USERMANUAL

Contents

WARNING 3
Safety Guidelines 4
1. My FLYSURFER kite and I 5
2. FLYSURFER PULSE 6
2.1. Description 6
2.2 Features 6
3. FLYSURFER (FS) special functions 7
3.1. TOTAL DEPOWER SYSTEM (TDS) 7
3.1.1. FULL DEPOWER BAR (FDB) 7
3.1.2. MAX DE-/POWER LEINEN-SYSTEM (MDPL) 10
3.1.3. KITE-LEASH options 10
3.1.3.1. FULL DEPOWER SAFETYLINE (FDS) 11
3.1.3.2. Pull-Stop-System (PSS) Leash 12
3.1.3.3. Depowerloop-Leash 13
3.2. Auto Bleed System (ABS) 14
3.3. Blow-Out Valves 14
3.4. Das FLYSURFER 4-Line-System 15
3.5. Easy Line Connectors (ELC) 15
3.6. Variable Line Length (VLL) 15
3.7. JET FLAP Technology 16
3.8. Nose Valves 16
4. Rigging of the kite 16
5. Launch preparations 17
5.1. Laying out the kite 17
5.2. Pre-inflation 18
5.3. Connecting the safety 18
6. Launching the kite 19
6.1. In light winds (Launching in the power zone) 19
6.2. From the edge of the wind window 19
6.2.1 Launching from the edge of the wind window with assistance holding the kite 20
6.2.2 From the edge of the wind window without assistance or weighing it down 20
6.3. First launch in the water 21
7. Flying of the kite 22
7.1. Steering 22
7.2. Power/Depower 22
7.3. Trimmer 22

8. Jumping with current FLYSURFER kites 23
9. Kite control in extreme situations 23
9.1. Flying the kite in the zenith 23
9.2. Being lifted on the beach 23
9.3. Kite “Luffing“ (danger of frontstall) 24
9.4. Kite collapses 24
9.5. Kite is about to impact on land or water 25
10. Relaunching the kite from the water 26
10.1. From the trailing edge 26
10.2 From the leading edge 26
10.3 Relaunch in the power zone (in light winds only!) 26
10.4. Relaunch from the edge of the wind window (in stronger winds) 27
10.5. Quick launch 27
10.6. Kite doesn’t launch anymore, you start drifting away 28
10.7. Being rescued with FLYSURFER kites 28
11. Landing 29
11.1. At the edge of the wind window 29
11.2. Power zone with FDS 29
12. Packing and storing your kite 30
13. Tuning Tipps 31
13.1. MULTIWAC-System 31
13.2. Variable Line Length (VLL) 31
13.3. Depower-line adjustment 32
14. Wind ranges of the PULSE 33
(for a very good 75 kg rider with a choice of board apapted to the wind)
15. Line setup and lengths 34
16. Maintenance and repair 37
16.1. General care 37
16.2. UV-Licht 37
16.3. Saltwater 37
16.4. Sand 37
16.5. Moisture 37
16.6. Cleaning 37
16.7. Wear and tear parts 38
16.8. Repair (with glue or sticker) 39
16.9. Little Connection Lines (LCL) 39
17. FLYSURFER FREE REPAIR GARANTIE 40

WARNING

Launching and flying a kite can be potentially dangerous, especially when you ignore basic safety guidelines.
Always be extremely careful when using a kite.
Incorrect handling or misuse of a kite may cause serious injuries and/or death.
When using a kite, you are responsible for your own safety and that of others around you.

A kite can be dangerous for as long as the Safety-System hasn't been deployed.
Never hesitate to use the Safety-System (you can't ever use it too early or not enough, only too little or too late).
Never use a kite prior to professional instruction by a certified kite surfing school. For trained inflatable-kite users, a proper introduction into the FLYSURFER-System is essential (thoroughly read this manual).

You can find competent FLYSURFER-schools under: **www.FLYSURFER.de**

Safety Guidelines

- Never launch a kite during thunderstorms, in stormy conditions or before gustfronts.The risk of injury increases over-proportionally with the wind strength, the gustiness, with suddenly increasing or completely onshore wind.
- Check the weather conditions and choose the right size of kite, a kite that's too big can be very dangerous.
- Lines under tension can cut like a knife. Never touch the lines unless the kite is properly secured on the ground.
- Only use a kite with a fully functioning Safety-System, wear a helmet and impact vest.
- Always check the current condition of your equipment, especially wear and tear parts (depowerloop, pulleys and lines) as they are very important for a safe and controlled flying. Never launch a kite that has any weakened or worn parts.
- Only sail out as far as you are able to swim back.
- Thoroughly check the kite-spot for shallows, obstacles, currents etc.
- Keep two line-length of distance between yourself and other beach users, obstacles, etc. Never fly the kite above other people downwind of you.
- Make sure that you are being watched while you are kite surfing and someone can call for help in an emergency.
- Only use the kite if you are in a good physical condition and never under the influence of drugs and/or alcohol.

1. My FLYSURFER kite and I

To ensure save riding and maximum fun with your new FLYSURFER, we recommend that you read these instructions thoroughly. In this manual we have tried to address all questions put to us in the past.

If there are still some unanswered questions then internet forums like **www.oase.com**, **www.kiteforum.com** or **www.foilzone.com** will provide you with unbiased and helpful advice.
Alternatively pay a visit to our website **www.flysurfer.de**, through which you will also have the ability to contact our team directly.

Also use the guarantee registration, which can also be found there, so that we can contact you directly when we have any safety messages for you.

Before you start your kite for the first time please make sure that you checked all lines especially if the depowerlines are contacted to the bar. Try it first when there is less wind.

The PULSE is built for kiters which have a weight of at least 40kg but no more than 120kg.

Delivery conditions:

The PULSE is always delivered with fixed lines, a bar and a kitebag. In one kitebag you can put up to 3 FLYSURFER kites. In the additional bag at the end you can easily put your board and tighten it with with the straps from the middle of your bag.

2. FLYSURFER PULSE

2.1. Description

With the new PULSE, we push the already legendary depower-effect and incredible windrange of our kites to the next level. Thanks to the brand new TOTAL DEPOWER SYSTEM (TDS) it is now possible to use the PULSE in a previously unachievable windrange!

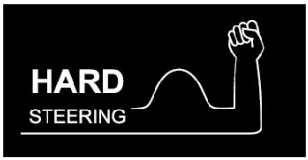
2.2 Features

- FULL DEPOWER BAR (FDB)

- MAX DEPOWER LINESYSTEM (MDPL)

- FULL DEPOWER SAFETYLINE (FDS)

In addition the PULSE is equipped with a further developed SOFT STEERING SETUP /HARD STEERING SETUP option (SSS/HSS). You will be able to adjust the kites barforces in steps from a soft to a hard setup according to your personal preferences. Extreme Depower with high barforces or massive reach is now a thing of the past!



3. FLYSURFER (FS) special functions

3.1. TOTAL DEPOWER SYSTEM (TDS)

The TDS consists of three components:

1 . The FULL DEPOWER BAR (FDB) enables you to finally experience the most direct depower effect within reach of your arms! Furthermore the new FDB completely avoids the use of any pulleys to counter high bar-forces!

2 . The MAX DEPOWER LINESYSTEM (MDPL) increases the amount of projected surface area and results in noticeably more power per m² than ever encountered on any „C“ or bow-kite concept on the current market.
Ultimately, the MDPL does no longer limit the depower effect with the line system or the U-shape of the kite but the kite can be fully opened in the powerzone or at the edge of the wind window. A dangerous inversion (luffing) of the kite or for the kite to turn inside out whilst fully depowered is almost impossible when compared to classic bow-kite concepts.
In addition, the depower effect of FLYSURFER kites is not only increased by adjusting the angle of attack (AOA) but also by actively changing the shape of the airfoil during flight.

