in that user manual, prior to allowing that person to use your FLYSURFER product.

Assumption of Risk

FLYSURFER product and any of its components involve certain risks, dangers, and hazards that can result in serious personal injury and death to both the user and to non-user third parties. In using this FLYSURFER product, you freely agree to assume and accept any and all known and unknown risks of injury and you and third parties while using this equipment. The risks inherent in this sport can be greatly reduced by abiding by the warning guidelines listed in this user manual and by using common sense.

Claim Wavier

Release and waiver of claims in consideration of the sale of the FLYSURFER product to you, you hereby agree to the fullest extent permitted by law, as follows:

To waive any and all claims, that you have or may in the future have against Skywalk GmbH & Co. KG and all related parties resulting from use of the FLYSURFER Product and any of its components. To release Skywalk GmbH & Co. KG and all related parties from any and all liability for any loss, damage, injury or expense that you or any users of your FLYSURFER product may suffer, or that your next of kin may suffer, as a result of the use of the FLYSURFER product, due to any cause whatsoever, including negligence or breach of contract on the part of Skywalk GmbH & Co. KG and all related parties in the design or manufacture of the FLYSURFER product and any of its components. In the event of your death or incapacity, all provisions contained herein shall be effective and binding upon your heirs, next of kin, executors, administrators, assigns, and representatives. Skywalk GmbH & Co. KG-related parties have not made and expressly deny any oral or written representations other than what is set forth herein and the FLYSURFER User's Manual.

If you have any questions (repair, replacement parts installation, tuning, etc.) the dealers you trust get faster help and correspondingly cheaper support (e.g. by saving shipping costs).

You can find all dealers in your area via our partner map: https://flysurfer.com/fs-partner/

If you need further help, you can reach us at headquarters by phone or email. E-Mail: support@flysurfer.com Phone: +49 (0) 8641 6948 0

02 SAFETY NOTES

Read the entire user manual thoroughly before using the product, and strictly conform to the procedures noted. The following safety guidelines are only guidelines and do not claim to cover every instance.

- 01. The VMG is for advanced riders only who have previous foil kite experience. 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.
- 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 works and train the user's release procedure.
- 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 50-120kg. 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.

02.01 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!

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03 OVERVIEW OF THE KITE



03.01 Description & rider requirements

The VMG is designed to meet the requirements of Formula Kite Racing competitions. It was developed with the technological knowhow of our R&D team and the intense experience of our athletes. The VMG undisputedly is the most successful and potent racecompetition kite available.

03.02 Features

Two Level Design (A, B) sizes 15 / 19 / 21

The VMG³ sizes 15, 19, and 21 m feature a two-level bridle design. The low-stretch Edelrid Kevlar bridle is combined with Dyneema lines to reduce drag to a minimum. Access unrivaled performance, delivering optimal angles for maximum speed on the racetrack.

Two Level Design with brake (A, B, Z) size 11

The VMG³ size 11 features a two-level bridle design with an activated brake level. The low-stretch Edelrid Kevlar bridle reduces drag to a minimum, and the brake level further improves the kite's downwind performance. Use the brake settings to adjust your bar feedback and enhance control.

Three Level Design with brake (A, B, C, Z) size 9

The VMG size 9 features a three-level bridle design with an activated brake level. The low-stretch Edelrid Kevlar bridle stabilizes the kite span at high wind speeds. Use the brake settings to adjust your bar feedback and enhance control.

Supported Top-Sail sizes 11, 15, 19, 21

The two-level bridle design necessitates an exceptionally rigid internal structure to support the minimized bridles fully. Fiberglass rods are integrated into the internal rib construction to reinforce the VMG's profile. These rods are safeguarded at the ends and are replaceable if needed. As a result, the VMG experiences minimal deformation, ensuring clean airflow and providing a high degree of stability in the air.

Dynamic Wing Span Response

The VMG utilizes a streamlined design support by bridles and pulleys to control the angle of attack. Our design offers continuous feedback and control. The athletes precisely feel the entire wing span where forces on the hands and seat harness increase in correlation with wind speed and rider velocity. Enabling quick responses to wind shifts and superb control to focus on body position.

Hydro-Tech Construction

The VMG's material mix is designed to enhance kite performance in various conditions. The inelastic Skytex32 absorbs moisture, which is particularly useful in humid climates, preventing waterdrop formation along the leading edge for uninterrupted airflow. Woven with ripstop threads, our two canopy fabrics offer an excellent weight-to-performance ratio, increasing longevity and enabling precise stitching for a superior finish. Moreover, the TX-Light hard finish rib material strengthens the loaded internal structure, ensuring minimal deformation.

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. The Dyneema lines are used to further decrease drag and improve performance.

Integrated Fiberglass Rods

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

4 Automatic Water Drainage System (ADS)

The automatic drainage system (ADS) is an important component for the self-rescue and the water relaunch.