3 . With the FULL DEPOWER SAFETYLINE (FDS) we have been able to integrate an additional system for your safety. When using this system it is possible to fly the PULSE with a 5 thline, enabling you to react to drastically changing weather conditions and to stay in complete control. In an emergency situation, just deploy the FDS and set the kite to almost zero power whilst maintaining the possibility to relaunch the kite.

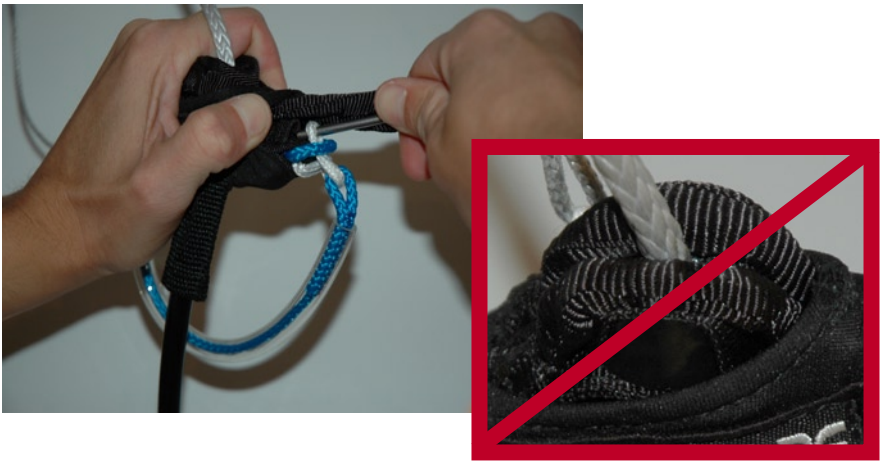
3.1.1. FULL DEPOWER BAR (FDB)

Activation of the Quick Release at the Depowerloop:

You can activate the FS Safety System while using the Quick Release at the Depowerloop or unhooking it by hand and not holding to the bar.

Assembly:

Guide the white line called Half-Force line through the blue end of the depowerloop and afterwards through the blue loop on the crossbar.
Now push in the metal pin from the outside, first through the white Half-Force line and than into the guide pocket on the crossbar.
Please check the reassembled depowerloop before you hook in and launch.
Try a test deployment just to be sure you put the loop back together properly.
We suggest to try it a few times before you go into the water.



Make sure that the elastics, which avoid the splint pin from slipping out, are guided aside and not over the plastic.

Tips for assembly in the water:

For this there is a so-called rescue loop directly above the cross-bar on the depowerloop, with which you can hook up if the safety line is pulled. But you can no longer release yourself in an emergency. That's why you should park the kite in the zenith as long as you're far enough away from other objects, so you can reassemble the depowerloop as shown above. Then you can rehook the depowerloop as you normally would.

A further method for assembly in the water is to directly push the blue end into the blue loop at the crossbar. The activation strenght is now doubled high, because of that we recommend the use of the Half-Force line.

Compatibility:

If you want to use your FS Quick Release in conjunction with other systems,
Wichard shackle e.g., you will have to get your new combined system tested for its functionality. On combined safety systems, both release options should remain functional.

3.1.2. MAX DE-/POWER LEINEN-SYSTEM (MDPL)

Together with the new canopy construction this new linesystem of the PULSE facilitates to reduce the angle of attack, the shape of the airfoil as well as the radius of the hood by depowering the bar, unlike any other kite on the market. Thus the depower effect is enormeous.

3.1.3. KITE-LEASH options

With this Depowersystem you are able to control the kite with his strength when the wind is getting stronger. Nevertheless is it necessary to activate the Depower-Quick-Release system in dangerous situations.

You don´t have to worry that your kite flys away because you should be connected to the Kite Leash. All FS KITE-LEASHE S have although a Quick Release.

KITE-LEASH Quick Release
You can activate the Quick Release from the KITE-LEASH by pushing the red ball away from you. Now you are not connected to your kite anymore, if you were just attached with the KITE-LEASH.

This is very important, when you already activated the Quick Release but you are still in danger. (e.g.if the kite is caught in a water propeller or the safety-system does not function as a result of faulty operation or extreme gusts).

Please be aware that your kite is able to fly away or bring people downwind in danger.

3.1.3.1. FULL DEPOWER SAFETYLINE (FDS)

With this method the kite, attached to a 5th line which ends in the middle of the kite, is able to blow out. The remaining pull is extremely low and it is very likely that the kite can be relaunched.

The FDS ends in a white weak point / rupture line, in which the SAFETY-LEASH can be hooked in. This FDS rupture line tears off at 120 kg and thus facilitates, that the overloaded kiter is able to detach from the kite after having released the depowerloop. This might happen, if e.g. two kites get tangled up. The weak point / rupture line can be exchanged within a few seconds.

After releasing the Depowerloop Quick Release the bar slides a few meters upwards up to a certain passage.
To relaunch the kite climb hand over hand along the FULL-DEPOWER-SAFETYLINE to the bar and reassemble the depowerloop. Simultaneously, keep the FDS pulled to avoid the kite from taking off. Make sure the loose section of the FDS does not get tangled (e.g. body parts, harnesss, etc.)!
Afterwards hook the depowerloop into the harness and carefully release the FDS.

Now the kite folds up its normal shape and can be relaunched.

The bar can be unwinded after rotations. Nevertheless, as a result of a high number of rotations the FULL-DEPOWER-SAFETYLINE winds around the front lines into the same direction (like the current five-line-systems of the inflatable kites). If the lines are extremely tangled up, the Safety function might be restricted!

Therefore the Full-Depower SAFETY-LEASH as well as the front lines should be unwinded before launching the kite.

Make sure the Leash is never tangled while riding. Additionallly, the Leash must not be wrapped around the center line or even the bar, as the Safety-System might not function any more. Therefore, while riding you should keep an eye on the Leash and unwind it if necessary.

Furthermore it is likely that the rest pull of the FDS is higher than usual, if the kite turns over or gets tangled in the lines.

3.1.3.2. Pull-Stop-System (PSS) Leash

The method of the Pull-Stop-System Leash is only for kiter who don`t use a FDS, but who want to have an opportunity to transfer the kite into the Pull-Stop Safety when launching in critical spots. The Pull-Stop Safety might release the Little Connection Lines on the kite as a result of unilateral stress. The hoods might be damaged as well. Therefore the PSS-Leash is not designed for situations such as kite lessons, where the Safety is used quite often.

The Pull-Stop-System (PSS) allows the kite to blow out by being attached on one steering line. For this a Safetyleash has to be connected to one of the Pull-Stop-Handles or the PSS-Handle must be kept before detaching the Depowerloop.

The PSS-Handles have – like the FDS as well - a weak point / rupture line, which runs along the handles. These release by themselves when reaching a load of ca. 150 kg. Although the kite remains airworthy.

A relaunch after the use of the Pull-Stop-Systems is restricted, because the kite might get tangled in the bridle.
The SAFETY-LEASH on the Pull-Stop-Handles does not support the unwinding of the bar and the leash after rotations.

3.1.3.3. Depowerloop-Leash

Particularly to practice handlepass tricks highly experienced kiter can attach themselves with a Leash directly to the depowerloop. Handlepasses are tricks, where you pass the bar from one hand to the other behind your back.

If you let go of the bar while the depowerloop is being unhooked, the kite is depowered by means of the Depowersystem, though it keeps flying. Thus a rest pull might remain. The kiter won`t be able to steer the kite any longer which might cause extremely dangerous or life-threatening situations.

The Depowerloop-Leash itself has no defined required breaking point and can thus bear more than half a ton collapse load!
The plastic clip bears a collapse load of ca. 200 kg.

If the Leash is hooked into the depowerloop, the Leash must be fixed on the harness in a way that guarantees a sufficient collapse load.
Additionally, the kiter must always be able to detach the Leash from the harness through a separate Quick Release, which is always in reach, such as the FLYSURFER Harness remote release (HRR).

The Safetyleash should be hooked into the bend of the Half-Force-Line, to make 100% sure that the Safetyleash is released when operating the Quick Release of the depowerloop. Please always check that the safety is hooked in correctly! You must not hook into the loop of the Half-Force-Line!

A further advantage of this method is, that the snap fit does not disturb when you hook into the depowerloop again.

In case the kiter has to operate the Depowerloop Quick Release in an emergency, the kite is completely detached from the kiter and flys downwind where it might injure other persons very seriously.

ATTENTION:

A Depowerloop-Leash can not guarentee a safety function.
FLYSURFER explicitely warns you from using a Depowerloop-Leash (also known as SUICIDE-LEASH). Such a Leash only makes sense for professionals who do handlepasses high in the air and need lots of space downwind.

3.2. Auto Bleed System (ABS)

FS kites have a built-in drainage system. It forces entered water through openings along the trailing edge towards the wingtips where it drains out. This enables the kite to remain relaunchable, even after it has taken on water. Thus the PULSE can drain out buckets of water in no time at all and the minute it has regained its flying weight it will relaunch and can be “flown dry”. Once the kite is totally dry, it will perform as usual (water inside the kite can affect its performance). Even sand and debris are automatically removed.

3.3. Blow-Out Valves

Over-pressure valves inside the kite will absorb the overpressure in a split second during a crash and thus prevent damage to the structure of the kite.
The so-called Blow-Out Valves close independently and are completely maintenance-free! They are, however, not meant to be abused by crashing the kite intentionally. Depending on the impact intensity and impact angle, the kite can still sustain damage despite of this remarkable invention.Always avoid hard impacts of the kite into the water, the snow or land!
The Blow-Out-Valves of the PULSE have been moved from the trailing edge closer to the leading edge, where the over-pressure is produced. Thus the over-pressure is being decreased and the durability extremely increased.

3.4. FLYSURFER 4-Line-System

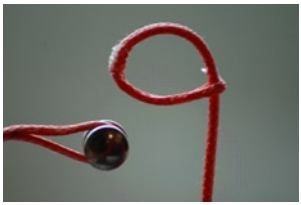
The recent FLYSURFER kites have 4 flying-lines. Thus they can be flown with steering handles or with a bar.

Conversion to handles:

In order to use handles for your kite, untie the loops at the end of the bar leader-lines and tie them to the appropriate handle. The thinner back-lines are attached to the back end of the handles, the black front lines to the front connection points of the handles. All lines have to run freely! The leader-lines on the handles should be the same length at the front and the back, in order to ensure an optimal trim.
Check the new setup in light winds first
Due to an extreme depower the forces being effective on the handles are quite high. Therefore, when using handles, we recommend to fly the PULSE with complete soft steering setup.

3.5. Easy Line Connectors (ELC)

The Easy Line Connectors enables a quick loosening and connection of the kite's flying-lines, without reducing the collapse load of the line. That way, it is much easier to put tangled up bridle lines back in order. Make sure not to lose the metal connectors.
To connect the line put one metal connector in one of the loops of the ends to be connected. With the other loop make a loose knot. Now put the metal connector through the loop of the second end (not through the knot itself) and pull the knot tight. Make sure, all the lines run in the groove of the metal connector. Compare the result with the pictures and check the stability of the connection.



3.6. Variable Line Length (VLL)

FLYSURFER kites (except for the COOL) have 3 separable flying-lines of 3, 6 and 12 m, which add up to 21 m in length. Thus the line length of 21 m can be reduced in 3 m intervals from 21 m to 0 m, if desired. The 3 sections can also be obtained individually, so the lines can also be extended if desired. Unlike any other kite on the market, the PULSE can be flown with short lines. An exact description can found in our tuning section (chapter 13.2.).

3.7. JET FLAP Technology

Most FLYSURFER kites are equipped with the trend-setting JET FLAP Technology (JFT).
Air is conducted from the bottom sail (pressure area) to the top sail (low-pressure area) and is blown out there with higher speed. The connection is established through jet shaped channels, which are located in the rear section of the wing.
When increasing the angle-of-attack, the danger of airflow stall will be minimized.
The result of the delayed stall is a higher lift per m². Furthermore, the JET FLAPs decrease luffing, due to their elevator characteristic.

3.8. Nose Valves

Since the EXTACY, we have been using a special nose valve, which effectively prevents the profile from denting when depowering. The result is a larger wind window, because of less kite-resistance when depowering. Thus, the performance is enhanced. The power/m² is higher and the downwind pull is reduced, which again increases the flight speed and upwind performance. The bottom line: kiting is more fun!

4. Rigging of the kite

Attaching the flying-lines:

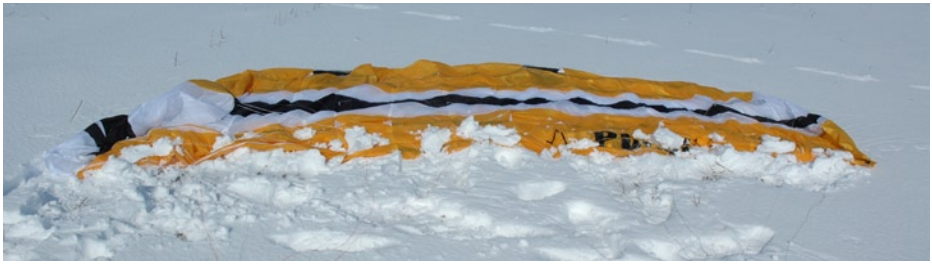
The kites are delivered with a fully assembled bar. But in case you ever have to remove the bar, please observe the correct reassembly.

Measured from the bar the three leader lines of the PULSE have the same length, if the trimmer is open and the bar is fully powered up. Thus the trim on the bar can be easily controlled.

5. Launch preparations

5.1. Laying out the kite

Unfold and lay out the kite, trailing edge facing the wind for a launch from the power-zone, or with the wingtip facing upwind for a launch from the edge of the wind window. Weigh down the kite with sand (if available; if not, any none piercing or blunt objects). Now unwind the flying-lines from the bar in a 90° angle to the kite. Finally check all of the kite's lines, pulleys and Safety-Systems for tangles, knots, sand blocking or previously sustained damage.



5.2. Pre-inflation

It is not essential to pre-inflate the PULSE. However a thorough pre-inflation gives you maximum control over the kite and helps in light wind starts.
There are many ways to pre-inflate a FS kite. The kite should remain calm, so that the pulleys don't tangle up with the bridle lines.

5.3. Connecting the safety

Attach the KITE-LEASH onto the harness spreader-bar. Make sure that the plastic clip is free of sand and has engaged properly to avoid unwanted release. You should be able to hear the clip lock in; otherwise optimal safety can't be ensured. **As a result of a too low breaking strength, the plastic clip is not suitable to be used as a depowerloop leash!**

6. Launching the kite

The PULSE is very easy to launch by yourself. Here there are various options and tips to bear in mind, too.
It is very important, that during launches the kite is fully depowered.
Pull the trimmer all of the way down and stretch out your arms and only pull the bar on one side to steer.
It is also recommended to first practice the various launching methods in light winds.

6.1. In light winds (Launching in the power zone)

To launch the PULSE in very light winds inflate it more than usual and start it from the power-zone. Hook into the harness and then grab the upper end of the trimmer with one hand.
Be careful not to accidentally pull on the safety-line at the same time. To launch the kite, pull the trimmer/depower-line with a prolonged tug towards you (you can also use a pumping action in light winds).
This launch technique also works very well in the water, if the wind hasn't got enough power to launch the kite on its own. In very shallow waters it is important not to walk back as not to sink the kite.

6.2. From the edge of the wind window

The launch from the edge of the wind window should be the standard method for launching a FLYSURFER kite. The main advantage being that you won't get dragged downwind as you would when launching out of the power-zone. This can be quite dangerous in strong winds and with lack of space downwind.