Maintenance

Formula Kite racers put heavy loads through kites; bridle lines change in length over time. We have integrated a way to correct the flying characteristics quickly and easily—a readjustment of the Dynemma bridle after 25 hours and the Kevlar bridle after 50 hours of use. Check your equipment carefully before every launch, training session, or competition. Rinse your kite with fresh water after self-rescue or when the kite sits in the water longer.



04 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.

04.01 Setting Up a Foilkite

• Place the kite in front of you and roll it out leewards. First in 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.



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



 Check your bridle lines for tangles. Make sure that the bridle lines are firmly attached, that no damage has occurred, and that none of the lines are caught around the leading edge of the kite.



• When the bridle lines are sorted out, lay the front lines to the inside and the steering lines to the outside.

LEFT	FR ONT	FR ONT	RIGHT
Ţ	Ţ	T	Ţ

6 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.



04.02 Securing a Foilkite

● 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.



Ake 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.



3 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.

05 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 hold you from the back of your harness. During the launch, always pay attention to ensure that your bridle lines do not get caught on anything or become tangled.

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

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



2 Pre-inflate the kite at least halfway for more control during the launch. When you slowly tension the lines for launch, the kite should be positioned 15-30° downwind of you.



3 Walk upwind as the kite inflates





LAUNCHING

upwind.



G 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 sand, for example,

05.02 Sorting the bridle

• Even badly tangled bridle lines can be guickly sorted with the correct technique.



A Pay attention that the downwind wingtip does not fold over
If the bridle is tangled, lines from one side may run through the lines on the other side. Undo any loops, knots, or bunches that may have formed.



3 Lightly tension up the bridle lines again to check it. Repeat the last step until the left and right bridle lines are separated.



06 FLIGHT TECHNIQUES AND CHARACTERISTICS

Flight feeling on the water

The feedback you get from the VMG increases proportionally with the load you generate, making it a very predictable kite. Even in turbulent conditions, the VMG continuously gains forward speed. The depower is efficient and provides the necessary range. The high-aspect kite pulls large radii during jibes.

Flving the kite on the beach

The VMG gives hardly any bar feedback when you are not in motion or while it sits at the zenith. FLYSURFER recommends active kite flying by consistently moving the kite from left to right while 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 and as powered up as possible to prevent the wingtips from rolling. Always keep your steering lines on tension, especially in light wind. As soon as the kite is flown in the recommended wind range, no special handling techniques are required.

Waterstart

Using the steering lines, send the VMG into the opposite soft zone of your starting direction. Keep the wingtips open, and let the kite shoot through the power zone in your starting direction. Due to its large turning radius, Downlooping will not lead to a successful water start.

Relaunch

The rigid construction of the VMG makes relaunching difficult. When the leading edge is pointing towards the water surface, use two steering lines. If the VMG is used in marginal wind, it must be laid onto the upper sail and pulled up using one steering line. We recommend our tutorial to master this technique.

06.01 Technical Data

VMG ³	9	11	15	19	21
Area (projected)	7,684m²	9,808m²	13,136m²	16,141m ²	17,858m²
Aspect Ratio	6,40	7,00	7,55	7,55	7,55
Cells	45	63	63	63	63
Flat Wing Span (cm)	7,589m	8,882m	10,734m	11,898m	12,515m
Weight = canopy + complete bridle + mixer (kg)	1,75kg	2,12kg	2,42kg	2,88kg	3,12kg
Recommended barsize (cm)	55cm	55cm	60cm	60cm	60cm

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07 RELAUNCH

07.01 Reverse Launch

RELAUNCH

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



② Pull in both leader lines as far towards yourself as possible to reverse the kite off the water. Strong pulls or pumping of the lines may help in light winds. Grab the leader lines higher up if the kite does not release from the water.



③ When the kite is at least one wingspan above the water, let go of one of the leader lines. Ensure you keep hold of the other one and the bar is in the correct position.





• 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 until it's back in the

07.02 Water Drainage

sky towards the zenith.

• The drainage system automatically removes water or dirt from the kite. To turn the kite upright onto its side, pull on one steering line. Try to prevent the upper wingtip from collapsing.



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



08 LANDING

08.01 Landing with an assistant

• 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.



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.



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



Warning: Landing without helpers is not recommended due to the VMG's special construction, and it can cause damage!

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



3 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.



SAFETY SYSTEM

09 SAFETY SYSTEM

We recommend using FLYSURFER Control Bars. Subsequent damages resulting from line breaks are excluded from warranty claims.

• The kites are designed to work with the Front Line Safety (FLS) system. After you activate your quick release, the control bar will slide until it reaches the A-Main line.

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



09.01 Reactivating the kite

After triggering the safety system, 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!

• Work your way up the safety line until you reach 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.