Lay out the kite parallel to the wind and weigh down the upwind wingtip (symbol of a hand). Now position yourself about 15-30° upwind of the kite. Hook into the sand-free SAFETY-LEASH and the depowerloop and slowly tension the downwind flying-line by steering the bar. Slowly move downwind as the kite starts to inflate. At some point the kite will start to stand upright on its wingtip, now slowly steer it upwards along the edge of the window into the zenith. Don`t panic! If the kite has enough time to preinflate you will be able to control it better. In order to launch the kite, you only have to give it a strong impulse, thus removing the sand from the kite, and then slowly steer it up in the air.

A helper might be supportive in terms of safety in particular (e.g. if the lines are not sorted properly or if you want to land the kite again for another reason). Though FLYSURFER recommends to launch the kite by weighing it with sand and not with a helper holding the kite.

6.2.1 Launching from the edge of the wind window with assistance holding the kite

Position yourself in away that the kite can be launched at the edge of the wind window. Make an instructed helper gradually hold the leading edge (not the lower wingtips) into the wind by grabbing the kite in the middle, until the kite stands up straight at the edge of the wind window. If the upper tip “overflies“ the helper in forward direction the kite is too close to the power zone. Move downwind until it reaches the edge of the wind window. If the kite collapses, it is outside the wind window. In case the helper lets go off the kite now, the kite would tumble into the power zone and develop high forces. Move upwind in order to launch it at the edge of the wind window. If the kiter gives the international sign (thumb up), the helper releases the kite. Thus the kite can be launched.

6.2.2 From the edge of the wind window without assistance or weighing it down

The trimmer should be slightly pulled. From the edge of the wind window without assistance or weighing it down. Position yourself directly upwind of the kite, as if you would launch from the power zone. Hook yourself into the depowerloop and keep the back lines and the PSS (Pull Stop System) handles pulled to stop the kite from launching prematurely. Once the kite is inflated enough, move slowly downwind until the kite is almost at the edge of the wind window and one of the wingtips is starting to fold slightly. Now let go of the back lines and immediately depower. As the kite launches steer it to the edge of the wind window just above the ground to reduce pull.

6.3. First launch in the water

To launch the kite in the water you should be an experienced FLYSURFER and the lines and kite should have been thoroughly wrapped up with pulled safety-line. You should first try these steps in shallow waters and in light winds.

Take the kite out of the bag and open it carefully. While unwrapping, face the leading edge towards the wind to help inflation. Keep the bar between your legs or hooked in the harness, so the bar can't fly into the lines.

All current FLYSURFER kites only require about 20% pre-inflation. Lay the kite on the water with the bridling and the trailing edge facing you. Carefully unwind the flying lines, as the kite drifts away from you. First attach, if possible, the SAFETY-LEASH and then launch the kite as usual by depowering.

You can now body-drag back towards your board unless you have kept it stored on your back in the kite bag.

ATTENTION:

This is a very advanced launching method and extreme caution should be applied at all times. A not properly pulled safety or floating lines can cause serious accidents and should only be performed by experienced FLYSURFERs, especially in stronger winds.

7. Flying of the kite

7.1. Steering

The steering of FLYSURFER kites works the same as on any other kite. For those who don't know how to steer and control a kite, it is strongly recommended to participate in a kite-course before attempting to use the kite. Kites can be extremely dangerous in untrained hands, not just for the user but also to innocent bystanders.
Pull on the left side of the bar to initiate a left hand turn and vice versa.

7.2. Power/Depower

To depower a kite, push the bar away from your body; to power up, pull the bar towards you. A depowered kite accelerates and moves further to the edge of the wind window. That's why it goes better upwind.

7.3. Trimmer

The trimmer adjusts the basic setting as well as the angle of attack on the kite and enlarges the range of the trimmer for more than an arm`s length. With a completely released trimmer and the bar fully pulled in, the kite is overly powered up or oversheeted. This might easily occur with softsteering adjustment and a heavy, wet kite. This causes the kite to fly backwards. We recommend that you only pull the bar in slightly when the trimmer is on the most open setting. If you power up too much and the kite is very wet and/or you fly it at the lower wind limit, it is possible for the kite to backstall = fly backwards and loose its lift. In this scenario, immediately depower = arms out and if necessary pull in the trimmer and change to hardsteering. To depower the kite more in strong winds (less angle of attack) pull on the larger, yellow handle. To power up the kite some more (more angle of attack) pull on the smaller blue handle. In light winds you will generally power up the kite some more with the trimmer further out.

8. Jumping with current FLYSURFER kites

There are many different ways of jumping. The kites jump very direct and simple. They have particular stability, which lets the kites sail on for some time and that gives them the chance to catch themselves. Ride with medium speed at about 90° to the wind. Steer the kite fast and fully depowered into its zenith and then back hard (around 11:00 to 11:30). Wait until the kite has passed the zenith and then power up the kite to its maximum.
Before you lose the edge fully power up and jump up simultaneously and steer the kite into the zenith. Shortly before you land depower in the direction you are going, in order to land smoothly.
When using the Pulse, particularly, it is important to effectively use the power/depower system and to have the kite fully powered while jumping.

9. Kite control in extreme situations

Dangerous situations can often be avoided in advance. It is very important to stick to some basic safety guidelines and if in doubt, not to launch the kite.
However, if you find yourself in an extreme situation, it is important not to panic and react quickly and decisively. We strongly recommend that you practice the use of the Quick Release in order to automate the procedure. This way you will react faster and remain in control.

9.1. Flying the kite in the zenith

FLYSURFER kites are at their most stable in the zenith! However, that's also where you are in the greatest danger of being lifted. Compared to other kites with less depower the danger of being lifted has been extremely reduced thanks to the MPDS. The recent FLYSURFER kites are also very stable at the edge of the wind window, when there is enough wind.

9.2. Being lifted on the beach

It is important to leave enough space downwind of you and to constantly keep an eye on the weather. If you "park" the kite at the edge of the wind window you can avoid being lifted. If a strong gust catches you unaware, directly use the safety system by pulling the quick release at the depowerloop to reduce the lift. Make sure there is enough tension on the lines to avoid the kite from overflying and making a frontstall. When the kite is in the zenith and you are about to touch down, gently power up to soften your landing.

If you get lifted up very high, keep the kite as still as possible and fully depowered (pull yellow strap if necessary) in its zenith (leading edge facing the wind). Don't panic! You actually have a small paraglider on top of you and you will be able to control your flight with gentle steering impulses.
The Quick Release has to be pulled immediately after touching down.

9.3. Kite "Luffing" (danger of frontstall)

If your kite over-flies (e.g. in gusty conditions), it is possible to get it back by either powering up or steering it to the side. It may be possible to power up more by pulling the PSS (Pull Stop System) handles or one of the steering-leader-lines, than when powering up with the bar. If you cannot prevent the kite from over-flying, the kite may collapse. Your FLYSURFER kite is very stable, so this will rarely happen.

9.4. Kite collapses

If the kite collapses, this is called front-stall or luff. Fortunately, you have a FLYSURFER kite and you will notice this phenomenon more often when watching other kites. Generally, if a kite luffs you can re-open it while falling. In case there are dangerous obstacles downwind you should unhook and let go of the bar or pull the Quick Release, provided you use the FDS as safety. Though hold on to the Quick Release, in case you have to let go of the kite because of a dangerous obstacle. Make sure there are no persons downwind!
A kite that re-opens in the middle of the power-zone can develop enormous forces, which can exceed the structural limits of harness, kite or rider. If the kite collapses whilst riding, it is most likely that the conditions are too gusty for your ability and you are better off waiting for the conditions to improve.

9.5. Kite is about to impact on land or water

If the kite hits the ground or water at speed in the middle of the power-zone, it is possible that it will explode, especially if you don't release the kite's pull. In these situations try to unhook in time and let go of the bar (pull Quick Release if necessary). If you haven't got enough time for this, actively reduce as much pull in the lines as possible before impact, so it isn't a frontal impact.
Fortunately, all current closed FLYSURFER kites have overpressure valves, so that the short discharge of overpressure makes them lighter and more robust than any other kite system on the market.