Hook in the chicken loop and secure it on the harness. Slowly release the safety line bit by bit. Ensure it has not wrapped itself around any part of your body. Keep the safety line from slipping too quickly through your fingers to avoid getting burns or cuts.

Note: Reactivating the VMG is very unlikely.



In an emergency, 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.. 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.



10.01 Self-Rescue with a Foilkite

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

Activate the quick release.



2 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.



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







5 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.



Hint: Make sure to rinse your kite with fresh water afterwards!

11 PACKING UP

The VMG³ 11, 15, 19, and 21 must be packed using the concertina method. The warranty will be voided if the kite is stored using any other method, such as rolling. The Leading Edge, rigid foil battens, are a fundamental part of the design and must not be forced out of their given shape.

We recommend the concertina method also for the VMG³ 9, but it can also be packed by using other methods.

11.01 Packing up both tips individually -**Concertina Packing Method**

We strongly recommend using the concertina packing method precisely as shown so that all of the cells rest alongside each other and the plastic reinforcements are not unnecessarily bent.

1 Open the deflate valve.



2 Disconnect the control bar's flying lines from the kite. Secure the A-Main and B-Main lines with a lark head knot. Place the bridle lines on the bottom sail of the respective wing side and stow the ends in one of the air intakes.



Open the VMG Bag. Lay the kite on the VMG Bag.

stack the leading edges Rigid Foil on Rigid Foil, starting with the are folded over the topsail. center cell until you reach the last cell on the wingtip.

6 Repeat the process with the other wingtip.

Note: Ensure the bridle lines are on the inside to avoid getting caught by the zipper.

6 Carefully grab both wing tips and flip the kite to one side. Ensure all Rigid Foils are stacked on each other.

7 Use the clipper close to the leading edge to fix the kite to the VMG Bag.

8 Go to the center cell of the trailing edge. Start stacking the cells by bringing one to the inside and flipping the other to the outside. Repeat the process with the other wing tip.

9 Secure the correctly packed VMG³ by using the second clipper.

O Close the VMG Bag by using the zipper with the anti-snaqging tool.

Warning: Do not fold	the kite!
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11.02 Packing up - wingtip on wingtip

1 Open the deflate valve.



2 Disconnect the control bar's flying lines from the kite. Secure the A-Main and B-Main lines with a lark head knot. Place the bridle lines on the bottom sail of the respective wing side and stow the ends in one of the air intakes.



Grab every cell supported by a fiberglass rod and stack them
Fold the kite in half along the middle (tip on tip), ensuring the on each other until you reach the center cell of the kite. Now bridle lines are on the inside. Also, make sure that no bridle lines



Throw the bridle lines in between the folded kite.



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





Warning: Do not fold the VMG³ kite sizes 11, 15, 19, and 21!



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PACKING UP

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warranty.

12 KITE CARE

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

FLYSURFER kites are very durable and UV- and saltwater-resis-

tant. With proper care, your kite may last even longer. With pro-

per care, your kite may last even longer. Eventual color changes

in the cloth can be caused by environmental causes, such as

UV exposure, mechanical strain, and dirt. A color change does

Tip: Kite drying can be accelerated when the kite is flown with the deflation valve open. Otherwise, a fan or leaf blower can help, but please never use hot air!

Rinsina

Always rinse your kite with fresh water after self-rescue or more extended floating times on the water surface. Never leave it exposed to the sun while drying. Do not use detergents. The warranty will be void after detergents are used 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 damage or put the kiter at risk.

13 MAINTENANCE

The VMG will require maintenance just like any high-performance equipment in racing sports - it must be checked every 50 hours of flving time and maintained in the correct trim, or the kite will not perform as designed.

not influence the flight characteristics and is not covered by **13.01 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 visually check 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 by the fractured fiberalass rod.

Carefully insert the new fiberglass rods.



13.02 Repairing the Cloth

If 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 canopy cloth is available through FLYSURFER sales partners or directly at FLY-SURFER. A repair manual is included with the binding agent. 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.

14 TRIMMING

Racers put heavy loads through kites; bridle lines change in length over time. We have integrated a way to correct the flying characteristics quickly and easily. Readiustments the Dynemma bridle after 25 hours and the Kevlar bridle after 50 hours of use. Adjustments must be made to maintain the product's performance and ensure long-term use of the kite.

We recommend replacing worn Bridle Lines that are not to factory specification (+ or—15mm). A complete set of replacement bridle lines can be ordered from your shop or dealer. We also offer complete training bridle sets.

Measure from the connection point of the flying lines to the bottom sail seam (including mixer, bridles, attachement point). Measure all lines under tensile load of 5 kg.

14.01 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.



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



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TRIMMING

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2 Pull it out through the outer opening.



15 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**



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

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For further information please visit: www.flysurfer.com