10. Relaunching the kite from the water

There are different ways of relaunching a FLYSURFER kite from the water.
Here we describe a few. On our homepage www.flysurfer.de or on our DVD you will find some videos with further techniques for relaunching the kites.
For whom this is too complicated: The kites have three steering-lines and a pull on one of the three lines will launch it!

10.1. From the trailing edge

If the kite is on the water trailing edge down, simply fully depower (pull the trimmer if necessary) and it will launch by itself.
If the wind is too strong for a power-zone start, only depower on one side and fully pull on the other side. That way, the kite turns and you can restart it at the edge of the wind window (chapter 10.4.).

10.2. From the leading edge

If the kite is in the water, leading edge down, you have various options to relaunch it.
Important: Don't get tempted to turn the bar because of the crossed over flying-lines. The green side is still on your right!

10.3 Relaunch in the power zone (in light winds only!)

By pulling both of the Pull-Stop handles the kites can be launched backwards. Pull both handles towards you until the kite lifts up about 10 m. Then let go of one handle. Now the kite turns on the spot. If the kite shows upwards you have to let go of the second handle. Catch the bar to be able to steer the kite again.

Tip: If the board is already strapped to your feet and you are holding it in front of you, you can avoid the body drag and keep going when you launch the kite. In addition, you can also build up the necessary counter-pressure for launching in weak winds, if you have the board in front of you. In very weak winds, you can pull on the steering-leader-lines, to give the kite a launching impulse.

CAUTION:
Relaunching in the powerzone can be very damaging to the material in strong winds, because high pressure can develop on the lines and the kite.

To prevent you from body dragging in strong winds and from a power-zone start you can fully depower with the PULSE. The best thing to do to is to additionally fully open the trimmer.

10.4. Relaunch from the edge of the wind window (in stronger winds)

Grab one of the two Pull-stop handles and pull gently so that the kite starts to move to one side. Make sure that the other side is depowered, in order to ease the movement of the kite to the edge of the wind window. Just before the kite reaches the edge of the window pull the line all the way. The kite will stand up and launch with little pressure.
If it doesn't stand up despite there being enough wind and you having pulled in the line correctly you can steer the kite back by pulling the other leader line. With the next launch try to pull on the line earlier.
It might be helpful to pull the trimmer before launching from the edge of the wind window. It could also be useful to pull the entire trimmer towards your body during a relaunch. That way, the kite moves to the edge of the wind window more easily.

If the kite has reached the wind window you might pull in the Pull-Stop handle, until the kite has collapsed. With the hep of the wind it opens and being depowerd, it can be easily relaunched at the edge of the wind window.

ATTENTION:
Never wrap the lines around parts of your body. This is particularly true of the very thin flying and bridle-lines. Extreme danger of injury!

10.5. Quick launch

If you pull sharply on the leader-line it is possible to turn the kite on its spot so that it will launch in the power-zone (light and medium wind).
Experienced kiters can even launch the kite before having stopped "planing".

CAUTION:
In strong winds and when there are obstacles downwind of you, you should avoid using this launch method.

10.6. Kite doesn't launch anymore, you start drifting away

If you are unable to re-launch the kite and you start drifting away, it might be necessary to disconnect yourself from the kite before you drift too far and are unable to swim back to the shore. Once back you can always get a boat and salvage the kite. Main thing is that you are safe.

If you judge the situation correctly and early enough, whilst still close to the shore you might be able to rescue yourself and the kite. In this case you wrap up the kite as you would on land, but you must be careful not to get caught in the lines. First, activate the Pull-Stop-System (if available, in any case pull the SAFETY-LEASH all the way through) and keep the lines under tension, then start to wind them onto the bar. Once at the kite, open the air outlet zipper and wind the kite around the bar. Try not to throw the bar into the lines.

If the wind is blowing only slightly off-shore, direct the kite to the edge of the wind window by pulling on the shore-side leader-line and see whether it has enough pull to get you back. If you only have to swim a short distance to the shore against the wind, it is enough to pull the kite with the activated Pull-Stop-System against the wind.

10.7. Being rescued with FLYSURFER kites

Experienced FLYSURFER riders can try to rescue others, who have got themselves into trouble, can't re-launch their kite (e.g. snapped line …) and drift out to sea. This is always a little tricky and should only be attempted in safe conditions and from very good riders. The rescuer should also have a line-cutter to free himself from tangled lines.

It is important, that the to-be-rescued rider's kite hasn't taken on too much water, as this makes a rescue almost impossible (anchor). The rider about to be rescued should detach him/herself from the kite. The rescuing rider cautiously approaches from upwind of the none re-launching kite. Whilst sailing past, the rescuing rider will attempt to grab the wingtip nearer the shore and drag it behind him. If successful he/she can sail back to the shore, dragging the kite behind him/her. Here it is very important that the rescuing rider is extremely cautious not to get tangled in any of the lines.

In case the kite is pumped up with water, which makes it impossible to pull it off the water start with one side and make the water gradually run into one of the wingtips. There it gets the chance to drain. Even in shallow water you might drain every FLYSURFER kite.

IMPORTANT: Look after yourself first. If you put yourself into danger when attempting to rescue someone else, try and seek help from others.

11. Landing

11.1. At the edge of the wind window

Basically every kite is caught by a helper at the edge of the wind window. Especially, if there are strong winds and very little room downwind.
Fly the kite at the edge of the wind window slightly above the ground and let a competent helper catch it. The helper will approach the kite from upwind, grab the lower wingtip and pull it towards him/her. You should now walk toward him to relieve the tension in the lines and still leave some tension in the upper line to assist the helper in letting the wingtip blow out downwind. The helper lays the kite on its upper sail and weighs down the wingtip on the leading edge (marked by the symbol of a hand) e.g. with sand.

The secured kite should be avoided from twirling around in strong winds, because the lines could get tangled up.
This could be achieved by releasing the air of the kite. Thus the kite is secured and all set for a quick relaunch without assistance.

11.2. Power zone with FDS

The PULSE can be landed in the power zone by means of the FDS. Check that the landing spot is free of people and obstacles. Make sure that the FDS-line runs loose and the Safety is correctly hooked into the FDS. Then unhook and let go of the bar (in an emergency pull the Quick Release on the depowerloop). Once the kite has landed, it can be secured by a helper or you can let it blow against a suitable object where the wind should pin it down. Otherwise secure the SAFETY-LEASH onto a solid pole, rock etc. The kite should then be secured immediately; to make sure it doesn't restart. If there are no suitable objects near you it is possible to tie the safety to a board buried in the sand/ snow (only suitable for light winds). Then quickly run up to the kite outside of the lines and secure it additionally.

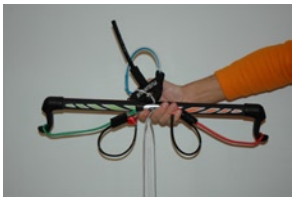
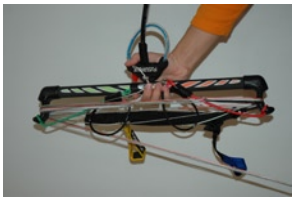
In light winds the kite can be landed from the zenith by strongly pulling both Pull-Stop handles. Thus the kite backstalls and flies backwards. The kite lands on the trailing edge.

To land a kite by means of one PSS handle (let the kite blow out) we recommend in particular with strong winds in emergencies only. Thus it is difficult to relaunch the kite, and the stress at a point only might damage the kite.

12. Packing and storing your kite

1. Weigh down the upwind wingtip with something heavy (e.g. sand) and open the zippers in the middle between the valves.

2. Keep all the leader-lines together and wind the steering-leader-lines up in a figure of eight around the winders on the bar. Then wind up the flying-lines until you get to the pulleys of the bridle-lines. Now secure the lines with a half hitch.


3. Take the downwind wingtip and place it on top of the weighed down wingtip. Throw the lines inside the kite, so that you can place the bar on top of the two wingtips and start rolling the kite all the way around the bar.

4. **IMPORTANT:** Never place the bar on top of the kite's underside, (where all the bridle-lines are attached) as this can quite easily result in knotted and tangled bridle-lines.

5. Now simply fold over the flexible ends of the kite which overhang the bar and put it in its bag.



13. Tuning Tipps

13.1. MULTIWAC-System

By easily shifting the so called WAC-line at the knots between hard- and soft steering setup the steering forces can be changed to a large extent. There are 5 different setups: full soft, soft, half soft, medium, half hard and full hard.
By shifting, the position on the bar from where the holding and steering forces increase (called pressure point) gets harder with each knot and is thus moves upward by 8 cm. This means the kite`s pressure point is reached earlier.
With soft steering setup it can`t be achieved by simply powering up. Make your decision according to your personal preference.

Most of the kiter, who just started flying FS kites prefer standard or a harder setup, as you can easily feel the pressure point.

If you are able to fly your kite without watching it, you might prefer the softsteering setup, as you can easily steer the kite with one hand (e.g. waveriding). Soft steering setup makes kitesurfing less tiring.

With handles we recommend full soft steering, as the forces effective are extremely high.

13.2. Variable Line Length (VLL)

The PULSE has flying lines of 3 m, 6 m und 12 m, which add up to 21 m in length. Thus the line length can be adjusted in 3 m intervals according to your own preference, the spot or the conditions. FLYSURFER kites have the advantage that, due to their briddle lines, they don`t lose their projected surface, even if the lines are shortened.

In order to shorten or enlarge the line length you have to unloop them. Make sure, that the Easy Line Connectors are tight when you put them back together! The standard length is the best compromise for light winds.

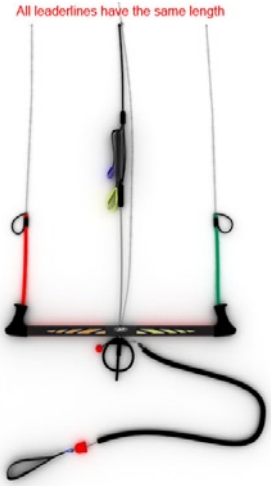
Sortened flying lines are important for waveriding or courses, as the kite clearly becomes more direct. The potential of danger, caused by long lines, clearly decreases. Although, in light winds it is quite difficult to start in the water with small boards in particular. The PULSE flys extremely well with short lines.
If you want to enlarge your flying lines you just have to buy 4 extension lines of the same length.

If you apply additional line extensions, the kite will be more powered as a result of the higher stretch of the front lines. Therfore use extremely low-stretch lines only, as offered by FLYSURFER. Shorten the depower leader line at the bar by about 5 cm, to be able to depower the kite more when applying 10 m of additional lines. With increasing line length the steering becomes more and more indirect.

Length	Effects	Optimal for
Shortened	Due to decrease in wind window size faster change of kite position is possible. The kite gets a more direct feel. Less room to move the kite and closer proximity to water surface. Especially when close to the water surface, underpowered riding is more difficult.	more control when overpowered, especially in gusts tight locations wave kiting more safety due to more direct kite control reduced risk for lifting
Standard length 21 m	most optimal compromise	all-round performance
Additional lengthening	Due to increase in wind window size change of kite position in the window is prolonged. Therefore it is easier to keep the kite in motion in the window when underpowered. If wind strength stronger at higher kite elevations, light wind performance is additionally enhanced. Responsiveness is markedly reduced e.g. in gusts.	underpowered cruising in certain conditions more hang-time

13.3. Depower-line adjustment

Adjustments to the depower-line can be made to suit your preferred arm length position on the bar. Simply adjust the rope at the bottom of the trimmer to the desired length. It is important that you adjust the knot at the lower end of the depower-leaderline to compensate for the shorter or longer length of the line between the trimmer and the bar (depower-line). If you shorten the rope you must move the knot at the end of the depower-line up, and down if you lengthen it.



14. Wind ranges of the PULSE (for a very good 75 kg rider with a choice of board apapted to the wind)

PULSE 5.0	PULSE 7.0	PULSE 10.0	PULSE 13.0	
5	5	5	5	min. wind
5 - 13	5 - 11	5 - 9	5 - 8	under powered
14 - 42	12 - 35	10 - 30	9 - 26	normal powered
42 - 54	36 - 47	30 - 38	26 - 33	over powered
1:7 + FDS	1:7 + FDS	1:7 + FDS	1:7 + FDS	depower effect

The over powered range should be strictly avoided – even short gusts – by not experienced riders. The potential of danger increases unproportionally in the upper wind range.

Wind conversion table

Beaufort	Knoten	km/h	m/s	mph
1	1 - 3	1,1 - 5,4	0,3 - 1,5	0,7 - 3,5
2	4 - 6	5,5 - 11,9	1,6 - 3,3	3,6 - 7,5
3	7 - 10	12,0 - 19,4	3,4 - 5,4	7,6 - 12,2
4	11 - 15	19,5 - 28,4	5,5 - 7,9	12,3 - 17,8
5	16 - 21	28,5 - 38,5	8,0 - 10,7	17,9 - 24,0
6	22 - 27	38,6 - 49,7	10,8 - 13,8	24,1 - 31,0
7	28 - 33	49,8 - 61,5	13,9 - 17,1	31,1 - 38,3
8	34 - 40	61,6 - 74,5	17,2 - 20,7	38,4 - 46,4
9	41 - 47	74,6 - 87,8	20,8 - 24,4	46,5 - 54,7
10	48 - 55	87,9 - 102,2	24,5 - 28,4	54,8 - 63,6
11	56 - 63	102,3 - 117,3	28,5 - 32,6	63,7 - 73,0
12	> 64	> 117,4	> 32,6	> 73

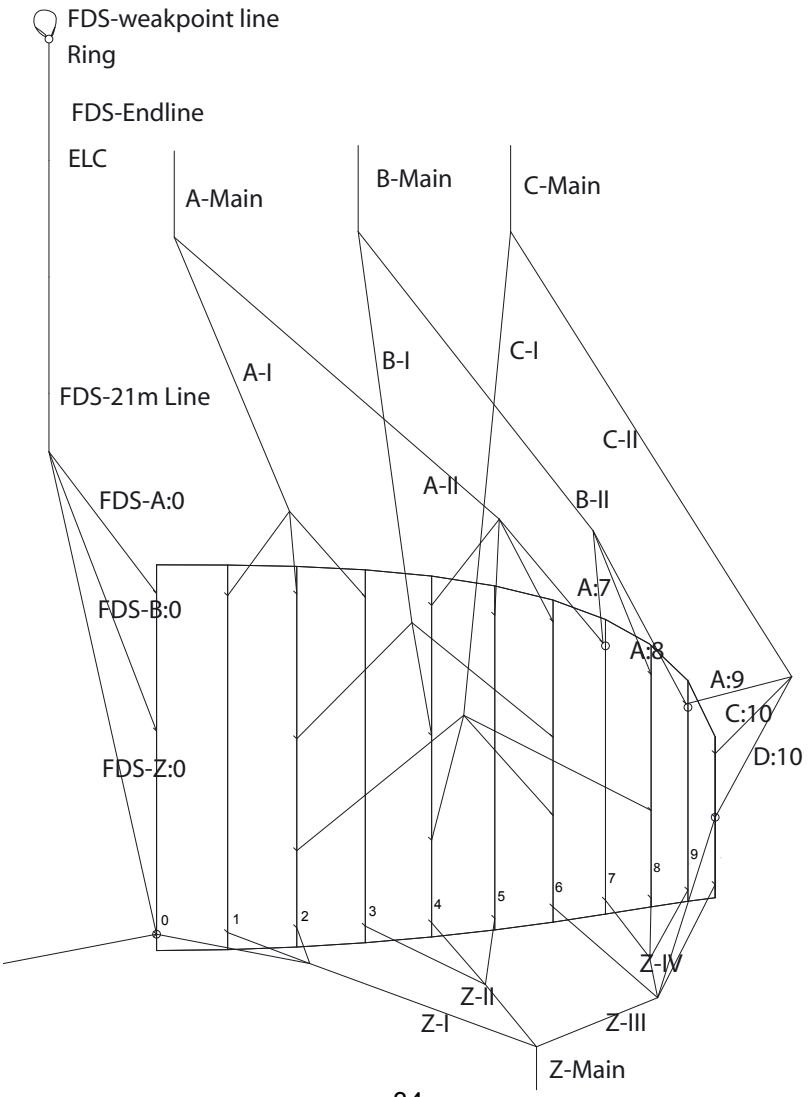
15. Line setup and lengths

The following line setups are only patterns!
The current line setup for your kite can be found on our homepage:

www.FLYSURFER.de

On our homepage you can order all the lines online.

Line setup PULSE 5.0 – 13.0



The flying-lines (max. POWER/DEPOWER LINES-SYSTEM MPDL)

The flying –lines of the PULSE all consist of single pieces of 12, 6 and 3 meters. That way, you can reduce the line lengths in 3-meter-intervals from 21 m to 0 m.
All lines have been pre-stretched. Nevertheless, the depower-flying-line will become about 5 cm longer than the steering-lines, due to the higher load when in flight. The trimming of the kite has been adjusted to this stretching of the depower-flying-line.
The so-called mixer is attached to the flying lines. It use the steering impulses of the front and back lines and steers the A-, B-, C- and Z- or braking level.
The lines guided over the pulleys are wear and tear parts of course. These 150 cm spare part lines are made of special minimally pre-stretched Dyneema, in order to to keep the shrink as small s possible. To achieve an optimal flight performance we recommend to implement the mixer test after about 50 flight hours, to guarantee an optimal trim of the kite throughout the years.

MIXER TEST:

To be able to control the trim of the PULSE you can easily apply the mixer test no matter where you are.
For this you have to fix the Front Main and Front Back lines at exactly the same length. Then you can control if A-, B-, C- and Z-Main end at the same place under a load of about 5 kg.

If there is a difference you can correct the length by moving the knot at the pulley of the B or C-Main Line. Before repeating the mixer test, you have to pull the knot close with the full weight of your body to avoid it from moving.

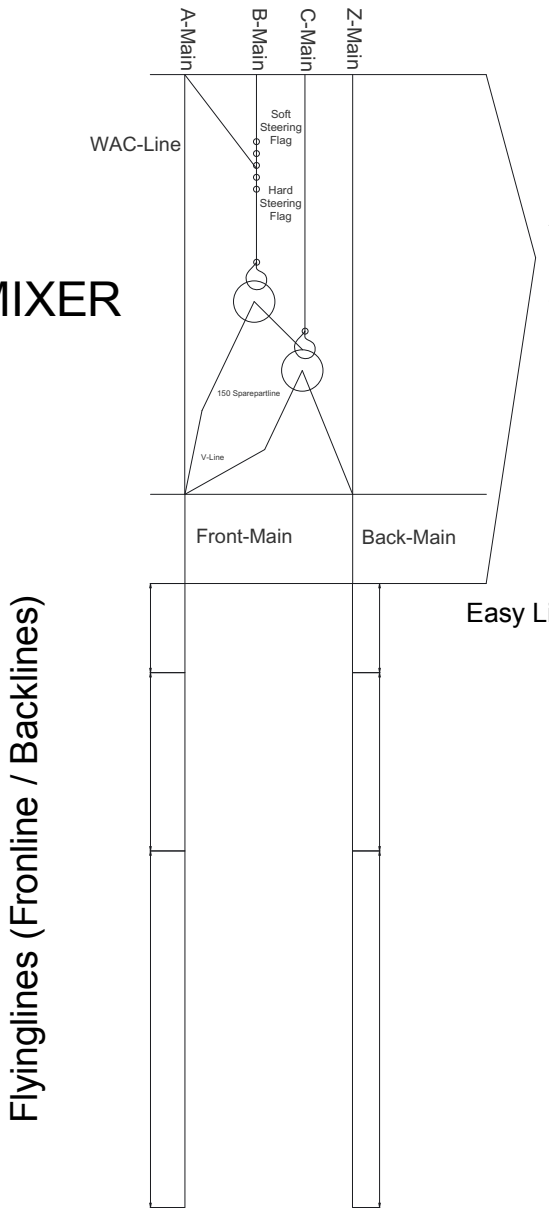
As soon as the mixer trim is realized successfully the flight performance of the kite is perfect again.

The spare part line is overdimensioned by a factor of five. We recommend to exchange extremely worn spare part lines with original minimally pre-stretched DNV500 lines. You can order these lines online at www.FLYSURFER.de or with your authorized dealer.

If the B-Main or C-Main are too loong the PULSE becomes instable and might frontstall.

If the B-Main or C-Main are too short the PULSE might backstall.

MPD = Max Power/Depower Linesystem



MIXER

Mixer Check:
A, B, C, and Z-Main end at the same level, if you have Front-Main and Back-main fixed at the same position.

Easy Line Connectors (ELC)

Flyinglines (Fronline / Backlines)

16. Maintenance and repair

16.1. General care

FLYSURFER kites are extremely UV- and saltwater resistant, as well as very tear resistant. However for maximum durability a few things should be pointed out:light.

16.2. UV-Licht

Even though the fabric has been tested for UV-resistance, we advise not to expose the kite to unnecessary UV-light (e.g. leave it in bright sunlight.

16.3. Saltwater

The material has also been tested against saltwater. However, the kite can still be rinsed out with fresh water on the inside and outside from time to time (e.g. after a vacation) and then let it dry in the shade.

16.4. Sand

Sand is relatively rounded, so it is not particularly harmful to the FS kite. Glass or other sharp or abrasive objects found on the beach can cause severe damage. Sand which enters the kite will work its way to the wingtips, and will be removed automatically from your FLYSURFER kites.

16.5. Moisture

If a kite is stored wet and in a warm environment, it is possible for mildew to develop. This won't damage the kite but leaves ugly, dark stains. In extreme circumstances it is possible for the kite to rot. Moisture can cause discolorations of the fabric.

16.6. Cleaning

Only clean the kite with clear freshwater. All uses of chemical products can weaken the material and invalidate the warranty.

16.7. Wear and tear parts

Generally speaking, all moving parts are wear and tear parts.
FLYSURFER only chooses material with the highest quality standards. We are constantly developing our materials further to provide our customers with maximum safety and product quality. This aside, all kites should be regularly checked for signs of wear and tear.
After the kite has been exposed to heavy loads, you should thoroughly check all affected parts to make sure that none of them have been weakened and/or show excessive signs of wear and tear. When jumping, weakened parts can be dangerous especially on land or in shallow waters.

The FLYSURFER team recommends you to additionally check the kite thoroughly after each 50 flying hours as well as to implement the above mentioned mixer test.

IMPORTANT: A kite should be viewed as a flying machine and like all flying machines needs a regular, thorough check-up to ensure its safe usage. We recommend that a specialist also performs a thorough safety check on your kite at least once a year.
Being a flying object, the check of the kite is indespensible for your safety as it is with other flying objects. Additionally, we recommend you to check your kite annually in terms of safety by an expert.

Particularly essential wear and tear parts:
All knots on the line-system should be checked before your first flight and after a few hours of use, if they are secure.

Also the spare part lines, which run through the pulleys, should be checked for signs of wear and should be replaced, if necessary with original, lightly pre-stretched DNV Dyneema lines.

Check that the pulleys are running freely and whether they show signs of wear.
Replace if necessary with originals or pulleys of >500kg braking strength. We strongly recommend only using original pulleys, which can withstand the loads developed by the kite.

Also check all connections of the kite's line-system for weaknesses and replace if necessary with original parts.

We recommend to use the original depowerloop line as it has an additional 500 kg Dyneema-core for double safety.

16.8. Repair (with glue or sticker)

Make sure that the damaged area is clean, dry and free of grease.
Cut a piece of repair-cloth in the correct size, thinly but evenly spread the glue (glue is quite runny) across one side and stick over the damaged area. Leave it to dry and you're ready to go.

TIP: When using glue during a repair, make sure not to accidentally stick the inside cross ribs or the upper and lower sails together.

Quick repairs are possible by using self-adhesive spinnaker repair tape. Stick the correct size piece of self-adhesive tape to the inside of the kite. This type of quick fix won't last indefinitely and should in time be replaced with a proper repair. At least your day out on the water is saved.

16.9. Little Connection Lines (LCL)

Each connecting point on the kite is attached by the 1 cm long, so-called Little Connection Line with a knot at the end. These are helpful during repairs, so you can simply open the lines on the kite. They are very tear proof, white (ca. 45 kg) / black (ca. 30 kg), so they mostly prevent a destruction of the canopy.
Replacements for the Little Connection Lines are enclosed with every kite.

17. FLYSURFER FREE REPAIR GARANTIE

Flysurfer will take over the repair (within the first 6 months after purchase) at no charge for all end customers in several countries (please visit www.free-repair.com for detailed information), who use their FLYSURFER kite for private and recreational activities. Commercial use, such as schooling or rental, as well as careless or deliberate damages (e.g. crashing into obstacles, etc.) are excluded from this guarantee.

Terms and conditions:

- The guarantee is excluded for commercially used kites, such as schooling or rental, as well as careless or deliberate damages (e.g. crashing into obstacles, etc.)
- In order to be eligible for the FREE-Repair guarantee, the customer must register in the internet under FREE-REPAIR.com within 2 weeks after purchase, with a correctly filled out warranty card. False statements about the date of purchase or dealer name will result in loss of the FREE-Repair guarantee for all skywalk/FLYSURFER products of the customer.
- All warranty claims expire, if a FLYSURFER kite is not repaired within the guarantee period by FLYSURFER or a workshop, which has been authorized by FLYSURFER.
- The FLYSURFER kite repaired by FLYSURFER, will be sent back (not prepaid) within 4 weeks. If the repair takes longer, a comparable paraglider or kite may be supplied by FLYSURFER for the additional time at no extra cost. If desired, a rental kite can be obtained against payment for the period of repair.
- All costs and risks for transports (damaged kite to FLYSURFER, return of the repaired /kite, possibly rented equipment to and from the customer) are the responsibility of the owner.
- After claim of the guarantee, the warranty period will not be renewed, not even if FLYSURFER exchanged the craft for a new one.
- The service of other deficiencies or damages, especially subsequent damages and fulfillment interests (literal) etc., are excluded.
- Violation of the terms and conditions of the guarantee will result in loss of the warranty claim.
- The guarantee by law is not limited in any way through the additional FREE-Repair guarantee.

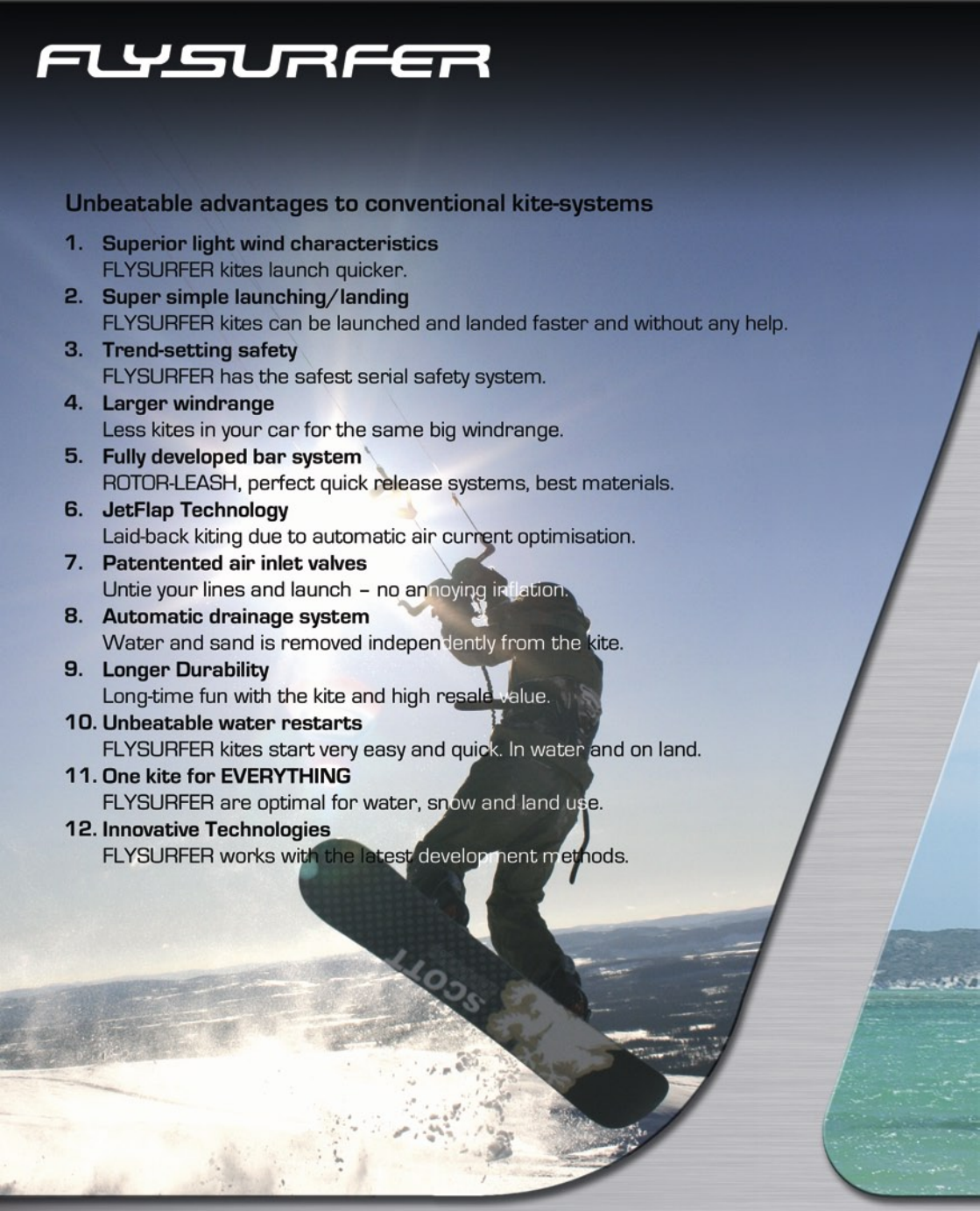
In the event of damage, you should first contact Info@FREE-REPAIR.com or call +49 8641 6948 42. Then, the clean, dry and sand-free paraglider/kite should be sent to:

skywalk GmbH & Co. KG
Bahnhofstr. 110
83224 Grassau

FLYSURFER

Unbeatable advantages to conventional kite-systems

1. **Superior light wind characteristics**
   FLYSURFER kites launch quicker.
2. **Super simple launching/landing**
   FLYSURFER kites can be launched and landed faster and without any help.
3. **Trend-setting safety**
   FLYSURFER has the safest serial safety system.
4. **Larger windrange**
   Less kites in your car for the same big windrange.
5. **Fully developed bar system**
   ROTOR-LEASH, perfect quick release systems, best materials.
6. **JetFlap Technology**
   Laid-back kiting due to automatic air current optimisation.
7. **Patentented air inlet valves**
   Untie your lines and launch – no annoying inflation.
8. **Automatic drainage system**
   Water and sand is removed independently from the kite.
9. **Longer Durability**
   Long-time fun with the kite and high resale value.
10. **Unbeatable water restarts**
    FLYSURFER kites start very easy and quick. In water and on land.
11. **One kite for EVERYTHING**
    FLYSURFER are optimal for water, snow and land use.
12. **Innovative Technologies**
    FLYSURFER works with the latest development methods.



skywalk GmbH & Co. KG
BAHNHOFSTR. 110
83224 GRASSAU
GERMANY

TEL.:+49 8641 6948-30
WWW.FLYSURFER.DE
INFO@FLYSURFER.DE

PULSE